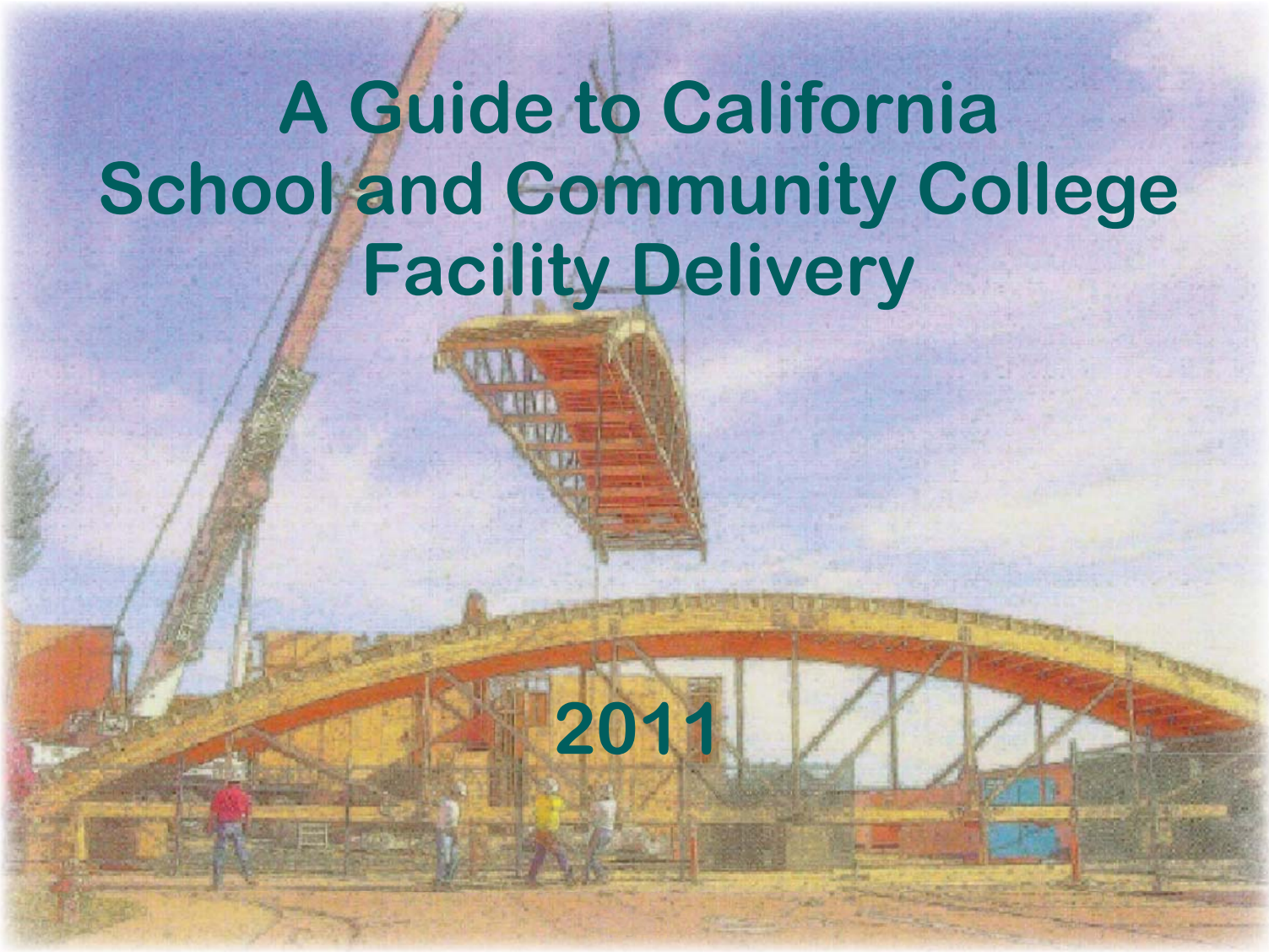
ACCM
Association of California Construction Managers

Project Delivery Handbook

A Guide to California School and Community College Facility Delivery



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PREFACE

All delivery methods have advantages and disadvantages. Different projects can have different delivery methods. The project should define the method, not vice versa.

This Handbook was produced by the Association of California Construction Managers (ACCM) for use by California School District and Community College District staff and Board Members. The ACCM Handbook gives a practical outline of services provided by Construction Managers (CM) and a useful description of the various delivery methods of educational facilities available to districts.

While Construction Management services are utilized in a variety of construction sectors, they are increasingly sought out by school and college administrators as a way to ensure that trusted professionals are available to support staff resources. The members of ACCM are leaders in the field of managing educational facility construction.

The ACCM Handbook provides an independent resource for districts trying to choose from among the diverse project delivery services that are available. The need for this Handbook stems from ACCM's recognition that there is no single project delivery method that meets all individual needs. Each of the contributing editors has a preferred delivery method. However, the ACCM members recognize that the appropriate delivery method for a particular project will depend on a variety of unique circumstances. This guide provides a description of each delivery method, advantages and disadvantages, reasons for selecting a particular method, and simple steps to implement each method. In addition, the ACCM Handbook provides a project delivery selection matrix that districts may use to compare and contrast individual delivery methods with particular district needs.

We wish to extend our appreciation to the ACCM Board of Directors for their support and encouragement on this project. We especially wish to thank the drafting committee for their writing, reviewing and wrestling with what is an appropriate outline of education facility delivery methods in California. Those individuals who offered their time and perspective are:

Paul Bonaccorsi – WLC Construction Services, Inc.;
Richard Cowan –Davis Reed Construction, Inc.;
Ed Mierau – Neff Construction;
Terry Street – Roebbelen Contracting, Inc.;
Kris Meyer – Ledesma & Meyer Construction Co., Inc.

Users of this Handbook should remember that it is important to contact each of the State Agencies involved in the approval of education facilities early in the process. Each of these agencies is staffed by knowledgeable professionals who take pride in their contribution to building school facilities.

K-12 School Districts should contact:

Division of the State Architect, Department of General Services, State Architect: www.dsa.dgs.ca.gov

School Facilities Planning Division, California Department of Education, Division Director: http://www.cde.ca.gov/ls/fa

School Property Evaluation and Clean-Up Division, Department of Toxic Substances Control, Division Chief: www.dtsc.ca.gov/Schools

Office of Public School Construction, Executive Officer: www.opsc.dgs.ca.gov

Community College Districts should contact:

College Finance and Facilities Planning Division, California Community Colleges Chancellor's Office, Assistant Vice Chancellor: http://www.cccco.edu/divisions/cffp/facilities/facilities.htm

HOW TO USE THIS HANDBOOK

This ACCM Project Delivery Handbook provides tools for understanding what Construction Managers (CM) do (Chapter 1); comparing delivery methods (Chapters 2 through 8); and selecting an appropriate delivery method for a specific project. Comparing delivery methods allows a school or college district to analyze the resources and capabilities available to them on a specific project. This analysis puts the district in a position to achieve its facility construction goals on time and within budget.

This Handbook encourages early analysis of risks and resources. It also recognizes that any delivery method chosen will benefit from a collaborative process. Even where the delivery method itself may suggest potential partners, (eg. Design-Bid-Build; Developer Built Projects), retention of a CM to act as the district owner's agent can result in pre-construction collaboration among the district owner, architect and a construction professional.

There is no one perfect delivery method for every situation. Just as each project has a number of common elements along with specific unique challenges, each delivery method also offers the user advantages and comes with some disadvantages. Before choosing a project delivery method, there are a number of factors that each district and their delivery team should consider when evaluating which method best suits a specific project.

While reviewing this information, the district needs to be aware of the following factors that may influence which method they may choose.

1. District staff capabilities;
2. Time considerations;
3. Complexity and size of project;
4. Level of district control desired;
5. Type and size of contractors that you want to attract;
6. Project budget and funding;
7. Predominant trade practice in region;
8. Openness to alternative methods;
9. Appropriate community and business participation; and
10. Level of acceptable legal and financial risk.

Chapter 1 WHAT IS CONSTRUCTION MANAGEMENT?

Construction Management is a professional service that utilizes proven management techniques during the planning, design, construction, and post-construction phases of a project for the purpose of controlling the three major components of time, cost and quality. Construction Management is a service that specifically was created to promote the successful execution of capital projects for districts. These projects can be highly complex or simple in scope. A key distinction between Construction Management and other contractor services is that because the Construction Manager (CM) provides a professional service, a CM need not be selected on a low-bid basis but may be selected on a best value basis as is an Architect or other professional.

The best practice and best value is to hire the CM and define the project delivery methods early so that the entire project can be completed in the shortest time at the lowest cost with the highest quality. Selecting the right delivery method will depend on the nature of the district's available staff expertise, tolerance for risk, ability to make early decisions and the complexity of the project.

Construction Management is the practice of professional management applied to the planning, design and construction of projects from inception to completion for the purpose of controlling time, scope, cost and quality.

(Please see Glossary for definition of Program Management and Project Management)

There are a range of professional services that a CM can provide to assist in the facility construction process. The following is a comprehensive list of services available at each of the five principal stages of facility construction ranging from Planning to Post-Construction.

Planning and Pre-Design Stage

- Prepare facility master plans, including condition assessment, site and community needs assessment and analysis of demographic projections.
- Assist with design procedures and district standards.
- Site selection analysis and acquisition.
- Develop the program/project management plan to document program/project characteristics and performance requirements.
- Develop a project management plan to include procedures for team communication, review, reporting and approval.
- Facilitate a collaborative team of professionals.
- Develop and implement strategies to interact with the public.
- Develop preliminary scope and budgets.
- Determine total funding requirements.
- Establish and implement management information and reporting systems.
- Establish and monitor master budgets and schedules.
- Conceptual estimating services.
- Assist in procurement of consulting services, including developing RFP/RFQ, interview process, and contract negotiations.
- Develop phasing plans.
- Develop bidding strategies.
- Prepare front end specification documents.
- Create websites for reporting to community.

WHAT IS CONSTRUCTION MANAGEMENT?

Design Stage

- Develop and implement detailed design schedules.
- Develop detailed component cost estimates at every design submittal.
- Resolve design team constructability questions.
- Perform value engineering and life cycle cost evaluation.
- Perform bid-ability and constructability reviews.
- Develop contract document requirements for safety program.
- Review design for each phase of Architect/Engineer submittal.
- Assist with agency site review and approval process.
- Assist with funding applications and reporting process.

Pre-Construction and Procurement Stage

- Bid marketing services and creation of pre-qualification procedures.
- Perform community and contractor outreach.
- Implement contract award process.
- Conduct pre-bid conferences.
- Coordinate bid process.
- Develop complete bid documents to assure responsive bids, while avoiding protests.
- Create construction phase procedures.
- Assist in reviewing and analyzing bids and selecting contractors.
- Assist with agency review and approval process.

Construction Stage

- Perform construction administration – monitoring, processing, reporting and evaluation of construction activities.
- Serve as the owner's representative and coordinate with other owner consultants.
- Conduct progress meetings to review and facilitate resolution of any items that may impact the construction process.
- Perform construction scheduling – creation of preliminary schedule, review and impact analysis of contractor's schedule.
- Manage change orders (evaluation, recommendation and processing).
- Monitor the construction process to anticipate difficulties, resolve issues early, and keep work flowing – (daily progress logs, videotaping and digital photography).
- Administer progress payments to assure that work milestones are met and that expenses are paid in a timely manner.
- Monitor the project site to ensure that the contractor provides a safe environment.
- Coordinate punch list activities.
- Coordinate quality management (inspection services and quality assurance).
- Coordinate outside agency activities and interactions with the construction process.
- Perform cash flow projection.
- Manage occupancy of new school.

Post-Construction Stage

- Manage compliance with closeout process.
- Manage commissioning and start up.
- Manage warranty programs.
- Perform agency and contract closeout, including reconciliation with budgets.
- Administer claims management and mitigation.

SELECTING A CONSTRUCTION MANAGER

When the district decides that its staff can not or should not manage a new school project, we suggest the district consider Construction Management. We recommend that the district prepare a Request for Qualifications or Request for Proposals (RFQ/RFP), advertise and/or send an RFQ/RFP to qualified firms. ACCM provides a model RFQ/RFP at: http://www.accm.com. We also suggest that a CM be hired early in the planning stages for the best results. This should be done at the same time as the district is hiring the Architect. It is difficult to form a relationship in a month or two for a construction period of one to three years.

A good resource for contract reviews is the AIA contract for Construction Managers, AIA B801/CMa and AIA B141/CMa. The CM and Architect are considered professional service providers for the Client/ District, not contractors, and clarity of the services is important from the beginning.

Once a CM is hired, there needs to be:

a. Clear definition of the scope of work for all district consultants.
b. Clear definition and agreement of the TOTAL project budget.
c. Clear definition of the master project and construction schedules.
d. Single point of contact for project decisions and district coordination for the Pre-Construction and Construction Phases.

Chapter 2 AGENCY CONSTRUCTION MANAGEMENT

(Also known as: Program Management)

A. Description

Agency Construction Management is a service in which the Construction Manager (CM) is responsible exclusively to the district and without competing economic interests at any stage of the project. Construction fees may be either hourly not-to-exceed, fixed negotiated price or a percentage of bids. The Agency CM offers advice, uncolored by conflicting financial interest. Construction Management services are sometimes also requested under the categories of project management or owner's representative.

Agency Construction Management is not a delivery system per se, but rather a service utilized by a district to manage a project(s), delivered in any manner; e.g., Design-Bid-Build, Construction Management At-Risk, Design-Build, Developer Built and Lease-Leaseback. The use of Agency Construction Management during every stage of the project, beginning with the original concept and project definition maximizes the benefit of this service.

B. Enabling Legislation

In the State of California, a CM contracting with a district to perform Construction Management services must either be a California licensed Class B General Contractor, Architect, or Engineer [See Government Code Section 4525 and Public Contract Code Section 3300]. Government Code Sections 53060 and 4526 provide that Construction Management services may be procured by a district in a similar manner to those of an Architect or other professional service providers. Education Code Section 17072.35 provides that Construction Management services are fundable by the School Facilities Program. Education Code Section 17070.50 requires a competitive process prior to procuring construction management services.

C. Relationship of the Parties

Agency Construction Management is a fee-based service where the CM contracts with a school district to manage and oversee the design and construction process without a financial interest in the construction contracts. These relationships remove a financial incentive for change orders or other cost increases. The CM holds no sub or prime construction contracts and manages the efforts of the design disciplines, other consultants, and those of either a general contractor or multi–prime trade contractors.

In Agency Construction Management the CM assumes the position of professional advisor or extension of staff to the district. The district holds the construction contracts and the primary costs and performance risks are placed on the Contractors. These risks include failure of subcontractors to perform, material price increases, or trade labor availability. Risks on the contractor also include the costs of performing rework. The term "agency" implies a delegation of function to the CM by the district. The necessity for openness and candor between the CM and the district is paramount. Agency CM is a service that is offered by many types of firms. When choosing any representative it is critical to evaluate their qualifications and expertise to meet the project needs.

An Agency Construction Management firm can manage a variety of delivery methods. During construction, the Agency CM performs oversight services similar to those of a general contractor, albeit without contractual responsibility for the physical construction. In this manner, the district can select a trusted Construction Management firm to oversee the district's contracts with a general contractor or in lieu of a general contractor; performing services via a separate and unique set of contractual documents. Agency CM is often used to represent the district's interests in Multi-Prime, Design-Build, Lease-Leaseback and for Developer Built schools.

Construction usually starts after the design has been completed. This allows for a thorough review of the design documents by the Agency CM. During the review period the district can modify the design prior to the construction contract being let. The district also benefits from design and construction expertise without any conflicts of interest, as there is no incentive for increased CM fees.

Trade and/or the general contractors retain responsibility for means, methods, techniques and sequence of construction; however, the Agency CM as an agent of the district manages the general contractor.

Please note the chart on the next page as an example of the relationships of the parties in a Construction Management scenario.

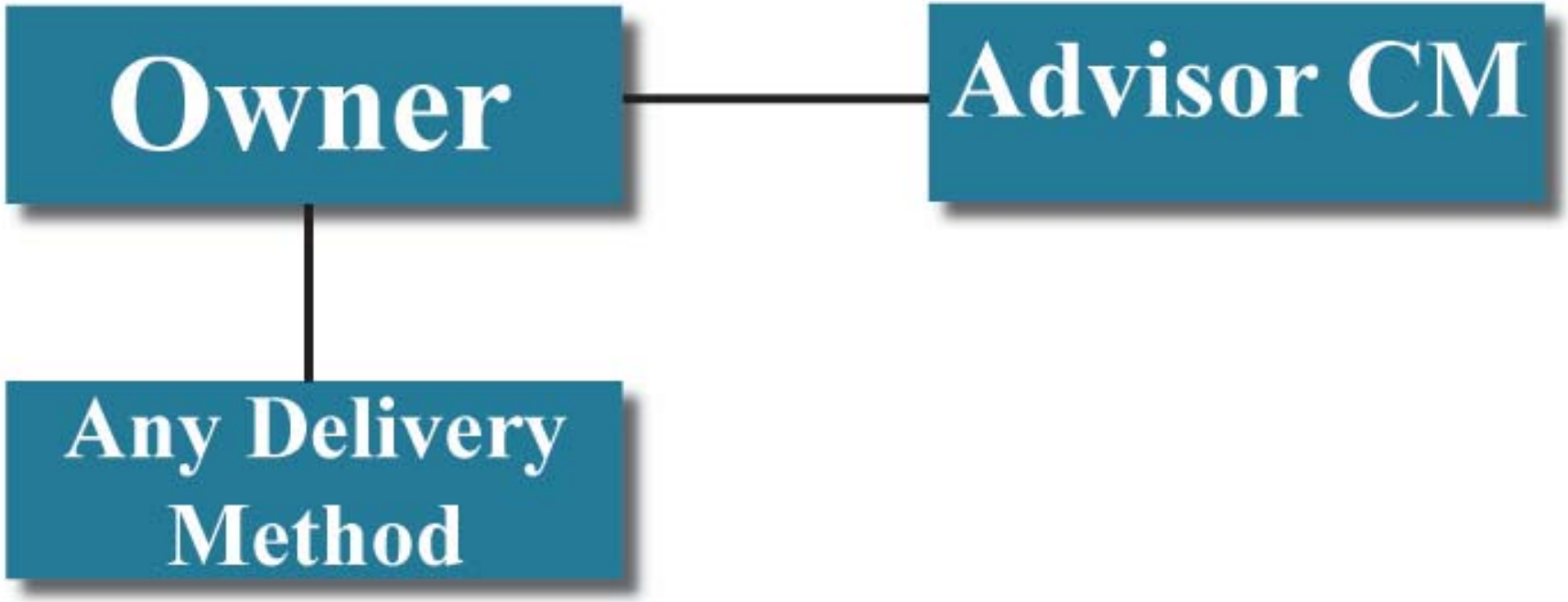
D. Points for Consideration

1. This is a qualifications-based selection without regard to price.
2. It is suitable for any delivery method.
3. The CM works directly for the owner as a knowledgeable advocate for the owner's interests.
4. The CM acts as the district and has no financial conflicts of interest.
5. The CM helps the district maximize control over project providing expertise for cost/time/quality benefits.
6. It facilitates preconstruction services with construction expertise during design.
7. It provides supplemental project staffing for the district.
8. The district may delegate district decision-making authority to the Agency CM.
9. The district holds all contracts and retains all payment and other contractual liabilities.
10. There is potential for duplication of efforts between staff, other professionals and CM as agent, unless responsibilities are clearly defined.
11. If the Agency CM has been delegated agency decision-making authority, the district should require Professional Liability Insurance.

E. Simple Steps to Implement

1. Develop a description of the projects for Construction Management.
2. Evaluate the skills and resources (time, experience, etc.) that your staff has available to contribute to overall management of the construction process.
3. List the skills and services that you will need a professional CM to provide.
4. Develop preliminary selection criteria based on those skills and services along with other important needs relevant to the culture of your district.
5. Develop a Request for Qualifications (RFQ) or Request for Proposals (RFP) to allow you to select the most appropriate firms for an interview and final selection. (ACCM has developed a model RFQ/RFP that is available at www.ACCM.com) The responses and interviews will help you to fine tune the specific services that will be most useful for your district.
6. Negotiate the services and fee that best fit your needs. Be prepared to discuss which and how many services apply to your project or program in order to develop the best value.
7. Reach agreement on the final contract terms for Board approval.
8. Welcome the CM aboard and begin meetings with relevant staff to ensure everyone understands the CM's role and responsibilities to the district.

Agency CM



Chapter 3 TRADITIONAL DESIGN-BID-BUILD

A. Description

Design-Bid-Build is the traditional project delivery approach that was used for most of the 20th Century to complete projects in the public sector. The Design-Bid-Build model segregates design and construction responsibilities by awarding them to an independent private architectural firm and a separate private contractor. By doing so, Design-Bid-Build separates the delivery process into three direct phases: 1) Design; 2) Bid; and 3) Construction.

During the design phase, a public agency awards a design contract to an Architect using a qualifications-based approach to the firm providing the best experience for the project type. The Architect is responsible for completing a final project design and providing detailed construction drawings, specifications and supporting documents.

In the bid phase, the owner would use the documentation prepared by the Architect to assemble construction bid documents. Contractors are invited to submit competitive, lump-sum bids, and the owner awards the construction contract to the contractor submitting the lowest responsive responsible bid for a total contract price. The project then moves into the construction phase, with the owner retaining responsibility for monitoring the contractor's performance.

Design-Bid-Build is most frequently done using a lump-sum bid contract, but unit prices are sometimes used.

B. Enabling Legislation

California Public Contract Code requires that California Public Entities must award public works contracts to the lowest responsive, responsible bidder. These bidding procedures are contained in the Public Contract Code (see Sections 20110 et seq.) The intent of the Legislature in enacting this Code was to achieve:

a. Ensuring all qualified bidders with a fair opportunity to enter the bidding process, thereby stimulating competition in a manner conducive to sound fiscal practices.
b. Eliminating favoritism, fraud, and corruption in the awarding of public contracts.

C. Relationship of the Parties

Owners

First and foremost, the owner wants its project constructed on schedule, at the original Architect's estimate and the owner's budget. A public entity must answer to a higher board. Accountability for project delivery will be a critical element of their future success. The owner is also accustomed to maintaining a high degree of control during the design bidding and construction processes. This desire to retain control over design decisions, whether they are major decisions that influence project configuration and construction cost, or less cost-critical but emotional items such as aesthetic finishes and fixtures, is an important owner objective. The owner would also like to see design and construction innovation that results in reduced construction costs, shortened construction schedule, or both.

Contractor

The contractor's objectives are quite different. The contractor is in business to make money, build the project without changes, and complete it on time. The shrinking number of qualified general contractors is a testimonial to the risks involved in a fixed price contract environment. The higher the design quality, the more clearly the contractor is explained the rules for bidding the work, how he will be paid for the work he performs, the more effectively he'll understand and price the risks. This will directly influence what the owner pays for its project. Because the owner-contractor relationship is largely influenced by statutory low-bid requirements, the potential for conflicts is significant.

Architect
While the design Architect (Architect of Record) also wants to make a profit, he is not generally as exposed to a loss, nor as likely to achieve a profit "bonus," as is the contractor. Thus, the profit drive may differ from the contractor's. The design Architect also seeks innovation for the exposure and future business benefits that innovation can bring. Innovation may lead to untried construction techniques by a particular low-bid contractor and resulting conflicts. To the extent that contractor qualifications and contracting approach will affect the overall success of the project, the Architect also seeks the most qualified contractor on the project, and a well thought-out work plan. This may or may not align with the contractor having the lowest responsive bid. To the extent that construction innovation can lead to cost savings and a happier owner, the design Architect should be motivated to foster open communications and efficient review processes that allow these ideas to be brought forward.

Under Design-Bid-Build, the project's design and construction are contracted separately. The owner must advertise for an Architect/Engineering firm to design the project. Professional design service providers for public projects are selected on the basis of qualifications by the owner with a negotiated fee. Contracts for construction services are then obtained by competitive bidding. After the design process by the selected team of Architects and Engineers, the owner then advertises to solicit bids from construction firms. The winning firm becomes the General Contractor; responsible for overall completion of the project using the firm's own employees, sub-contractors, or a combination of both. The design and construction phases of the project are clear and distinct. Design documents are finished before the contractor becomes involved.

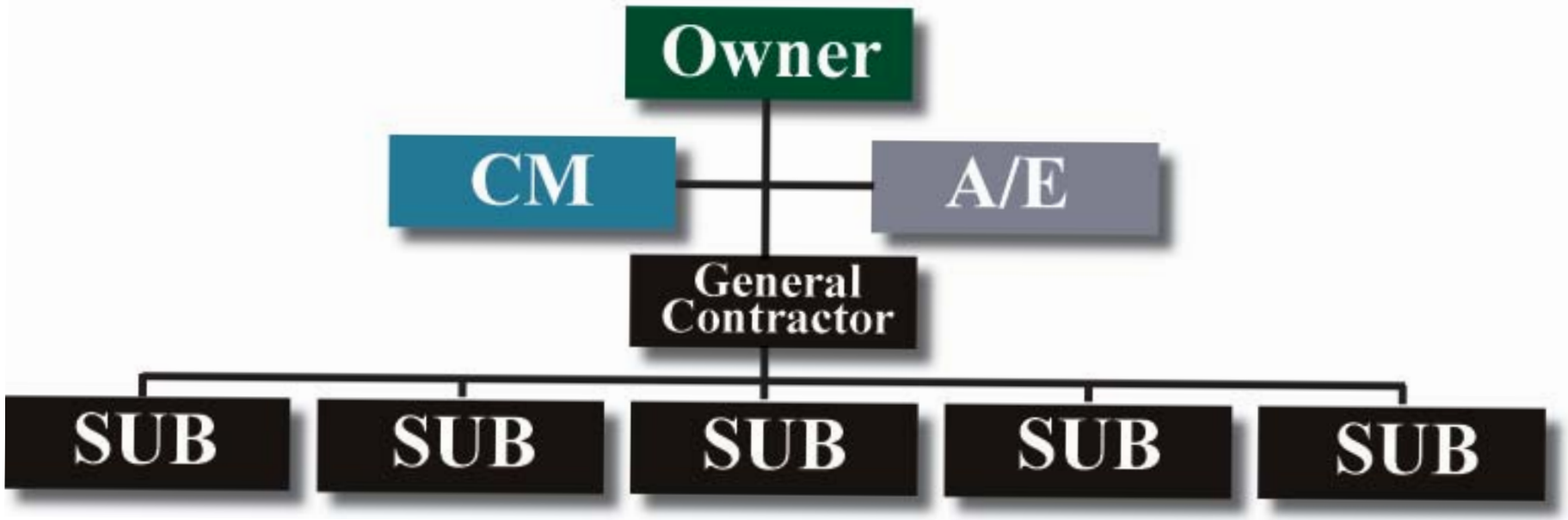
D. Points for Consideration

1. Design-Bid-Build is the familiar and established way of delivering a project.
2. Design documents must be thorough and complete to enable contractor bidding.
3. Public Contract Code and legal challenges have set accepted standards.
4. The Architect or Engineer of Record works for the owner and represents the owner.
5. It requires competitive bidding with lowest responsive initial price.
6. There is no early builder involvement.
7. Conflicts can arise between Architect and builder after design is complete and the builder is selected.
8. Bids over budget can present difficulty for adjusting project costs.
9. The owner may lose time waiting for all design to be completed for a single bid format.

E. Simple Steps to Implement

1. Select the Architect and CM.
2. Adopt a project plan and construction schedule with your Architect and CM.
3. Manage the design process.
4. Develop bidding and construction contracts tailored to the size and complexity of your project. Be cognizant of the complex legal framework for low-bid public works contracts.
5. Obtain all off-site utility approvals before the bid.
6. Put the completed design plans and specifications out to bid.
7. Obtain DSA approval of the design before bid award.
8. Open the bids pursuant to statutory framework and award the contract to the lowest responsive, responsible bidder.
9. Commence construction.

Design-Bid-Build (Traditional)



Chapter 4 LEASE-LEASEBACK

A. Description

The Lease-Leaseback delivery method is to select an organization, commonly referred to as the Developer-Contractor, to develop a new building or improve buildings on property the district owns. A Construction Management firm may serve as a Developer-Contractor. The mechanism is for the Developer-Contractor to simultaneously execute a Site-Lease of the property, giving it the right to develop the project, and a Facilities-Lease, giving it the obligation to develop the project and to lease the improvements and the site back to the district, with the district owning the improvements when the leases expire. Different districts and their attorneys allow different approaches: for financing, if any; for selection of the Developer-Contractor; for design responsibility; for lease terms; and for method of selecting trade contractors. This flexibility is a primary attraction of Lease-Leaseback.

Preconstruction work by the Developer-Contractor up to the time of signing of leases is sometimes conducted under a Preliminary Services Agreement.

Some attorneys draft leases providing for pre-construction services, even design responsibility, with language that calls for an amendment to give approval for construction to proceed including setting the date of completion and the Guaranteed Maximum Price.

B. Enabling Legislation

The statutes, Education Code 17406 for K-12, authorizing this approach are very broad and therefore many variations and different approaches to Lease-Leaseback have been refined. Education Code Section 81335 for Community Colleges is similar to Education Code Section 17406 except for a slight, but significant, language variation. The omitted language “without advertising for bids” is the operative language for Lease-Leaseback under Education Code Section 17406. Pursuant to validation actions taken on behalf of Community Colleges, some courts have held that the language was simply an omission during preparation of the legislation.

As with any construction contract, districts should be certain to consult an attorney experienced with alternative delivery methods to ensure that any proposed Lease-Leaseback agreement meets legal standards.

C. Relationship of the Parties

Parties involved in Lease-Leaseback include the district and the Developer-Contractor. The district’s team will include legal counsel, the design team, testing & inspection and potentially an Agency CM representing the district’s interest. The Developer-Contractor team includes legal counsel, funding sources, a general contractor and trade contractors. In many cases, the general contractor acts as the Developer-Contractor.

Legal Counsel. Perhaps more than any other delivery method, close coordination with a law firm is critical. Because this delivery method requires at least two contracts: at a minimum, the Site-Lease and the Facility-Lease. In addition, these arrangements also require decisions about the extent or terms of any financing required. An attorney’s advice is also necessary to decide whether a validation process is advisable. This a legal proceeding recommended by some attorneys to obtain court approval of the terms of the leases.

Developer-Contractor. Most Lease-Leaseback teams are selected based on qualifications with an agreed upon process to arrive at a Guaranteed Maximum Price. Some districts also consider the lowest cost of the financing, and still others have prequalified a short list of Developer-Contractor teams, and then selected one based on a competition of total project cost.

The legal structure of the Developer-Contractor can vary. Some districts have retained firms who develop private projects as the Developer-Contractor. Many districts retain firms who are general contractors. Some districts have retained Joint-Ventures of teams including Architectural firms. Some firms create a Limited Liability Corporation to hold the leases and subcontract out construction to licensed contractors. Many options are open for selecting the subcontractors and vendors who will work under the Developer-Contractor.

Districts can ask the Developer-Contractor to take the risk of completeness and accuracy of plans. These arrangements are usually met by the Developer-Contractor identifying the risks it accepts and including a contingency or allowance in the Guaranteed Maximum Price for the project.

Architect. The relationship between the Developer-Contractor and the Architect also is important. The Developer-Contractor: (1) can perform design or participate in review and management of design performed by the district's Architect; or (2) develop a price based on design done prior to its selection.

In most Lease-Leaseback arrangements, the district retains its traditional relationship with its Architect. The district and the Architect control the design of the improvements. Many Lease-Leaseback agreements call for the Developer-Contractor to monitor designs as they are developed to ensure attainment of budget. Almost all Lease-Leaseback arrangements call for the Developer-Contractor to offer cost-saving ideas. Some Lease-Leaseback arrangements call for the Developer-Contractor to take the responsibility to design the improvements.

D. Points for Consideration

1. A district may use Lease-Leaseback to satisfy its need for financing the project.
2. The district has flexibility on who controls the Architect.
3. The district may participate in selecting not only the Developer-Contractor, but all of the trade contractors and suppliers.
4. Solicitation of trade contractor proposals can create cost savings.
5. Early trade contractor selection can avoid deferred approvals and schedule risk.
6. Developer-Contractors can set Guaranteed Maximum Price very early in a project.
7. Questions continue to exist regarding whether leases can be signed prior to DSA stamp out of plans.
8. Early trade contractor selection provides the owner with earlier project cost certainty.

E. Simple Steps to Implement

Construction Management services are sometimes requested under the categories of project management or district's representative.

1. Determine whether Lease-Leaseback is the appropriate delivery method for your project.
2. Develop preliminary Lease-Leaseback selection criteria with an understanding of the relative importance of design, construction and financing components of the project.
3. Early trade contractor selection provides a payoff with integrated project delivery and building integration methods.
4. Complete the design, if not already done.
5. Ensure that any title or other land use or contractual limitations on the availability of Lease-Leaseback are researched and understood.
6. Work closely with the attorney you intend to have develop the Preliminary Services Agreement, Site-Lease and Facility-Lease.
7. Develop a Request for Qualifications or Request for Proposal to allow you to select the most appropriate firms for an interview and final selection.

8. Interview appropriate firms.
9. Negotiate with the selected Developer-Contractor the approach to the project: business terms, schedule, and method to set price such as a Guaranteed Maximum Price.
10. Obtain price proposals from subcontractors and vendors, select the trade contractors and vendors, set the Guaranteed Maximum Price or other price, and sign (or amend) the leases and obtain Board approval.
11. Perform the work of the improvements.
12. Commence construction.
13. Complete the lease term payments and procedures of the lease and close the leases.

Lease-Leaseback

Chapter 5 MULTI-PRIME

A. Description

The Multi-Prime delivery method is bid out similar to the Design-Bid-Build method, but in individual trade bid packages for trade contractors, not general contractors. Rather than subcontractors bid and selected by the general contractor, each package of trades is bid by the district. This delivery method significantly changes the trade contractors' relationship with the district by working directly with the district rather than with a general contractor. The Construction Manager (CM) will prepare bid package summaries for all trades and the coordination of all of the bid packages required to build the project. The number of trades and bid packages can vary by project scope and size. The trade bid packages are bid pursuant to traditional public works low-bid selection process. Then the CM manages the contracts of each trade. The on-site CM replaces the general contractor's role as on-site CM during construction by providing scheduling, supervision, change order negotiations, and other activities required to build the project. This method allows the district to retain the management services by qualifications-based, rather than low-bid, while using the low-bid process for selecting prime contractors. Construction Management fees may be either hourly not-to-exceed, fixed negotiated price or a percentage of construction costs.

The district in a Multi-Prime delivery method assumes many of the risks of a general contractor. The district is responsible for trade contractor failure. Risks that remain with the trade contractors are material price increases and trade labor availability. Each trade contractor typically secures a separate performance bond. Many risks that would have been born by the general contractor are thereby born by the trade contractor.

B. Enabling Legislation

In 1994, Construction Management was implemented by the State Allocation Board (SAB) as an acceptable delivery system. The SAB policy regarding Education Code Section 17719.3 authorized school districts to contract, as specified, for Construction Management services to assist in the development and/or implementation of a project under the Leroy F. Greene State School Building Lease-Purchase Law of 1976.

C. Relationship of the Parties

The relationships between the owner and Architect are similar to those described for Design-Bid-Build. But new parties are involved: the Prime (Trade) contractors. During the design phase it is best for the district, CM, and Architect to agree on scope, budget, and estimated time frames for on and off-site agency approvals, as well as the construction period and trade contractors breakdown and phasing, so that documents can be prepared to meet the completion goals.

The trade contractors are more directly responsible for the success of a project with the Multi-Prime delivery method. Since the CM provides the general contractor's role in managing the multiple trades, it is the CMs' responsibility for the clear communication and coordination of trades. This includes the development of the scope content of each trade package and prime or trade contracts (this step is critical to make sure all the areas of scope of work and responsibility are covered).

If communication is maintained per the bid documents, the relationship will grow and the project will be a success. It is vital to have the team meet early and an effective Multi-Prime CM maintains trust and cooperation among team members. When well implemented, the district receives both professional advice and cost control inherent in the low-bid process.

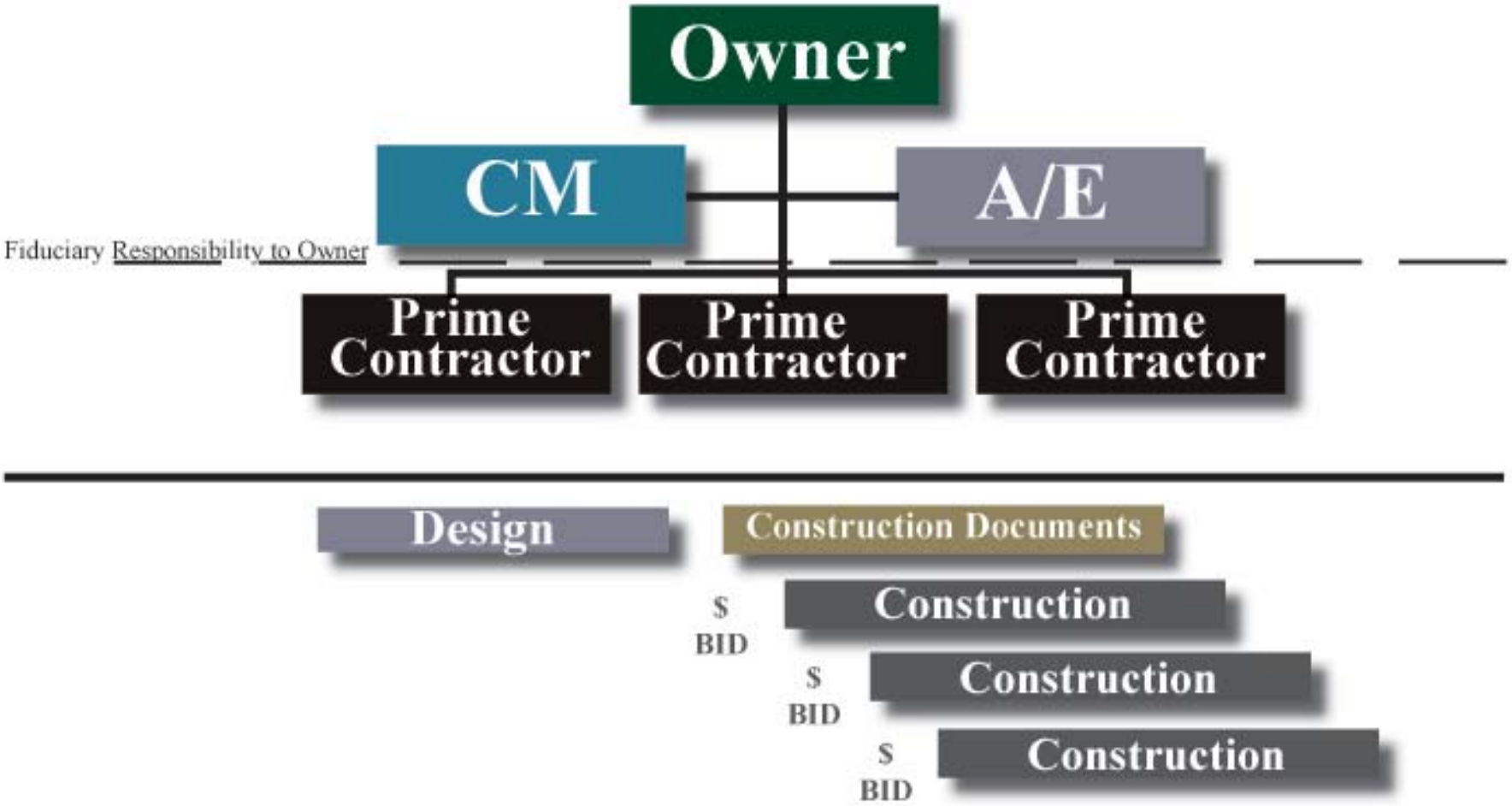
D. Points for Consideration

1. The district owner has more control by the district of the construction phase schedule.
2. Trade contracts are procured through competitive lowest responsive responsible bidders.
3. Trade contractor bidding process is familiar to the district.
4. The owner has the ability to re-bid a single over-budget trade package without project delay.
5. The district owner has more flexibility of bidding and scheduling which allows for multiple phases.
6. The construction manager provides construction expertise to assist in the entire design, planning, permitting and construction process.
7. Using multiple bid packages levels the playing field for participation by local trade contractors.
8. Trade contractor level bonding provides the advantages of pre-qualification without the disadvantages associated with pre-qualification.
9. The method provides the district comprehensive contract pricing transparency.
10. This method requires more contracts for the district to administer.
11. It is the CM's responsibility to avoid potential overlaps or gaps in the scopes of work.
12. District accepts more risk by hiring multiple trade contracts directly.
13. Contracts with separate trades will make scheduling more important to avoid negative schedule impacts.
14. The total project price is not known by the owner until all bids are awarded.
15. There is not a single guaranteed bonded price for the total project.

E. Simple Steps to Implement

1. Determine whether Multi-Prime CM is the appropriate delivery method for your project.
2. Develop preliminary CM selection criteria with emphasis on the ability to develop bid packages for multiple trades including experience with dealing directly with subcontractors and suppliers.
3. Develop a Request for Qualifications (RFQ) or Request for Proposals (RFP) to allow you to select the most appropriate firms for an interview and final selection. (ACCM has developed a model RFQ/RFP available at ACCM.com)
4. Reach agreement on the final contract terms for Board approval.
5. Negotiate an appropriate cost for the CM's general conditions and appropriate fee.
6. Welcome the CM aboard and begin meetings with relevant staff to ensure everyone understands the CM's role and responsibilities for trade contractors.
7. Select a design firm with complementary experience in designing projects for multiple trade packages by use of phasing and other mechanisms.
8. Develop the design using the skill of both the CM and the Designer and develop the trade package work descriptions, bidding documents and trade contracts.
9. Be diligent about bidding and awarding trade packages pursuant to all public works requirements.
10. Commence construction.

CM Multi-Prime



Chapter 6 CONSTRUCTION MANAGEMENT AT-RISK

A. Description

Construction Management At-Risk (CMAR) is a project delivery method where a CM is first hired under a professional services agreement on a fee basis. This professional services agreement provides a blend of traditional Construction Management in the design and bidding stages. Before construction begins the CM changes to a general contractor relationship that puts a fixed price on the project. The CM is at-risk for constructing the project at the contract price. This method is similar to the Multi-Prime delivery method except the CM takes on some risk in the implementation of the project. This transfer of risk can significantly alter the relationship between the district and the CM. A district choosing this delivery method should be as aware as the CM that the risks and relationship will change.

The use of a CMAR, similar to the Multi-Prime CM, is optimized if they are available at the earliest stages of a project. The CMAR, in many cases, comes with a strong construction knowledge that ensures that the district's desires are properly reflected on and in the construction documents. This delivery method is subject to a variety of different risk levels and contract administration.

B. Enabling Legislation

Similar to Multi-Prime as addressed in the preceding section, CMAR is the Multi-Prime delivery method where risk for cost overruns is taken by the CM through careful planning and re-allocation of contingency sums associated with each of the trade contractors. Pursuant to Education Code Section 35160, commonly known as the "Permissive Education Code," schools are given broad authority to carry on activities or programs as long as they are not otherwise prohibited by statute or law. One limitation arises from the California Supreme Court case, City of Inglewood v. Los Angeles Civic Center Authority v. Superior Court. (1972) 103 Cal.Rptr. 689, 692, which provides a CM is prohibited from guaranteeing a price since such a guarantee would be too similar to a competitive bid.

Some school districts have entered into Lease-Leaseback agreements pursuant to Education Code Section 17406 (as addressed in the Lease-Leaseback section) in order to undertake a true "at-risk" situation where all risk is placed with the Construction Management entity.

C. Relationship of the Parties

In the CMAR process, trade contract bids are submitted to and received by the district pursuant to Public Contract Code. The bids are accompanied by a bid bond and, upon award and execution, the trade contractors provide payment and performance bonds as required by the terms of the contract, as well as Public Contract Code. The executed contracts are then assigned to the CMAR to administer through the completion of the contract. The trade contractors retain responsibility of the means, method and techniques of construction. In the CMAR process, the CM clearly dictates the sequence and schedule of the work within the required project duration. The CM also recommends which scope of work will be placed in each trade contract. In many cases the CM is responsible for omissions in scope definition that are clearly shown in the construction documents. Contingencies are often included to manage that risk. Typically the CMAR controls a portion of this contingency as part of the contract documents.

The district is tasked with hiring the most qualified CM for a particular project or group of projects. Districts have the ability to make a qualifications-based selection that leads to loyalty of that CMAR to the district. In many situations, the CMAR acts like an extension of the district staff.

The CMAR process in most situations is a Multi-Prime approach where once the construction begins the CM performs similar services to those of a general contractor. With the CMAR delivery method the CM ends with a fixed price contract. Profit is based less on professional advice and more on controlling costs to the CMAR (risk).

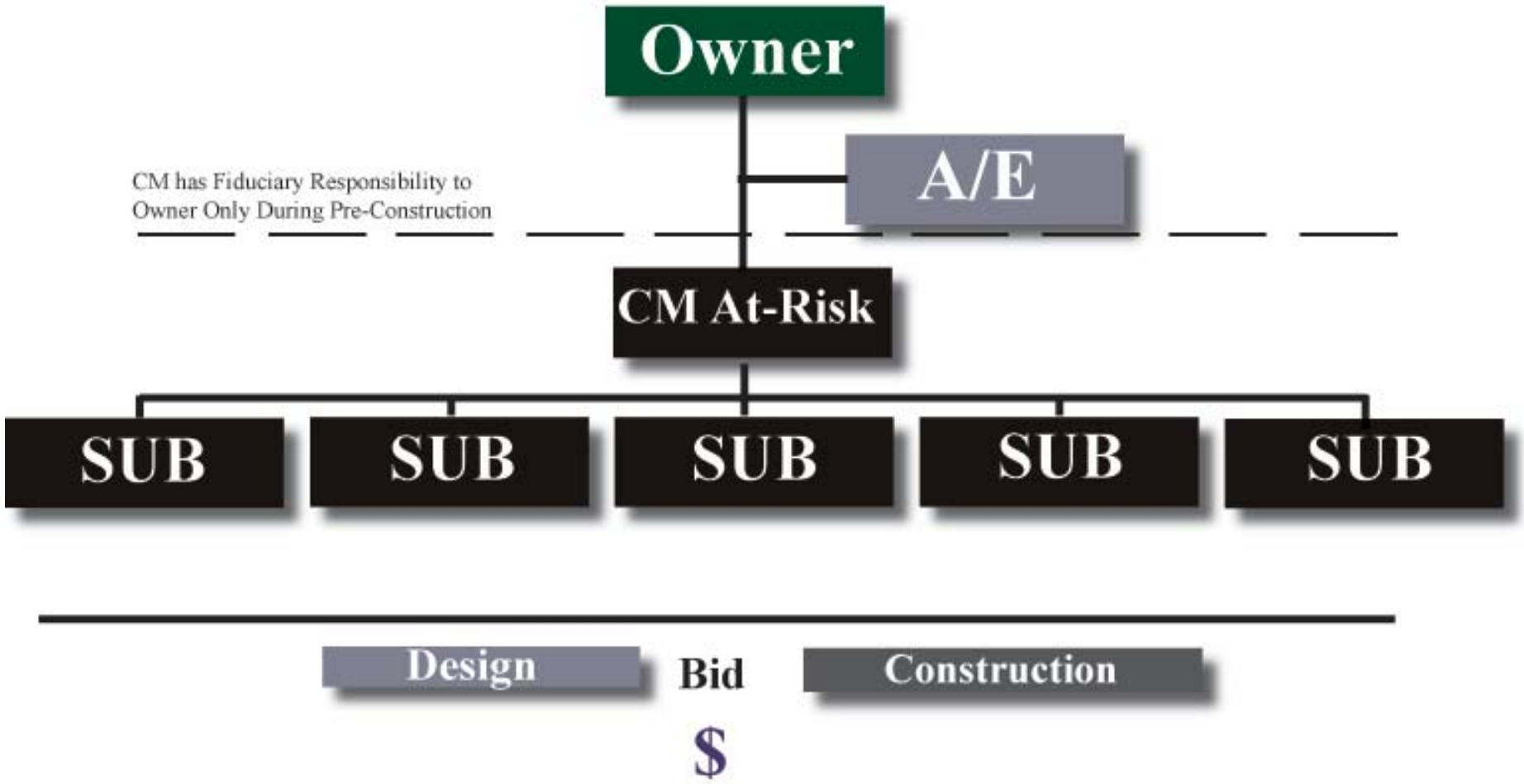
D. **Points for Consideration**

1. The CM should be selected using a qualifications-based selection process.
2. The district owner can have a fixed price based on complete design documents.
3. The trade contracts are procured through competitive lowest responsive responsible bidders.
4. The trade contractor bidding process is familiar to the district.
5. The owner has the opportunity to rebid a single over-budget trade package.
6. The district owner has more flexibility of bidding and scheduling which allows for multiple phases.
7. The CM provides construction expertise to assist in the entire planning, permitting, design and construction process.
8. Multiple bid packages levels the field for participation of local trade contractors.
9. There are potentially increased CMAR fees for the CMAR's assumption of risk.
10. There is not a single guaranteed bonded price for total project.
11. There are no common standards for assumed risk in CMAR.
12. The CM relationship with district changes during process.
13. The method could result in a potential decrease in the total number of trade contractor bids because of added bidding, bonding and reporting requirements.
14. There are more contracts for the district to administer.
15. The CM is responsible to avoid negative schedule impacts.
16. The owner should ensure that the CM has bonds for the total project.

E. Simple Steps to Implement

1. Determine whether CMAR is the appropriate delivery method for your project.
2. Develop preliminary CM selection criteria with emphasis on the ability to develop bid packages for multiple trades including experience with dealing directly with subcontractors and suppliers.
3. Develop a Request for Qualifications (RFQ) or Request for Proposals (RFP) to allow you to select the most appropriate firms for an interview and final selection. (ACCM has developed a model RFQ/RFP available at ACCM.com)
4. Reach agreement on the final contract terms for Board approval.
5. Negotiate an appropriate cost for the CM's general conditions and appropriate fee.
6. Welcome the CM aboard and begin meetings with relevant staff to ensure everyone understands the CM's role and responsibilities for trade contractors.
7. Select a design firm with complementary experience in designing projects for multiple trade packages by use of phasing and other mechanisms.
8. Develop the design using the skill of both the CM and the designer and develop the trade package work descriptions, bidding documents and trade contracts.
9. Be diligent about bidding and awarding trade packages pursuant to all public works requirements.
10. Negotiate a guaranteed maximum price including general conditions and fee.
11. Assign the trade contracts to the CM.
12. Commence construction.

CM At-Risk


Owner
A/E
CM has Fiduciary Responsibility to
Owner Only During Pre-Construction
CM At-Risk
SUB
SUB
SUB
SUB
SUB
Design
Bid
Construction
$

Chapter 7 DESIGN-BUILD

A. Description

Design-Build is a unique project delivery method whereby there is a single contract with one entity to design and construct the project. It is recently re-emerging nationally and in California as an alternative to traditional Design-Bid-Build and other delivery methods.

A typical Design-Build project utilizes a two-phase procurement process. The first phase is a prequalification process (RFQ), typically short-listing to three finalists. The second phase is the request for proposals (RFP), from which a best value selection process determines the firm with the proposal most advantageous to the district.

Design-Build is an integrated process. The Architect/Engineer and General Contractor are on the same team from beginning to end. There are two prime players, the district and the Design-Build Entity (DBE). The DBE can take on many forms such as contractor led, Architect/Engineer led, or a joint venture, but typically the DBE is contractor led. Regardless of the form the DBE takes, there is only one contract with the district and DBE.

Design-Build may be used on complicated or simple projects. The type of control a district has over the project varies from project to project with Design-Build and can be dictated by the terms of the RFP. Please note that after the contract is signed the district has little control unless it is specifically addressed in the contract. Design-Build requires more input by the district up front, but less management later on.

B. Enabling Legislation

A best value selection or lowest responsible bid is authorized by statute for K-12 and Community Colleges in California. Projects procured by the statutes to date have utilized the best value approach. Accordingly, Design-Build competitions have emerged in the public sector as a means of achieving the benefits of Design-Build while adhering to the need to award construction projects on a competitive basis.

Education Code 17250, et. seq. specifies the provisions for design-build use by K-12 school districts. The method may be used on all projects of $2,500,000 or greater. Education Code 81700, et. seq. specifies the provisions by Community College districts, specifically Education Code 81702. The method may be used on projects of $2,500,000 or greater and contains certain requirements school districts and community college districts must follow. These provisions self-repeal on January 1, 2014.

C. Relationship of the Parties

Simply stated, under Design-Build, the district is responsible for the program, performance requirements, and financing of the project.

The Design-Build Entity is responsible for both design and construction. The Architect is responsible for normal professional design responsibilities and is a member of the Design-Build Entity. The relationships of the parties in Design-Build procurement may be viewed on two levels, practical and contractual. Practical relationships have to do with qualifying the Design-Build team for procurement, as well as working relationships during the design and construction phases of the project. Contractual relationships relate to the contractual associations and related legal obligations of the parties. The enabling legislation does not make a clear distinction between practical and contractual relationships nor preclude the following reasonable descriptions. Because the success of working relationships in a Design-Build project depends on an accurate understanding of roles and responsibilities, a detailed description follows.

Design-Build Entity (DBE): The DBE holds the contract with the district. This may be a corporation, partnership, joint venture, or other legal entity. In a practical sense, and during the proposal phase, the DBE may be thought of as the Design-Build team, including the General Contractor, Architect, sub-consultants and subcontractors.

Unless the Architect is the lead member, or joint venture partner of the DBE, the Architect of Record contracts with the DBE and the DBE then uses a criteria architect. The Architect may be in the lead position or a partner, but is usually a sub-consultant to the general contractor of the DBE. This does not prevent the Architect from interacting with the district.

The Architect has a similar relationship with the district in developing the design as in traditional Design-Bid-Build with one notable exception. In a typical Design-Build project, the criteria Architect is directly responsible to the contractor, and indirectly responsible to the district, for meeting the pre-established budget and timeline. The DBE remains responsible to provide design that conforms to the district's stated requirements and applicable codes.

Subcontractors: Trade contractors are under a subcontract agreement to the DBE. Subcontractors may provide a broad range of design and construction services to the DBE.

** Districts can choose adopting price either before or after the design phase.*

Construction Manager (CM): A district may elect to hire a CM with Design-Build expertise or use the district's representative as an extension of their staff. This entity may assist the district from the time of establishing the type of project procurement, through the selection process and continue during project design, construction and close-out. This representative is not part of the DBE and acts as an extension of the district's staff and acts only for the district's interest in this project. The CM can be provided decision-making authority to bind the district.

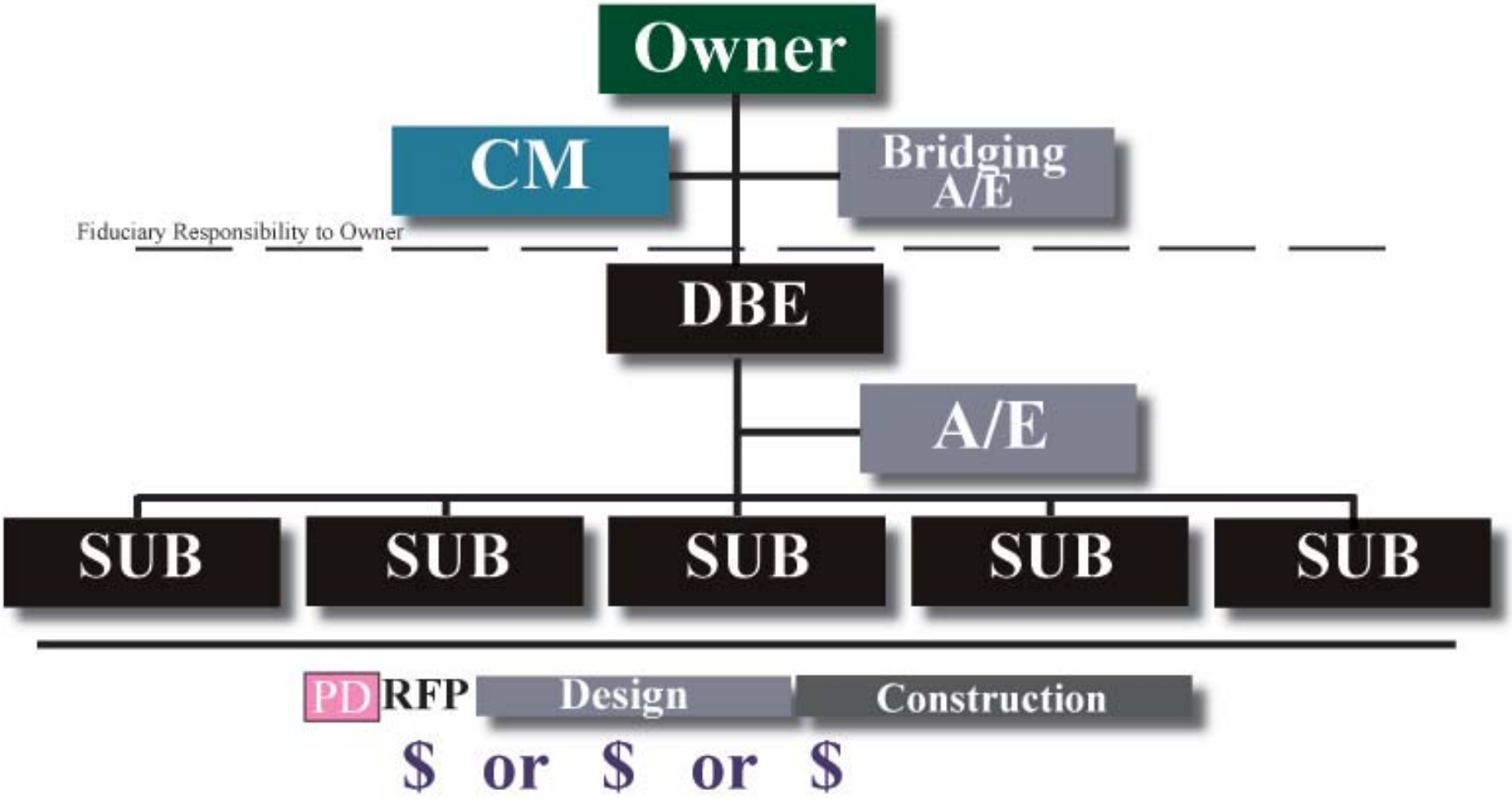
D. Points for Consideration

1. Teamwork is promoted because General Contractor and Architect are on the same team.
2. A district can ask for a guaranteed cost during design.
3. The design risk shifts to the Design-Build Entity (DBE).
4. There is a single point of responsibility for the district with fewer changes.
5. Only one RFQ and/or RFP is required for design and construction.
6. Only one contract is needed for both design and construction.
7. DBE may be selected on statutory best value basis rather than traditional lowest responsive responsible bid.
8. The district needs to have more involvement earlier in the design process but less involvement is needed after design.
9. The method has the potential for faster delivery system, particularly for prototype designs.
10. Design-Build requires a new learning curve for districts and agencies.
11. The owner and designer need a performance standards agreement before DBE design begins.
12. There are unique statutory requirements for selecting the DBE and subcontractors.
13. The insurance and bonding details are less clear.
14. There is a potential for less control by the district of design and design details.
15. There is political resistance among those unfamiliar with this method which is why authority to use the method will self-repeal on January 1, 2014.

E. Simple Steps to Implement

1. Determine whether Design-Build is the appropriate delivery method for your project.
2. Develop a description of the facility needs and ensure that your project and your staff will meet all of the statutory requirements for use of this delivery method.
3. Hire a criteria professional to prepare preliminary criteria documents upon which to base facility needs.
4. Develop and adopt the statutory findings and notice for use of Design-Build.
5. Develop Criteria Documents. The criteria professional, staff and other stakeholders, collaborate to provide a thorough set of procurement documents (the RFQ & RFP). The RFP must set forth the district's requirements for the project in detail.
6. Identify qualified proposers utilizing the questionnaire provided by the Department of Industrial Relations (http://www.dir.ca.gov/dlsr/pqdb.doc). Review all district specific qualifying questions, Selection Criteria and weighting for consistency with statutory criteria prior to public release.
7. Short list the most appropriate firms for an RFP, an interview and final selection. Remain cognizant of the statutory requirements for best value selection pursuant to this delivery method.
8. Use a knowledgeable judging panel to conduct a separate evaluation of cost and qualitative issues. The interview provides insight and knowledge of the proposer's team, design and construction plan, and abilities to complete the project not found in the written proposals.
9. Negotiate the services and fees that best fit your needs. Be prepared to discuss how the integration of management, design and construction services will affect district decision-making and ensure the best value.
10. Reach agreement on the final contract terms for Board approval.
11. Welcome the DBE aboard and begin meetings with relevant staff to ensure everyone understands the DBE's role and responsibilities to the district.
12. Design pursuant to criteria.
13. Commence construction.

Design-Build



Chapter 8 DEVELOPER BUILT

A. Description

Developer Built schools is a project delivery method whereby a school district contracts with a real estate developer to construct a new school on property initially owned by the developer. The property and improvements will subsequently become owned by the school district. Frequently, Developer Built schools are constructed as part of new residential developments as part of a negotiated arrangement for meeting developer fee responsibilities. This can be a win-win situation for both the developer and the district. The school can be better sequenced with residential development and the developer can take advantage of hiring subcontractors already working for them in the area. Developer Built schools can also be built on urban infill properties, whether or not the school is part of a larger infill development project.

With Developer Built schools there is generally a single point of responsibility to the district for both the design and construction of the school. A typical Developer Built project is a negotiated procurement as part of the school fees discussions. The district hires the developer to design and construct the new school facility according to a set of district standards. Plans and specifications must be approved by the State Architect and are subject to Field Act requirements.

In this type of procurement, the developer decides how to contract for the design and construction. The school district may have a CM to assist them in the construction process. The developer may use a variety of delivery models: Design-Bid-Build, Design-Build, CMAR or Multiple Prime.

B. Enabling Legislation

Pursuant to Education Code Section 35160, commonly known as the “Permissive Education Code,” schools are given broad authority to carry on activities or programs as long as they are not otherwise prohibited by statute or law. The primary limitation to a Developer Built school arises from expenditures that would be considered “Public Works” and, thus, subject to competitive bidding under Public Contract Code Section 20111. The two primary exceptions utilized for Developer Built Schools are: (1) setting forth the Developer Built school design and criteria as a part of a property purchase agreement; or (2) undertaking a Lease-Leaseback arrangement.

The most common Developer Built scenario arises from mitigation conditions due to developer fees from a large development. As part of the agreement to pay developer fees a mitigation agreement may include conditions with the sale of a property, or a dedication in lieu of developer fees may include a completed school. Since the construction of a school is part of a property sale or dedication, competitive bidding requirements under Public Contract Code Section 20111 would not apply.

C. Relationship of the Parties

Under Developer Built schools, the district is responsible for the program, performance requirements, and final acceptance of the project. The developer is responsible for design and construction, usually carried out by third parties. The Architect and engineers are responsible for normal professional design responsibilities.

The relationships of the parties are as follows:

- District – Developer: The developer is the entity that holds the contract or development agreement with the district. This may be a corporation, partnership, joint venture, or other legal entity.
- Architect – Developer: The Architect may be a consultant to the developer.
- Architect – District: The district hires the Architect to provide a design that conforms to the district's stated requirements and applicable codes. The Architect's services are part of the contractors and district financial agreement.
- Contractors – Developer: The contractors are usually hired directly by the developer who may hold a general contractor's license. The developer may also hire a general contractor who will hire the specialty trade subcontractors.

D. Points for Consideration

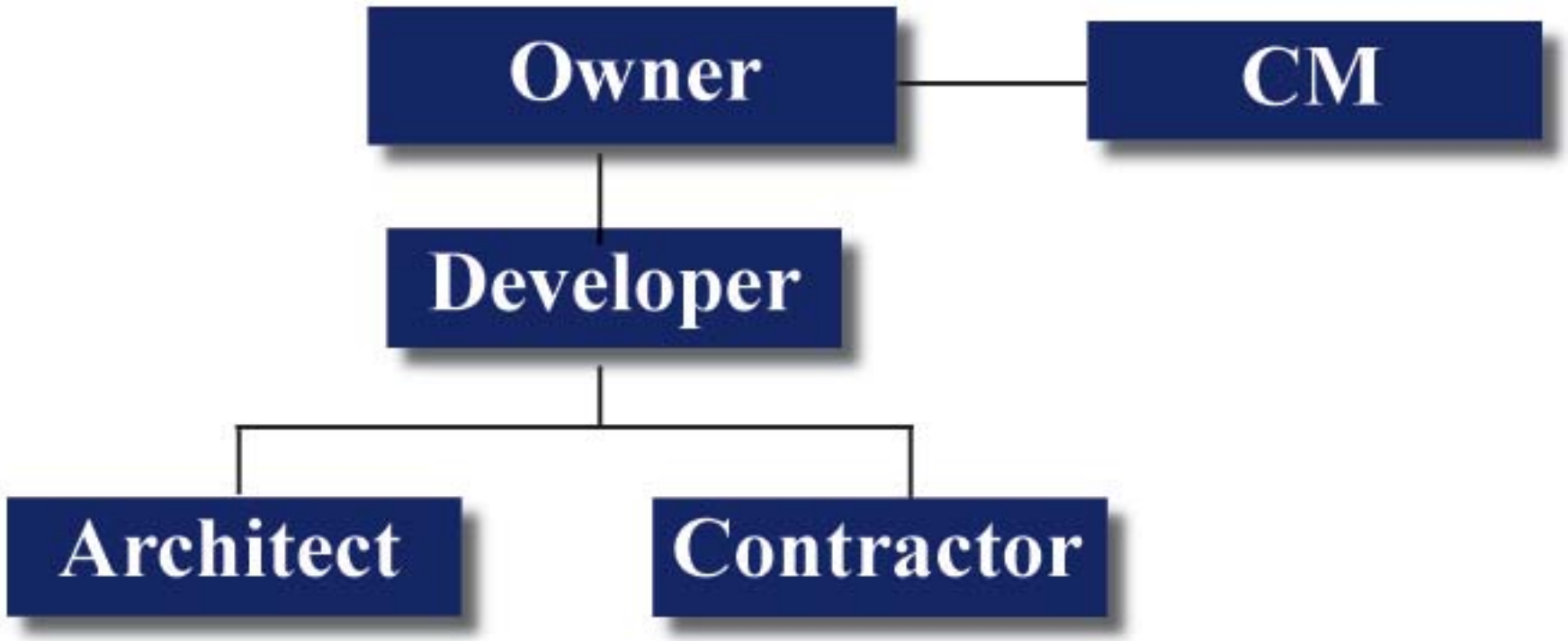
1. The method can bring construction input into design.
2. It may facilitate value engineering.
3. The developer's monetary contribution may be greater than statutory fees.
4. Design usually blends with surrounding community.
5. The method could deliver the school earlier for district use.
6. The district has less responsibility and control of the project.

E. Simple Steps to Implement

A typical Developer Built school project will proceed as follows:

1. Determine whether Developer Built is the appropriate delivery method.
2. Negotiate appropriate terms with the real estate developer to address developer fee responsibilities, district input on design features, responsibilities for state agency approvals and other appropriate matters.
3. Develop Criteria Documents – The district, along with their CM, will provide a complete and thorough set of criteria documents to the developer. Education specifications, performance or prescriptive specifications, and district standards should also be developed, along with illustrative drawings or diagrams.
4. The design team develops the plans and specifications.
5. Obtain all required approvals from the Division of the State Architect and other governing authorities.
6. The developer hires contractors to construct the project.
7. Commence construction.
8. Occupancy and title transfer occur per contract with developer.

Developer Built



Chapter 9 SUMMARY

Districts want permanent structures, not band-aid approaches to facility needs. The escalating costs in the marketplace, coupled with inadequate state funding to meet these cost increases, places more pressure on public school districts to find more funds or seek alternative means of providing facility needs. The good news is that there are more choices available today than ever before that can save time and dollars, ensure good quality and make life easier for districts when designing and building facilities. When it comes to considering the design and construction of a new or modernized facility, districts should consider utilizing all available delivery methods to achieve their objectives.

This Handbook has offered a description of the most popular project delivery methods used by school districts today. If you are uncertain which method might be best for your next project, you may use the Project Selection Matrix at the end of this chapter to aid in your decision.

Remember, Construction Management is not a delivery method itself but rather a range of professional services. It should be thought of as an extension of the district's staff and can be used with any project delivery method.

CONCLUSION

There are several choices that a district must make concerning the type of contract and method of delivery to be used. In making these choices, consider and attempt to maximize the advantages of the various delivery methods to best meet the goals of the district. Decision-makers should also consider the ability of district staff to manage the differing contract responsibilities. No one contract, method, or combination is better than another for all situations.

In all cases a district should seek legal advice to ensure compliance with public codes, especially when using a new delivery method never before employed by the district.

The Project Delivery Selection Matrix (Matrix) on page 33, provides a tool for comparing alternative delivery methods. The criteria listed are those which ACCM members identify as the ten most common objectives of K-12 and Community College districts. Depending on the project, district board and funding, each of these may have a greater importance. Other criteria may be added or substituted to fit local needs.

The most useful method of implementing this Matrix is to first assign a weight to each criteria. Any relative numeric scale will work. Multiple criteria can have the same weight. The objective is to provide a weight to compare alternative delivery methods. Each method is weighted on a 1 to 10 scale on how well it obtains the objective. For example, the district may determine that because of past change order issues that "Minimize Change Orders and Claims" is very important and weight it at a 10. The district may also determine that encouraging a variety of local trade contractors is also important but less important than minimizing change orders and weight Community and Political Issues as 8. Finally, knowing early what the initial cost is may be determined as important as a range of local trade bids and also assign Low Initial Cost as an 8.

If three delivery methods are available, Design-Bid-Build, Multi-Prime and Design Build, the evaluation could be this. Design-Bid-Build often results in change orders, so on this criteria it would score relatively low, say 2 on a scale of 10. Design-Bid-Build also gives the district little control over who the General Contractor selects so the ability to reach out to locals would be low. Say the district's judgment is that it can encourage General Contractors to advertise local but must select low-bid regardless and provide a 4 on a scale of 10. Finally, in evaluating low initial cost readers know that DBB has an early fixed price and could weight this an 8.

In comparing Multi-Prime across criteria, a district could determine that because a project is managed by a qualifications-based CM, but with trade contracts on a low-bid basis, Multi-Prime would score higher than Design-Bid-Build but not a perfect score and weight this a 5. Multi-Prime does allow the district to target local trades and a district could weight this as an 8. Finally, because multiple trade packages extend the time before total costs are known, a district could weight this a 5.

In evaluating Design-Build readers would know that a single Design-Build Entity (DBE) should reduce change orders and claims and weight this an 8. Since the RFQ process provides flexibility in criteria, the interest in local trades could be met and assigned an 8. Finally, since while a fixed cost will ultimately result the total cost is not known until after contracting with the DBE for design and bid, this criteria could be weighted 3.

		DBB		MP		DB	
	Weight	**Score**	**Total**	**Score**	**Total**	**Score**	**Total**
Minimum Change Orders	10	2	20	5	50	8	80
Commercial Issues	8	4	32	5	40	8	64
Low Initial	8	8	64	8	64	3	24
			116		154		168

While this evaluation is just illustrative, it serves to reinforce two important points. First, the district has to seriously evaluate what's important in selecting a delivery method to meet its needs. Second, a CM can provide indispensable expertise in comparing delivery methods early in the process.

PROJECT DELIVERY SELECTION MATRIX

Project: SAMPLE

CRITERIA		**DELIVERY METHOD OPTIONS**											
Criteria	***Criteria Weight***	***DBB***		***CM at Risk***		***Multi-Prime***		***DB***		***L-LB***		***Other?***	
Schedule flexibility													
Owner design control													
Awarding on best value													
Low initial cost													
Promoting team work													
Less Owner management													
Establishing early final price													
Minimize CO's and claims													
Community & Political Issues													
Early/Timely completion													
Totals													

Objective: Rank each delivery method relative to criteria on a scale from 1 (low) to 10 (high)

Notes:

Keep in mind that this is only meant to be a guide to help quantify the selection of your delivery method.

It may or may not determine your final decision, especially if two or more delivery methods are closely ranked.

GLOSSARY OF TERMS

Best Value
An evaluation process in which selection is based upon quality, cost adequacy, effectiveness and timeliness for the best overall value and interest of the public.

Bid Documents
The documents issued that describe the proposed work and contract terms. Bid documents typically include: drawings, specifications, contract forms, general and supplementary general conditions, proposal or bid forms, and other information.

COs
Change Orders

Competitive Bidding
An open process in which the selection is based upon the lowest cost submitted by responsible and responsive bidders.

Constructability
The ease with which a project can be built, based upon the clarity, consistency, and completeness of the contract documents for bidding, administration, and interpretation to achieve overall project objectives.

Construction Management
A professional with a general contractor, engineering, or architectural license and the experience of professional management skills to be applied to the planning, design, and construction phases. During the construction phase, the construction manager will manage construction activities, create construction schedule, and act as the individual's general contractor managing and controlling time, scope, cost, and quality. Costs for construction management are generally part of the hard costs of a project.

Criteria Architect
The architect responsible for the design-build package, program, not the architect that is part of the design-build team who is generally called the Architect of Record (AOR).

Delivery Method
A method that dictates how the design and construction will be completed and what contractual relationships the parties have in this process.

Design Risk
The risk and cost associated with errors, omissions, or conflicts in plans or specifications prepared by the designers of a project. In many delivery systems, the owner bears the design risk and may have a basis to recover from designers. In some alternate delivery systems, the builders agree to take on some or all design risk.

General Conditions
A section of general clauses in the Contract Specifications that establish how the project is to be administered. Included are obligations such as providing temporary work, insurance, field offices, etc.

Guaranteed Maximum Price
The price set as the guaranteed amount an owner will pay to a Builder, for the agreed upon scope, except for the cost of specifically excluded items such as owner preferences, owner initiated improvements, or requirements of code enforcement agencies having jurisdiction.

Holds the Construction Contracts
Entering into one or many contracts for all of the construction or the many parts of the construction. The party who signs the contract with a construction firm is said to "hold" the contract. In different delivery systems, the owner can hold one contract, or many.

Joint Ventures
An arrangement where two or more entities, usually with differing areas of expertise, join together into a single entity to provide a service or product. For example, a contractor may join with an Architect to deliver a Design-Build project.

Life-Cycle Cost
Life-cycle costs include all costs incidental to the planning, design, construction, operations, maintenance and demolition of a facility, or system, for a given life expectancy, all in terms of present value.

Low-Bid
Also known as "competitive bidding" or "hard bidding." This is the formal selection process as outlined in the Public Contract Code where a public entity selects a contractor or vendor on the basis of the lowest price received. Contrasting selection methods include the "Best Value" and the "Qualifications-Based" selection methods.

Lump-Sum
A pricing method where the scope and definition of the project, product, or service is well defined thereby allowing for a single fixed price. This pricing method is in contrast with "unit pricing" and other percentage based methods where the final price adjusts based on pre-determined factors.

Personal Property
As used in the public works delivery process, "personal property" is meant to contrast with "a public work" and generally includes equipment, materials, or supplies which are by their natures not permanently affixed to a site.

Program Management *(sometimes called bond management)*
A team of professionals generally made up of project and/or construction professionals and a licensed accounting professional. Management skills are applied to the total bond planning and accounting with oversight of individual project architects and contractors during planning, design, and construction phases.

Project Management
A professional who manages a project (or projects) with management skills applied to the planning, design, and construction phases. During the construction phase, the project manager reviews construction activities, and acts as the individual representative monitoring time, scope, cost, and quality. Costs for the Project Manager are generally part of the soft costs of a project.

Punch List
A list made near the completion of the construction work indicating items of work that remain unfinished, do not meet quality or quantity requirements as specified, or are yet to be performed by the contractor prior to completing the terms of the contract.

Request for Information (RFI)
An instrument used typically by the Prime Contractor to obtain information from the design team or owner to clarify a contradiction or ambiguity in the construction documents. It can be generated by anyone on the project team.

Risk
As used in the construction industry, it is a possibility of a loss of profit. Usually associated when a contractor provides a fixed or not to exceed price.

Short Interval
An abbreviated period of time. It is used primarily in conjunction with scheduling such as a two or three week look-ahead schedule. It provides a more detailed picture of the construction activities in the immediate future.

Single Guaranteed Bonded Price
A price arrived at and made the total price of a construction contract with an owner which is made up of several bonded or unbonded prices. In CMAR, the CM delivers a single guaranteed bonded price which may be made up partially of prices from contracts previously awarded by an owner.

Trade and/or General Contractors
Construction contractors who specialize in providing and/or installing specific elements of the overall construction requirements of a complete project.

Trade Package
A defined scope of work which will be completed and awarded to a specific specialty construction firm. A trade package might be for only electrical work, only painting work, or it may be for a collection of work, such as wood framing, metal door frames, and building paper all together in one package.

Value Engineering
A specialized cost control technique, which utilizes a systematic and creative analysis of the functions of a project or operation to determine how best to achieve the necessary function, performance, and reliability at the minimum life cycle cost.

ACCM Board of Directors

President
Kris Meyer
Ledesma & Meyer Construction Co. Inc.
9441 Haven Avenue
Rancho Cucamonga, CA 91730
Tel: (909) 476-0590
Email: krism@lmcci.com
Web: www.lmcci.com

Vice-President
Terry Street
Roebbelen Const. Mgmt. Srvcs.
1241 Hawks Flight Ct.
El Dorado Hills, CA 95762
Tel: (916) 939-4000
Email: terrys@roebbelen.com
Web: www.roebbelen.com

Secretary/Treasurer
Paul Bonaccorsi
WLC Construction Services, Inc.
10470 Foothill Blvd., Suite 107
Rancho Cucamonga, CA 91730
Tel: (909) 476-6005
Email: paul@wlccs.com
Web: www.wlccs.com

Officer At-Large
Dick Cowan
Davis Reed Construction, Inc.
3217 Ramos Circle
Sacramento, CA 95827
Tel: (916) 504-4070
Email: dcowan@davisreedinc.com
Web: www.davisreedinc.com

Officer At-Large
Ed Mierau
Neff Construction
P.O. Box 1488
Ontario, CA 91762
Tel: (909) 947-3768
Email: ed@neffcon.com
Web: www.neffcon.com

Executive Director
David Walrath
Association of California Construction Managers
c/o Murdoch, Walrath & Holmes
1130 K Street, Suite 210
Sacramento, CA 95814
Tel: (916) 441-3300
Email: dwalrath@m-w-h.com
Web: www.accm.com