CALIFORNIA'S
COALITION
for ADEQUATE
SCHOOL HOUSING

Welcome and Introductions

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Selecting Your Construction Project Team

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Planning a new school construction or modernization project can be a daunting task for all District Administrators

The Construction Project Team:

Who are the players and what is their role?

Legal Counsel

- **Reviews and recommends approval of contracts for:**
  - Architectural Services
  - Site Acquisition/School Acquisition Contracts
  - Construction Consultant Contract (CM, GC, etc.)
  - Other consultants
- **In addition:**
  - Review of Bid Documents
  - Supplies General Conditions Section
  - Advice on Construction disputes
  - Recommends procedures to minimize exposure to construction claims

Financial Planning Consultants

- **District to prepare long term financing plan:**
  - Maximize Funding Mechanisms
  - Financial Hardship vs. 50/50 Districts
  - GO Bond
  - Community Finance District (CFD)
  - Certificates of Participation (COP)
  - Grant Eligibility
  - OPSC forms and submittals
  - Audit Assistance
  - CDE and OPSC issues

Architect

- Plans school site lay-out
- Develops educational specifications for new school project with District Staff for CDE review
- Preliminary Endangerment Assessment (PEA) mitigation team member
- Construction drawings
- Submit Drawings and Plans to CDE, DSA and OPSC
- Review District Standards
- Prepare Five-Year Facility Plan
- Assists with local Utility Companies
- Assists with local City and County staff

Architect Continued…

- **Oversees the following Consultants on Project:**
  - Civil Engineer
  - Mechanical Engineer
  - Structural Engineer
  - Electrical Engineer
  - Landscape Architect
  - Kitchen Design Consultants
- **Various other duties as assigned….**

Site Acquisition Consultant

- **Recommends and assists in a variety of capacities as it relates to school site options:**
  - Site Identification
  - Site Purchase
  - Site Viability
  - Eminent Domain issues
  - Assists in obtaining Approvals by DTSC, CDE, Local City, Fire and Utility Companies
  - Works with Developers on master plan projects

Appraisers

- Self Contained Appraisals for new school sites
- GO Bond Appraisals

Escrow Companies

- Escrow transactions for land purchases agreements
- Escrow accounts set up for special projects

Geotechnical Consultant

- Phase I
- Geohazards Study
- Soils Testing
- Preliminary Endangerment Assessment (PEA)

Environmental Consultants

- California Environment Quality Act (CEQA) preparation for:

- New School Sites

- Existing School Site Addition of more than 10 classrooms

Construction Manager (CM)

- Pre-Construction (Estimates)
- Review of Plans
- Constructability Review
- Value Engineering
- Bid Package Assignments and Coverage
- Finalize General Conditions and Division 1 with the Architect and District
- Scheduling
- Supervise Construction Project
- Pay Application review and recommendation
- Change Order review and recommendation
- Close-out Documents/Warranty Calls
- Site Safety Compliance

General Contractor

- Single Prime Contractor
- Hard Bid
- Work awarded to lowest bidder
- Oversees schedule and sub-contractor on project
- Handles Pay Application and Close-out documents

Multi-Prime Contractor

- Individual Trade Contractor working under Multi-Prime Construction Management Contract

Surveyor

- Surveys for new school sites
- Handles Parcel splits
- Prepare Metes and Bounds for Land Recordation
- Set corners, grade stakes, etc. during construction
- Contract held by District or Construction Manager

Storm Water Prevention Plan (SWPP)

- Storm Water Prevention Measures for existing school sites and new construction projects. (Contract held by District or Construction Manager)

Division of State Architect Project Inspector (PI)

- Formally known as Inspector of Record (IOR)
- Handles On-Site Inspection for Construction Projects
- Oversees Construction Specialty Testing Inspectors and Services
- District holds PI contract but PI acts under the direction of the Architect in general responsible charge and is subject to supervision by DSA (Title 24 Part 1 IR A-8)

Material & Specialty Construction Testing Services

Handles Testing and Review of the following work:

- Soils
- Concrete
- Masonry
- Moisture Tests
- -- Compaction
- -- Welding
- -- Other Specialty Tests
- -- Works under on-site PI

Furniture and Equipment Consultant

- Handles ordering and purchasing requirements:
  - Meets with Facility Staff and New School Principal
  - Helps in procuring furniture, equipment, and supplies to open new schools
  - Color coordination with Furniture and Classroom interiors
  - Field measures for office and classroom furniture
  - Works within State of California purchasing regulations as outlined by Government Codes
  - Receives furniture delivery, checks in and matches order
  - Identifies damage or incorrect deliveries
  - Prepares warranty information book

Bank

- Set up Escrow or Trusts Accounts for Construction Projects
- Contractor payments dispersed through accounts
- Cash Flow Statements

Lobbyist

- Presents District special requests to State Allocation Board (SAB)

Project Design

Greg Chapman, AIA
PCH Architects

The Design Team

- Establish the Design Team early.
  - Select professionals familiar with school design and construction.
- The Design Team should consist of:
  - Architect
  - Construction Manager (if multi-prime)
  - District Personnel/School Board Members
  - End-Users of the Facility
  - Parents/Community Members/Students

Site Selection

- Parameters
  - California Department of Education
    - Have CDE physically visit the site with you
  - California Code of Regulations - Title 5
    - Lists Standards for School Site Selection
    - Indicates Procedures for Site Acquisition
    - Identifies Standards for Development of School Facilities
  - DTSC/CEQA – Environmental Review
    - Best to begin this process early
    - Some hazards are visually apparent while others are not

Site Selection (cont.)

- Before you obtain the site, consider the following:
  - Topography/Grading
    - Flatter=less expensive (generally)
  - Proximity of Utilities
    - Closer the better
  - Soil Contamination
    - Cleaner the better
  - Geological Soil Characteristics
    - No earthquake faults, shallow groundwater, or subsurface rock conditions
  - Proximity to Potential Hazards
    - Power Lines, Airports, Pipelines, Traffic, Railroads, etc.
  - Obtain CDE & CEQA site approvals

Project Schedule

- Typical Elementary School
  - Pre-Design: 1-2 months
  - Schematic Design: 1-3 months
  - Design Development: 2-4 months
  - Construction Documents: 4-6 months
  - Agency Review/Approvals: Varies (6 mo)
  - Bid and Award: 1-1.5 months
  - Construction: Varies (1 year)

Pre-Design: Site Analysis

- Obtain Topographical and Boundary Survey of the Site
- Obtain Geo-Hazards Report for your site
- Conduct Phase 1 PEA through DTSC and receive approval
- Architect can analyze the site to visualize the site's design possibilities and limitations.
    - Vehicular & Pedestrian Circulation and Parking
    - Buildings
    - Playgrounds
    - Future Expansion

Pre-Design: Programming

- The process of determining the client's wants and needs for the project
- Usually determined through a series of meetings or questionnaires
- Input received from:
    - Parents/Students
    - Teachers/District Personnel
    - School Board Members
    - Community Members

Pre-Design: Ed Specs

- Educational Specifications
  - Written document (road map) defining the project's program and goals:
    - Educational goals and Enrollment criteria
    - Community goals
    - Define the various spaces and sizes
    - Identify spatial adjacencies and relationships
    - Budget
    - Schedule
    - Identify Client's design and material standards

Pre-Design: Sustainability

- Discussions need to occur early in the process to support sustainable design processes
  - CHPS – Collaborative for High Performance Schools – www.chps.net
  - LEED – Leadership in Energy and Environmental Design – www.usgbc.org/LEED/
- Commitment must be secured from District's decision-makers

Schematic Design

- Ed Specs become the criteria used to develop schematic design alternatives:
  - Site, Building, Exterior designs
  - Don't Over-Design - Be aware of District's financial/funding limitations & eligibility
- Schematic engineering designs
  - Structural, Mech, Elec, Civil, Landscape
- Coordination and Review
  - Review budget and schedule
  - Obtain Design Team and Board of Education approval.
  - Submit design plans to CDE for review & approval

Design Development

- Finalize site and building plans and elevs.
- Develop color and material selections
- Equipment selections
- District begins F&E process
- Review budget with District and CM including:
  - Soft costs
  - Testing and Inspections
  - Furniture & Equipment
  - Contingencies

Construction Documents

- Minimal design changes at this stage
- Finalize plans and specifications for submission to plan check
  - DSA, OPSC, CDE, Health Department, City, and Utility companies

Constructability Reviews

- Should occur during the construction document phase
  - Conducted by CM or Third Party
  - Review the plans for completeness
  - Identify possible coordination conflicts
  - Identify possible opportunities for value engineering

Value Engineering

- Should occur throughout the design process
- Architect, CM, and District should work together
  - Value Engineering should not compromise the quality of the project
  - Bid Alternates can be built into the construction documents as one method to structure an acceptable construction cost

Plan Review – Division of the State Architect

- Reviews plans per the California Building Code – Part 1, Title 24
  - Structural Safety
    - Energy Review
    - Geologic Review
  - Fire and Life Safety
  - Access Compliance
- Do not submit incomplete plans
- Do not proceed with construction without DSA approval

Plan Review - Division of the State Architect (cont.)

- Architect is in general responsible charge to see that the project is constructed in accordance with the approved documents
  - All correspondence must go through him/her
- DSA approves the Inspector
  - Inspector is hired by the District but reports to the Architect
- Invite DSA to the pre-construction meeting
- During construction, DSA reviews and approves all addendums and change orders

Plan Review - California Department of Education

- Reviews documents to ensure that the project meets criteria for well-planned, safe, public school project
  - Preliminary Design Review
  - Final Construction Document Review

Plan Review - Office of Public School Construction

- Administers the School Facility Program and other programs of the SAB
- Verifies that all applicant school districts meet specific criteria based on the type of funding which is being requested.
- Ensures that funds are disbursed properly and in accordance with the decisions made by the SAB.
  - DSA and CDE approvals must be obtained before funding is released

Plan Review – Local Agencies

- City, Local Fire, Utility Companies
  - Usually submitted to before state agencies
- Local Health Department
  - Submit if project has kitchen or eating areas or will utilize a septic waste system

Bid Preparation

- Multi-prime bid, CM develops bid packages
- Discuss General Conditions
  - Advertising, Length of bid period, Bid date
  - Construction Facilities
  - Temporary Utilities
  - Length of Construction time
  - Liquidated Damages
  - Contractor Pre-Qualification
  - Contractor Bonding Requirements
    - Bid Bond (10%)
    - Performance Bond (100%)
    - Payment (Labor & Material) Bond (100%)

Pre-Construction Activities

Steve Rogers
EDGE Development, Inc.

Pre-Construction Overview

- Coordination with District's Staff
- Design Involvement
- Budgeting
- Constructability
- Scheduling
- Bid Document Development
- Bidding

Coordination with District Staff

- Community, Board, Superintendent
- Facilities
- Purchasing
- Maintenance & Operations
- Site Administration (Growth Projects)

Design Involvement

- Contractor's Perspective
- Construction Material
- Budgeting

Budgeting

- Design Development
- 50% Design Drawings
- 90% Design Drawings
- DSA Submittal
- Final DSA Submittal
- Alternates & Value Engineering
- Allowances/Contingency

Constructability

- **Goals of Constructability**
  - Ensure Accurate and Complete Bidding
  - Reduce Change Orders During Construction
  - Improve Quality
  - Reduce Time it Takes to Build
- **Special Areas of Concern**
  - Civil Improvements
  - Moisture/Water Intrusion

Scheduling

- **Preconstruction Schedule**
  - Designer / Owner / Construction Team Responsibilities

Refer to Handout Exhibit A

- **Construction Schedule**
  - Typical Project Durations
  - Consider the Sequence of the Buildings
  - Allow for Variables

Refer to Handout Exhibit B

- **Phased Opening**
  - Delayed Opening
  - Acceleration

Bid Document Development

- **Hard Bid**
- **Lease/Lease Back – Negotiated GMP**
- **CM**
  - Front End Documents
  - Trade Package Development

Bidding

- **Is the Project Ready to Bid?**
- **Is it the Right Time to Bid?**
- **How Long Should the Project be "On the Street"?**
- **Confirm Bidder Interest**
- **Plan for Variables**
- **Bid Review and Award**

Construction Phase Issues

Mark Mardock
McCarthy Building Companies, Inc.

Project Startup Activities

- **Contracts, Bonds, and Insurance**
  - Contracts Should be Issued in The Bid Documents to avoid subsequent negotiations
  - Bonds Required by Civil Code section 3247 for contracts greater than $25k should be provided and returned with Contracts
  - Insurance Certificates should be provided in conjunction with Contracts
  - Tracking Logs should be established at on-set
- **Preconstruction Conference**
  - Contact Information and Lines of Communication
  - Official Start Date and Schedule
  - Procedures and Forms
  - Contractual Timelines
  - As-built Procedures
  - Project Meetings
  - LCP Responsibilities

Construction Administration

- Establish Responsibility, Accountability and Tracking Processes
  - Requests for Information
  - Change Orders
  - Submittals
  - As-built Documents
  - Billings
  - Inspections / IOR
  - Scheduling and Periodic Updates
  - Daily Logs
  - Meeting Documentation

Construction Administration

- Establish Team Goals and Commitments vs. Contractual Obligations
  - Requests for Information Turn Around
  - Change Orders Processing / Approvals
  - Submittal Review and Approval
  - Billings and Payment Processes
  - Meeting Documentation Timelines

Construction Administration

- Establish Authority for Directives and Authorization
  - Financial Authorization
  - Board Delegated Authority
  - Change Directives
  - RFI Changes

Construction Administration

- Establish the Process, Responsibility, Accountability and Tracking
  - Requests for Information
  - Change Orders
  - Submittals
  - As-built Documents
  - Billings
  - Inspections / IOR
  - Scheduling and Periodic Updates
  - Daily Logs
  - Meeting Documentation

What Constitutes a Successful Construction Project

- On Time
- On Budget
- Desired Quality
- No Claims
- Safety of Students, Faculty and Workers

The Keys To Success

- Bring Your Project in on Schedule
  - Develop a Reasonable Schedule w/ a Safety Margin for the Unforeseen
  - Identify and Establish a Plan for Long Lead Items
  - Monitor Productivity vs. Crew Sizes
  - Plan for the Trades and Manpower rather than Reacting When it's Too Late (Drive the Schedule)
  - Don't wait for the Update to Identify a Problem

The Keys To Success

- Bring Your Project in on Budget
  - Establish a Total Project Budget including Soft Costs
  - Maintain the Total Project Budget Monthly
  - Track Potential Changes and Expenditures
  - Resolve Issues Promptly (Time is Money!)
  - Identify Alternative Cost Effective Solutions
  - Don’t commit Contingencies to Cover Bid Overages

The Keys To Success

- Maintain Quality Expectations
  - Establish Expectations and Requirements in Documents
  - Conduct Pre-installation Meetings w/ Tradesmen and Team
  - Establish Mock-up Approvals of Initial Work
  - Establish Expectations w/ On-site Team and IOR
  - Identify Problems and Implement Corrections as You Go

The Keys To Success

- Claims Avoidance
  - Take the Time to Review the Quality of Your Documents
  - Resolve Issues as You Go (No Problem Gets Better w/ Time!)
  - Build Float into Your Project Timelines / Occupancy
  - Recognize when it's Not the Contractor's Fault
  - Be Reasonable when Evaluating Validity

The Keys To Success

- Demand a Safe Project
  - Plan for Isolating the Construction from Your Campus
  - Identify and Plan for Haul/Delivery Routes
  - Identify Potential Interface Points and Develop a Strategy
  - Mandate the Standard of Safety from Day One
  - Identify Potential Problems and Require an Implementation Plan
  - Mandate Routine Safety Focused Inspections

Unique Challenges On “Live” Campus Projects

- Phasing Strategy Considerations
  - Educational Environment (Proximity, Isolating Construction)
  - Curriculum Considerations (Science, Arts, Music, Library, etc.)
  - Infrastructure Coordination (Electrical Loads, Data/Fiber, Clock/Bell/Phone)
  - Balancing Interim Housing and the Budget
  - Student and Construction Egress
  - Campus Capacity for Interim Housing

Unique Challenges On “Live” Campus Projects

- Other Considerations
  - Testing Schedules / Construction Restrictions
  - Noise, Dust and Odor Control
  - Construction Parking / Student Presence / Bell Schedule
  - Timelines for Moving / Disruption to Classroom Set-up
  - Need for Parallel Systems / Panels
  - Communication w/ Faculty and Staff

Occupying and Closing Your Project

Mike Sattley
Lake Elsinore Unified School District

Three distinct categories to consider when talking about occupying and closing out a public school facility project

- District (owner)
- Contractors, Consultants, Vendors, Public Agencies
- Community

District (owner)

- Owner's Representative
- Purchasing
- Maintenance and Operations
- Grounds
- Technology
- Food Services
- Transportation
- School site staff (Principal, Secretary & Lead Custodian)
- Programs: Special Education, State Preschool, Childcare, GATE, other

Contractors, Consultants, and Vendors

- General Contractors/Prime Contractors
- Subcontractors
- Furniture and equipment vendors
- Systems vendors (data, fire alarm, energy management, security monitoring)
- Architect of Record
- Inspector of Record
- Construction Management/Specialty

Agencies

- Division of the State Architect
- Office of Public School Construction
- Department of Education
  - County/District/School (CDS) Code
- City Building / Public Works Department
- County / Public Works Department
- City / County Fire Department
- County Health Department

Community

- Students (mascot, colors, teams)
- Parents (PTA, Booster Clubs)
- Neighborhood (school name, signage, suggested routes to school)
- City / County – joint use
- Organizations and Associations (CIF)
- Board of Education (dedication ceremony)
- City, County, and State Elected Officials

Occupancy Schedule: 12 months prior

- **Select a Principal and/or key staff member to facilitate all program related issues with project manager / owner's representative**
- **Identify a process and timeline to determine school attendance boundary configuration and parent/student notification**
- **Obtain a County/District/School (CDS) code**
- **Generate a list of required furniture and equipment items. Identify long lead time and specialty items.**
- **Confirm Street Address**

Furniture and Equipment Working with your Purchasing Department

– Don't forget:

- Administration
- Art
- Band
- Classroom Furniture
- Custodial
- Food Service
- Grounds
- Health
- Library
- Multipurpose
- Outdoor Furniture
- Physical Education
- Technology
- Science
- Software
- Computer Labs
- Security

Occupancy Schedule: 9 months prior

- Confirm project budget/identify any "missing" program-related items
- Develop a checklist of all agency-related approvals and schedule tentative dates for sign-off (fire department, health department, licensing)
- Initiate community meetings re: new school attendance boundaries, introduce Principal
- Complete order of all furniture and equipment

Occupancy Schedule: 6 months prior

- Schedule preliminary meetings with Food Services, M & O, Technology, and Transportation staff
- Confirm room signage and numbering
- Confirm Critical Construction Schedule Milestones to complete
- Develop a "back-up" plan (just in case)

Occupancy Schedule:
3 months prior

- Confirm utility service operation
- Schedule/confirm building systems testing and operation
- Participate in final punch walk with district departments (technology, M&O, food services)
- Schedule necessary cleaning
- Schedule delivery of F & E

Occupancy Schedule:
1 month prior

- School site staff arrives and sets up
- Test all systems (phone, data, intercom, HVAC etc.)
- Coordinate completion of remaining project work
- Develop a process for identifying warranty related matters
- Coordinate valuation of outstanding work to be completed
- Have architect prepare a site plan locating all emergency shutoffs for site staff

Closing your Project

- **General Contractors / Prime Contractors**
  - Schedule Board of Education approval of Notice(s) of Completion
  - Withhold necessary dollar values from each contractor to complete work prior to releasing retention monies
  - Ensure adequate time and access to complete work

Closing your Project

- **Timeframes for expending project funds**
  - Three (3) years from date of apportionment for elementary school projects
  - Four (4) years from date of apportionment for middle and high school projects
  - OPSC will audit your project within specified timeframe—not more than two (2) years after final expenditure report

Agency Closeout

- **When is the project considered closed?**
  1. **Notice of Completion(s) approved by the BOE.**
  2. **DSA has closed the file with *Certification* of a *complete and closed* project file. All change orders and requested documents must be received and approved by DSA. If not certified—the BOE and Architect and personally held liable pending certification**
  3. **OPSC has issued a closeout letter following project audit**
  4. **All remaining agency approvals have been completed**

Occupying and Closing Your Project

- **It is a team effort**
- **Schedules and checklists will ensure that you and the team stay on track**
- **Always have a back-up "housing plan"**