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ABSTRACT

This document is intended to be a "cookbook" of the numerous elements which collectively influence the cost containment of school construction projects. Each element is meant to indicate an action in the process that the school district should pay attention to and ensure is properly accomplished. The elements influencing cost containment are detailed in five categories, each representing one of the basic phases of a project: (1) pre-design; (2) design; (3) bid and award; (4) construction; and (5) occupancy. (Contains a glossary of terms.) (EV)

COALITION for ADEQUATE SCHOOL HOUSING
Cost Containment Cookbook
For Public School Construction

NOTES TO THE READER

This document is intended to be a "cookbook" of elements which collectively influence the cost containment of school construction projects.

It is not intended to be a treatise on the entire school construction process nor to establish responsibilities between various members of the construction delivery team.

As such, each element is meant to indicate an *action* in the process that the District should pay attention to and ensure is properly accomplished.

Each element should be read as:
"The District should . . . . Define use and scope"
"The District should . . . . Ensure compliance with etc."

ELEMENTS INFLUENCING COST CONTAINMENT OF PUBLIC SCHOOL CONSTRUCTION
TABLE OF CONTENTS

The Elements Influencing Cost Containment of Public School Construction are presented in five categories, each representing one of the basic phases of a project. Each category is further subdivided into areas relating to the primary functions normally involved in the project. Thus, the major elements are presented in the following outline:

PRE-DESIGN

I. OWNERSHIP related elements for consideration
II. DESIGN related elements for consideration

DESIGN

I. OWNERSHIP related elements for consideration
II. DESIGN related elements for consideration
III. CONSTRUCTION related elements for consideration
IV. MANAGEMENT related elements for consideration

BID & AWARD

I. OWNERSHIP related elements for consideration
II. DESIGN/MANAGEMENT related elements for consideration

CONSTRUCTION

I. OWNERSHIP related elements for consideration
II. DESIGN related elements for consideration
III. CONSTRUCTION related elements for consideration
IV. MANAGEMENT related elements for consideration

OCCUPANCY

I. OWNERSHIP related elements for consideration
II. DESIGN related elements for consideration

PRE-DESIGN PHASE

I. OWNERSHIP related elements for consideration

A. Identification of Project

- Define use, scope and players
- Ensure compliance with District Facilities Master Plan
- Evaluate joint use opportunities

B. Educational Specifications

- Incorporate feedback from prior project evaluations
- Prepare detailed Ed Specs including clear definition of cost containment opportunities (i.e., materials, measurements, fixtures)
- Validate conformance with District Facilities Master Plan
- Identify joint use partners for financial participation and utilization requirements

C. Project Budget

- Establish reasonable limits
- Prepare a realistic budget in consideration of prior project closeout costs
- Define all cost elements: project overall, hard and soft costs, and site costs
- Identify and investigate funding alternatives (maximize resources)
- Establish key areas of potential cost overrun and identify limits

D. Project Master Schedule

- Identify realistic occupancy target date
- Establish key progress (milestone) dates
- Be aware of and include adequate time for appropriate agency (DSA, OPSC, CDE and local) and utility company review periods
- Include time saving opportunities in consideration of potential risk
- Be aware of and include time allowances for Owner reviews and approvals
- Periodically analyze cost implications of Project Timeline
- Prepare a written flowchart or bar chart of activities

E. Owner's Representation

- Clearly identify the committees, roles, time-frames, responsibilities and authorities
- Establish committee controls to minimize regressive decision process
- Clearly identify the necessary staffing, roles and responsibilities
- Identify single source project manager (on staff or by contract)

F. Site Selection

- Initiate CDE review and DTSC approval, if required, early in process
- Identify all site acquisition and development costs
- Identify all easements recorded on the property and other constraints
- Consult with local and state agencies and incorporate their requirements
- Involve architect in site selection

G. Forms of Service Agreement

- Review prior agreements for problem areas
- Utilize industry standard agreements whenever possible
- Make sure agreements protect all parties fairly
- Eliminate overlapping services
- Consider performance incentive options in agreements to reduce/control costs

H. Risk Management

- Evaluate potential cost savings and availability of insurance alternatives such as Owner Controlled Insurance Program (OCIP)
- Consider establishing, or joining, a joint powers authority
- Identify potential risk exposure elements
- Select legal services experienced in construction matters

I. Project Delivery Method

- Review the American Institute of Architects California Council's Handbook on Project Delivery
- Seek wise counsel with a knowledgeable consultant on the various methods that are available
- Identify which method is thought to be best for this project
- Prepare scope of work for consultants to reflect the selected method

PRE-DESIGN PHASE

II. DESIGN related elements for consideration

A. Selection of Consultant Team

- Confer with colleagues from other districts for names of potential consultants
- Base selection on qualifications, i.e. demonstrated ability in past performances to produce effective, cost efficient facilities
- Interview at least three qualified firms
- Establish a ranking of most qualified (1st highest, 2nd, 3rd etc.)
- Include a person on the interview panel from the profession being considered
- Establish the consultant team leader

B. Scope of Work for Basic Services

- Clarify that the consultant's Basic Services will include all services and deliverables needed to accomplish the project described in the Ed Specs
- Identify unique elements that may require Additional Services
- Identify services provided by owner (staff or consultants)
- Eliminate overlapping of services between consultants
- Establish quality assurance program

C. Negotiation of Consultants' Agreements and Fees

- Clearly state the scope of work you want provided
- Negotiate in a timely manner with highest ranked firm to reach a mutually agreeable services, fee and form of agreement
- Do not start work until reaching an agreement
- Encourage or establish a lump sum fee based on the scope of work
- Consider fee incentives for cost reduction

DESIGN PHASE

I. OWNERSHIP related elements for consideration

A. Programmatic Requirements

- Clarify any ambiguities in the Ed Specs
- Identify all district standards to be used on the project
- Establish the quality level desired and budgeted for the project
- Consider initial construction costs versus long term operations and maintenance costs
- Identify community issues, if any, that may impact the project
- Provide as-built documents for facilities that are affected and adjacent facilities which might be impacted

B. Resource Allocation

- Establish a reasonable contingency plan for construction, design and owner requested changes
- Ensure that district provided services are coordinated with consultants
- Establish a value system based on district priorities

C. Schematic Design Phase

- Provide initial information about specific district requirements
- Validate and approve value decisions and priorities
- Seek final School Board approval and authorization to proceed
- Coordinate design requirements with potential joint users

D. Design Development Phase

- Provide detailed and final information on all district requirements
- Identify district-contracted vendor selections and communicate to consultants
- Review and validate design documents
- Identify any sole source vendor/system items
- Minimize deferred approvals

E. Contract Documents Phase

- Establish formal, periodic review and approval schedule
- Initiate procurement of district provided, long lead items
- Identify any pre-qualification procedures to be used (DVBE, labor, etc.)

DESIGN PHASE

II. DESIGN related elements for consideration

A. Programmatic Requirements

- Review and approve consultant's detailed design phase schedule
- Guide consultant's development of user needs statement
- Guide consultant's development of detailed program
- Review and approve consultant's design standards
- Integrate previous project documents into design considerations
- Perform on-site assessment prior to start of design

B. Resource Allocation

- Identify construction costs of budget
- Allocate budget values to each design discipline
- Define intent and amount of project contingency

C. Schematic Design Phase

- Review plans and specifications for compliance to program
- Review plans for efficiency and cost effectiveness of area and volume
- Review plans and specifications for compliance to budget
- Review building system diagrams for compliance to program and budget
- Define all agency, utility company, and local community involvements and basic requirements
- Review plans for constructability

D. Design Development Phase

- Review plans and specifications for compliance to program
- Review plans for efficiency and cost effectiveness of area and

volume
- Review plans and specifications for compliance to current estimate
- Review building system plans and specifications for compliance to program and budget
- Confirm any assumed elements with actual design
- Contact all agencies and utilities for preliminary understanding of their current/specific requirements

E. Contract Documents Phase

- Have consultant's plans and specifications reviewed for completeness, coordination, and constructability
- Establish submittal dates with agencies and confirm review periods
- Provide quality control check of documents

DESIGN PHASE

III. CONSTRUCTION related elements for consideration

A. Programmatic Requirements

- Review existing site conditions to anticipate any design or construction concerns and considerations
- Consider cost saving and/or occupancy aspects of construction phasing
- Validate proposed construction schedule and phasing

B. Resource Allocation

- Verify quality control levels of project and design
- Identify and provide local historical building systems values
- Provide cost benefit analysis

C. Schematic Design Phase

- Identify method/means issues
- Investigate and evaluate building systems alternatives
- Identify areas of potential value engineering

D. Design Development Phase

- Facilitate method/means decisions
- Provide specific budget validations
- Review details for methods and means
- Provide industry trends and recommend changes to design team

E. Contract Documents Phase

- Include detailed instructions and front-end specifications
- Review details for methods and means
- Provide final constructability review and identify quality control issues
- Identify and clarify possible ambiguities in documents

DESIGN PHASE

IV. MANAGEMENT related elements for consideration

A. Programmatic Requirements

- Review and update project master schedule including key milestones
- Analyze cost implications of project master schedule on a regular basis
- Review and confirm district building standards at each phase of project
- Evaluate existing conditions at facility and/or site

B. Resource Allocation

- Review and update all project costs (hard and soft) at each phase of project
- Verify construction estimates to initial budget
- Identify categories of value and priority
- Facilitate team coordination and responsibility
- Provide input on cost benefit of each area of allocation

C. Schematic Design Phase

- Facilitate design decisions that may affect schedule
- Review progress drawings for coordination between consultants
- Review progress drawings for cost effective methods and means of construction
- Meet with approving agencies to inform them of progress and to receive their input on the design and construction
- Review and approve schematic plans, specifications and estimates prior to proceeding to the next phase

D. Design Development Phase

- Facilitate progress meetings to keep project on schedule
- Review progress drawings for coordination between consultants
- Review progress drawings for cost effective methods and means of construction
- Meet with approving agencies to inform them of progress and to receive their input on the design and construction
- Review and approve design development plans, specifications and estimate prior to proceeding to the next phase
- Conduct review to ensure compliance with program and quality expectations

E. Contract Documents Phase

- Conduct progress meetings as required to keep project on schedule
- Review progress drawings for coordination between consultants
- Review progress drawings for cost effective methods and means of construction
- Meet with approving agencies to inform them of progress
- Conduct full technical plan review prior to DSA plan check submittal to ensure completeness, coordination and constructability
- Review and approve final plans, specifications and estimates prior to proceeding to the bid/award phase
- Develop general conditions, allowances and bid alternates sections of the specifications to ensure compliance with budget
- Submit documents to approving agencies concurrent with technical plan review

F. If Project is Phased

- Consider using separate construction contracts for each phase (site and buildings) of the work
- Prepare separate bid documents for each phase
- Coordinate the bid documents to eliminate gaps or overlaps in construction responsibility

G. Types of Contracts

- Utilize a single "lump sum" contract when the scope of work is known and can be fully incorporated in the bid documents; cost of project determined at time of bid
- Utilize a "time and materials" contract when the scope of work is not known and cannot be fully incorporated in the bid documents; cost of project determined after work is accomplished
- Utilize a "guaranteed maximum price" contract when the scope of work can be reasonably well anticipated and can be represented (but not fully incorporated) in the bid documents; cost of project approximated at time of bid and finally determined when final scope is known and bid

BID/AWARD PHASE

I. OWNERSHIP related elements for consideration

A. Contract Documents (Front end)

- Review District standard requirements and modify, if necessary, to suit project prior to issuing to bidders
- Ensure legal counsel review, if necessary, is incorporated prior to issuing to bidders
- Include only relevant information in the "boiler-plate". Eliminate

elements not specific to the project that may increase costs
- Minimize changes to documents subsequent to issuance Concentrate on issues of clarification and corrections as needed
- Include provisions in documents requiring updated project schedules from contractor as a provision of progress payments
- Prioritize bid alternates in accordance with public contract code

B. Bidder Pre-Qualification and Bid Marketing

- Utilize pre-qualified contractors whenever possible
- Base pre-qualification on experience, quality of previous performance, financial capability and resource availability
- Advertise in newspapers and other publications that will maximize exposure
- Select bid date that will minimize conflicts with other projects bidding at same the time
- Target as many qualified bidders as possible to ensure competitive bid results

C. Board Interface

- Coordinate bid opening with School Board meeting schedule to minimize delay in award and commencement of construction
- Obtain "pre-approval" of acceptable bid amount from School Board prior to bid
- Arrange for special School Board meeting to approve bid if pre-approval is not available or bidding schedule does not coordinate with School Board schedule

D. Receiving and Verifying the Bids

- Conduct formal bid opening and announce all bids publicly
- Verify that bid is "responsive" in fulfilling all bid requirements
- Take bids "under advisement" to allow full verification prior to award
- Verify that "apparent low bidder" has no errors in their bid
- Consider time in schedule for contractor to verify performance bond

E. Awarding the Contract(s)

- Decide which bid alternates will be incorporated into the contract
- Determine actual low bidder based on base bid and selected alternates
- Notify actual low bidder of intent to award contract as soon as possible

F. Execution of Construction Contract

- Verify accuracy of executable contracts
- Verify bonding company, license and limits are valid under

California State law
- Make final verification of district access to funds for construction
- Verify that the successful bidder has provided all required documents to allow issuance of the notice to proceed

G. Furniture & Equipment

- Establish move-in coordinator responsible for Furniture & Equipment
- Confirm receipt of equipment
- Establish separate bid and award package for the Furniture & Equipment not included in the construction contract
- Coordinate timing of bid with long lead time equipment and utility needs

BID/AWARD PHASE

I. DESIGN/MANAGEMENT related elements for consideration

A. Bid Alternates

- Verify the content of the bid alternates included in the documents
- Use bid alternates to expand or reduce the scope of the project to meet the District's budget
- Include bid alternates to allow maximizing award within budget
- Utilize both additive and deductive alternates
- Prioritize alternates to legitimize bid/award process

B. Document Distribution

- Distribute an ample number of bid documents in order to facilitate bidding
- Utilize established "plan rooms" and "builders exchanges"
- Maintain accurate plan holder's list
- Minimize the cost of the bid document deposit
- Distribute addenda to all plan holders

C. Bid Period

- Allow adequate time for bidders to prepare their bids
- Include a contingency for potential extensions of bid date
- Allow three weeks for normal small projects
- Allow four to six weeks for larger and/or complex projects
- Plan bid period to include document distribution, pre-bid conference, addendum preparation, and bid opening
- Avoid bid dates that conflict with similar projects out for bid

Pre-Bid Conference

- Conduct a mandatory pre-bid conference at project site early in the bid period

- Present the project goals and objectives
- Cost constraints
- Schedule
- Budget
- Unique elements of the project
- Record all questions and answers; formalize in subsequent addendum

Managing Addenda

- Issue addenda identifying all changes to the documents as early in the bid period as possible
- Delay the bid date if significant changes are identified within 7 days of bid date
- Ensure addenda is clear in scope and intent
- Reduce the issuance of full size drawings and encourage a format which facilitates ease of distribution, i.e., cad disc, 8 ½ x 11.

CONSTRUCTION PHASE

I. OWNERSHIP related elements for consideration

A. District Representative

- Provide a knowledgeable district representative with adequate authority to make decisions and authorize changes
- Ensure representative is available whenever needed
- It is strongly recommended that the district representative remain the same throughout the life of the project

B. Partnering

- Encourage open, two-way communication between all involved
- Utilize "partnering" techniques to build trust and encourage a positive working relationship
- Develop a strong team approach responsive to everyone's needs

C. Timely Decisions

- Establish a system to ensure rapid response to issues and timely decisions
- Expedite all decisions on a "highest priority" basis

D. Furniture and Equipment

- Identify all furniture and equipment (F&E) that will require integration into the construction
- Provide all specification and installation data in a timely manner so as to avoid delays in the project
- Ensure delivery (and installation if appropriate) on schedule
- Coordinate with the contractor on all owner provided F&E

E. Project Closeout

- File Notice of Completion

- Punch List Completion
- Commissioning of Buildings and Systems

CONSTRUCTION PHASE

II. DESIGN related elements for consideration

A. Requests for Information (RFI)

- Ensure immediate and complete response to all requests
- Monitor RFI logs to ensure they are being responded to in a timely manner

B. Agency Relations

- Develop good working relations with all regulatory agencies
- Advise the agencies of project status on a regular basis
- Notify the approving agencies of times when inspections or other approvals are required; provide notification in sufficient time to avoid delay

C. Submittals and Substitutions

- Coordinate with owner to keep owner informed of substituted items -- obtain approval where necessary
- Perform timely review and approval
- Establish schedule for submittals in the construction documents
- Require submittals only on items that are not as specified in the documents
- Make CAD files available to subcontractors for their use in the development of shop drawings and/or submittals. These documents can later be used for As Built Documentation

D. Change Orders

- Minimize need for change orders by proactive problem solving
- Process information in a timely manner
- Clearly separate change orders, i.e.:
  - Scope changes
  - All others

E. Field Observations

- Architect and Consultant Team to make site visits at appropriate stages of the construction

CONSTRUCTION PHASE

III. CONSTRUCTION related elements for consideration

A. Access to the Job Site/Mobilization

- Provide access to the job site with sufficient space and utilities to support the contractor's operations
- Allow early set up (mobilization) when possible

B. Job Site Issues

- Maintain a safe and secure work place at all times
- Coordinate school educational and other needs with those of construction on all occupied and operational sites
- Facilitate work force security approvals (fingerprinting, fencing, etc.)

C. Schedule

- Establish a reasonable time schedule for completion of the work
- Identify all major progress points (milestones) that must be met in order to complete the work as scheduled. Milestones should include the parties responsible for the tasks
- Monitor, update and adjust the schedule
- Coordinate the work of district items
- Identify all long lead items

CONSTRUCTION PHASE

IV. MANAGEMENT related elements for consideration

A. Inspector of Record

- Utilize an inspector of record (IOR) that is qualified and cooperative
- Insist on maintaining daily logs of all inspection activities
- Ensure timely and complete reporting to the approving agencies
- Ensure timely and complete documentation
- Coordinate the responsibilities and work of all involved
- Clearly identify scope of services and method of compensation
- Collect and provide documentation for DSA closeout and certification
- Certify as built drawings

B. Pre-Construction Conference

- Conduct a mandatory pre-construction conference at the job site prior to start of construction
- Include all entities involved plus the key school and district representatives
- Present the project goals and objectives emphasizing the cost constraints

- Present the project master schedule
- Establish lines of communication and decision making protocol

C. Progress Meetings

- Conduct weekly job site construction progress meetings with parties appropriate to the progress of the contract
- Establish a positive, hands-on approach to monitoring the progress of the job
- Anticipate problems and potential change orders and act quickly to minimize issues
- Utilize a document control (logging) system to track all requests

D. Problem Resolution

- Attempt to resolve issues as they arise during the course of construction with best value solutions
- Review proposed change orders (PCOs) immediately to determine their validity
- Negotiate all necessary change orders fairly
- Document and execute change orders in a timely manner
- Submit to appropriate agencies for approval

E. Project Closeout

- Coordinate connection of owner controlled utilities
- Develop a project specific close out check list
- File Notice of Completion
- Coordinate the training of personnel on equipment and systems
- Coordinate the DSA close out documentation

OCCUPANCY PHASE

I. OWNERSHIP related elements for consideration

F. Project Closeout
A. Occupying the Facility

- Establish a "move-in" coordinator responsible for occupancy
- Establish a move in plan
- Limit changes requested by incoming staff
- Explore most cost effective method for delivery and/or storage of equipment
- Consider the cost impact of district assembled equipment
- Coordinate owner supplied/contractor installed items
- Coordinate security/safety transition between owner and contractor
- Evaluate early occupancy benefits or detriments
- Have appropriate staff available to resolve problems that arise during move in
- Clearly state the warranty period in the construction documents
- Coordinate ongoing occupancy review

a. 11 month warranty review
b. 1 & 3 year post occupancy reviews
c. Provide for seamless transfer of liability insurance

- Coordinate all aspects of joint use agreements

Glossary of Terms and Definitions

Addenda – Supplemental information issued after the initial distribution of the bidding documents, but prior to the receipt of bids. These should be minor in detail in order to avoid confusion and excessive cost as a result of their issuance. Clarifications and answers to pre-bid questions should be issued in the form of an addendum to all registered plan holders.

Allowances – Term used to describe a fixed amount or estimate that covers an element that cannot be readily defined or that needs to be included in a bid that the District has determined is required. The amount for an allowance is typically not contractually binding upon the party who may be assigned to carry the allowance amount.

American Institute of Architects (AIA) California Council's Handbook on Project Delivery – Handbook which is available through the California AIA which describes the primary methods of delivering construction and the various forms of contracting.

As-Built Documents – A final set of documents that indicate the actual or "as-built" conditions of the construction for a project. These documents are particularly important when subsequent projects require utility connections and identifying locations. These can be produced in a number of different mediums such as hand-marked bluelines, re-plotted CAD drawings or CD-ROM. These can be produced by either the design team, a separate consultant or the contractor. Responsibilities for this work should be determined in advance of the architect selection and contracting. This varies by district standard and costs can vary greatly depending on the selected medium or party selected to produce the final documents. Subsequent modifications to facilities or sites should be clearly documented on these as built drawings.

Bidder Pre-Qualification – A process used by districts in an attempt to increase the quality of the bidding pool for their projects. This procedure can vary greatly from district to district and usually goes through a legal review prior to implementation.

Bid Marketing – The process whereby a district, the architect or the construction manager encourages bidders to participate in bidding their project. This may include but is not limited to additional placement of bidding documents in plan rooms, an organized telephone campaign of general contractors or trade subcontractors, and additional advertising in trade publications or other recognized sources that will generate additional bidder interest.

Bid Alternates – Term used to describe additive or deductive options or elements that may or may not be chosen to be a part of the final project.

Boiler Plate – A term to describe standardized language used in contracts and specifications. Items that usually fall into this category would include: standardized General Conditions language; bid forms and bidder instructions; standard forms of agreement; indemnification documents; and numerous other statutory forms and inclusions in various contract documents with the architect, contractors, consultants and vendors.

Change Orders – Term used to describe work that changes the original bid documents. These may include work that is minor or very substantial depending upon the circumstances of the project. Pricing rules for change orders are usually defined in the documents in order to expedite and fairly determine the value of the issued change. Change orders may also include "time" if circumstances associated with the change affect the schedule or delay progress which has been originally stipulated in the bid schedule or duration of the project.

Commissioning – A term used to describe the process of final completion and startup of building systems and equipment. This process will usually include the training, final testing, certification, operational demonstration, balancing, tuning, final cleaning, etc. The details of this process are usually defined by the design team in the construction documents and may vary greatly with the size of the project.

Constructability Review – Process performed by an experienced construction person or staff which identifies problematic details, difficulties in assembly which may affect overall performance or quality, missing elements of design, design inconsistencies, improvements of details which would assist or expedite the construction process, enhancements that would improve the delivery of quality, discontinued or non-(locally) available building components, etc. This review should be performed in schematic design, and again prior to the completion of the design documents to avoid delays and additional design costs.

Construction Phasing – Term used to describe various stages of a construction schedule which are separate or unique to work activities that may logically tie together. Phases can be logically tied together where critical elements may affect or be predecessors to subsequent work activities in the overall construction process. Phasing can be generally described as separations of work and are typically staggered over the duration of the project's overall construction period.

Contingency – A term used to describe a component of the budgeting or contracting process that covers items which are unknown or not anticipated in the detailed assembly of the budget. These items or circumstances can come up unexpectedly during the course of the project and are not the direct responsibility of any contracted party to the project.

Deliverables – Term used to define products of a consultants agreement with a district which might include but is not limited to progress drawings, specifications, budget estimates, schedules, models, renderings, presentation graphics for school board or public meetings, color/sample boards, structural frame analysis/calculations, written reports or studies, etc. These are usually defined in the agreement with the consultant as basic service items or as additional service items.

Design Contingency – Term used to describe a fund or budget item intended to cover the cost of implementing construction or design enhancement items which are not a part of the initial documents or design, and may be necessary to complete the project.

District Facilities Master Plan – A comprehensive plan for the development, modernization and/or repair of school facilities throughout a district. The plan could include but is not limited to demographic studies, existing facility surveys, budget/cost analysis, facility augmentation, needs assessments, timeline/schedules, identified sources of funding and possible bond election measure requirements.

District Standards – Similar to Ed Specs, this term is used to describe the standard elements, layout, levels of quality, materials of use, proprietary systems, etc. that the design team and facility planning groups coordinate to develop the final construction documents.

Document Control System – A term used to describe a system which organizes, tracks, distributes, and makes available defined documents that are important to the communication procedures of the construction team. Standard formats are typically developed on a selected computer platform in advance of the project startup. Documents can be stored and retrieved in an efficient manner by the manager of the document control system.

Ed Specs - Term used to describe the Educational Specifications of a school district. These are the basic elements of a new facility or modernization project which are used by the design team in development of a project's construction documents. These are normally developed in coordination with the specific teaching and facility standards as set forth by the district during the initial planning stages of a project or program. Development of the ed specs are completed in coordination with the users of the facility in meeting the requirements of the school staff administration and the Department of Education.

Estimates – Summaries of estimated cost based upon current and/or historical cost data. Types of estimates and their frequency of production should be determined during the pre-design stage of the process. Details and organization may vary at each stage and by the producers of the estimate. Estimates may be a direct measurement of the elements of the design with extended unit costs or simply a measurement of the areas with an applied square footage value which is based upon the intended use of the space.

Fixed Fee – Term used to describe a fee which has a specific stipulated, established or settled amount and that would typically occur as a lump sum dollar value. This type of fee contrasts with the percentage (%) fee which is calculated on the value of some other element such as the construction cost.

Front End Requirements – Term used to describe various procedural measures or requirements of a project that are used by the bidder in preparation of a bid. They also describe various administrative and logistical requirements such as progress reporting, local community factors, payment procedures, scheduling, etc. which are required for the specific project.

General Conditions - Term used to describe various costs of essential elements of the construction process that are not directly incorporated into the final project, such as temporary fencing, power, toilets for workers, safety items, temporary roadways, lighting, security guards, etc. This would also include the costs of administering and supervising the actual construction process such as staffing costs, trailers, copying, blueprinting, telephones and computers for the construction staff, schedule updates, etc.

Guaranteed Maximum Price (GMP) Contract – Type of contract where the initial value of the contract is based upon an estimate of costs during the design stages plus a stipulated value for contingencies that may be necessary; or an accumulation of all bids for the completed documents plus an estimated general conditions value and established contingency for elements that were not covered during the bidding process or anticipated during the initial budgeting of the project.

Hard Costs – Term used to describe the direct costs associated with "construction" components of a new facility or modernization. These costs would include the bids of the general contractor, subcontractors, and elements that are a visible product of the construction process. This may include but is not limited to direct land purchase, site development, site utilities, buildings, furnishings, equipment, etc. Some districts may include (as a hard cost) the fees and general conditions costs of a construction manager who might be directly overseeing the construction process if hired as a separate consultant. Cost of in-house staff that perform management functions are traditionally classified as soft costs.

Inspector of Record (IOR) – Consultant hired by the district to generally oversee the assembly of the components of the construction in accordance with the contract documents and codes affecting their assembly. Specific duties and responsibilities of the IOR may vary depending upon the use of a separate construction manager or available district staff.

Joint Use – Term used to describe an agreement between a district and another public or private entity where facilities, land, utilities, or other common element are shared between two or more parties.

Joint Powers Authority – Term used to describe a government entity created under state law that allows two or more government agencies to combine forces by "jointly" exercising their powers with respect to a specific purpose or set of objectives.

Lump Sum Contract – Stipulated or set value type of contract for the work defined by the agreement for consultants or the construction drawings and specifications for a contractor.

Master Schedule – A schedule that typically defines the major elements of the entire project or program from its initial planning stages and completely through the design, construction and eventual occupancy stages. This timeline will be used by the entire team to properly plan and strategize each discipline of the overall process. Critical milestone dates are identified in the Master Schedule which will directly or indirectly affect the ability of each discipline to meets its obligations and completion dates.

Mobilization – The process of project set up in preparation of the actual construction work. This may include but is not limited to: installation of temporary fencing; set up of construction trailers; major construction equipment delivery (cranes, scrapers, bulldozers, forklift, etc.); and any temporary provisions such as power, water, phone, signage, roadways, erosion control, etc.

Notice of Completion – The official notice or document that is statutorily required to be filed at the conclusion of the project when all work has been completed by the construction team and signed off by the district, its inspector, and the design team. This notice is filed with the county recorder in the county in which the project is

located. It will also normally initiate the start of the warranty period(s) for the project as well as other statutory periods for lien filings or claims.

Owner Controlled Insurance Program (OCIP) – Insurance program that is controlled by the district in lieu of each party to the project. This overall program can vary in its coverage but typically covers all liability insurances of the designer, contractors, the district and property owners (if different from the district). These programs are usually pursued on larger projects where economies of scale for one large policy may be collectively organized in a cost savings manner versus the numerous individual policies which may have much higher rates individually.

Partnering – Term developed in recent years and used to describe a (typically) non-binding process where all stakeholders to a construction project agree to a methodology or plan for resolving problems in order to avoid formalized dispute resolution procedures. A third party facilitator is usually hired to organize and oversee the set up of the meeting which is used to develop an informal but written partnering agreement.

Plan Rooms – Also known as builder exchanges where bidding documents are placed (including all addenda) for review and use typically by second or lower tier subcontractors and vendors in preparation of a bid to the general contractor or directly to the district or construction manager if trade bidding is the selected method of receiving bids.

Pre-Bid Conference – The meeting that is held in advance of the bidding process, but typically after the bidding documents have been made available to the potential bidding community. This conference will typically give a general definition to the scope of the project as well as any special considerations that may not be readily apparent to the bidders, but necessary in preparing an acceptable bid. Schedule, levels of quality, inspection procedures, bonding, bid form requirements, site walk, and numerous other elements are important for a complete pre-bid conference. These conferences may or may not be mandatory, depending upon the policy of the district.

Quality Assurance Program – Term used to describe a program(s) which are developed by the district, the designer, the construction manager or the contractor in order to insure that the quality levels established for the project are maintained.

Request for Information (RFI) – A term used to describe a format by which a question is asked by a contractor to the design team for clarification. These may or may not be minor in nature, and may or may not generate subsequent requirements for change orders to be issued.

Soft Costs – Term used to describe elements such as, but not limited to, consulting or planning services, design fees, site evaluations, appraisals, testing & inspections, studies, attorney fees, financing costs, state plan check fees, local capacity fees, etc. These costs can be highly variable from project to project.

Submittals - Term used to describe shop drawings, manufacturers data, material samples, coordination drawings, system schematics, etc. that more descriptively define the actual components to be used by the contractor on the project as generally defined in the design documents. These submittals are typically more highly detailed in their definition of the final product that will be produced or provided.

Substitutions – Term used to define alternatives proposed by the contractor to the design team or district which vary from the specified products or materials in the original design documents. The review period and rules for consideration of substitutions should be clearly defined in the documents in order to avoid delays or additional costs.

Time and Materials Contract – Type of contract where the costs associated with the actual time for labor is accumulated and the actual material invoices and costs are tracked throughout the entire period of the agreement. The final total of costs is tabulated at the end of the process or may be tabulated along the way in order to appropriately compensate the T&M performer.

Value Engineering (VE) – Term used to describe the process or analysis of a project's design where cost savings measures are necessary or desired by the district without major changes to the overall quality or program requirements of the Educational Specifications or District Standards. VE items will typically include alternative systems or equipment selections, identified methods of assembly which may be more efficient than originally defined by the document details, use of standardized design details throughout the project, identified reductions in appearance quality for non-visible elements of the project, unnecessary proprietary items, etc.

Value System – Term used to describe a system developed by the district to evaluate and prioritize components of the construction process and their overall value to the project. This system defines what the "most important" factors are in the project in case a problem arises and changes are necessary. Time, quality and budget are the primary categories of a value system that need to be defined to the entire project team when making decisions throughout the entire project

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