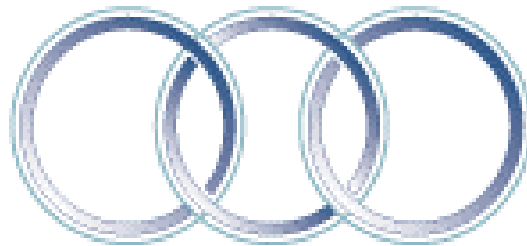


**A Report on  
Design-Build Pursuant to the  
Requirements of Education Code 81700**



**SAN MATEO COUNTY  
COMMUNITY COLLEGE DISTRICT**

March 2007

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## **I. EXECUTIVE SUMMARY**

Over the past four years, the San Mateo County Community College District has completed five separate Design-Build projects. Three of these projects were developed under the requirements of Education Code 81700. The other two projects, College Vista Faculty and Staff Housing and an energy conservation program, were developed under the auspices of Government Code 5956.

Each of these projects has been a success. Design-Build has allowed the District to complete projects earlier than under a design-bid-build scenario; to avoid typical risks that accrue to Owners (e.g., change orders, delays, etc.); to deliver better coordinated construction drawings; to attract multiple, high-quality contractors and design teams; and to complete construction without litigation or claims, all without compromising quality.

Based on these experiences, the San Mateo County Community College District is a staunch advocate of Design-Build. Design-Build should be a project delivery strategy available to all California community colleges, similarly to the University of California and the California State University systems. Legislation should be sought to permanently amend the Education Code, allowing for this delivery strategy.

Until permanent legislation is enacted, several interim measures should be taken to ensure that Design-Build is available to more districts. These interim measures include:

- Pursuing legislation to allow the State Chancellor's Office the opportunity to approve additional Design-Build projects,
- Lowering the dollar threshold for Design-Build projects from \$10 million to \$5 million; and
- Developing streamlining procedures for state funding so that Design-Build can be used for state-funded projects.

The following report is submitted to the California Community College Chancellor's Office, Legislative Analyst, and Department of Finance in accordance with the requirements of Education Code 81700.

## **II. BACKGROUND**

Assembly Bill 1000, Simitian, was approved by the Governor on September 17, 2002 and filed with the Secretary of State on September 18, 2002 as Chapter 637, Statutes of 2002. AB 1000 (Education Code 81700) authorizes the governing boards of the Los Angeles Community College District, the San Jose-Evergreen Community College District and the San Mateo County Community College District to utilize Design-Build on construction projects as defined in the bill. In addition, AB 1000 allows Design-Build to be used on as many as five community college facility construction projects selected by the Chancellor of the California Community Colleges. Threshold requirements identified in AB 1000 include:

- That the Board of Governors of the California Community College District, in conjunction with the Departments of Education and General Services, community college representatives and other agencies, develops guidelines for Design-Build projects by June 30, 2003. These guidelines were approved in March 2003.
- That the design and construction cost of each project approved to utilize Design-Build exceeds \$10,000,000.

This bill is similar to AB 1402, Simitian, (Statutes of 2001) which authorized the use of Design-Build for construction of capital improvements for K-12 school districts.

The District's Design-Build projects that have been completed under AB 1000 are:

- College of San Mateo Science Building 36
- Skyline College Student & Community Center / Science Annex (Buildings 6 and 7a)
- Districtwide Athletic Facilities Upgrades: Cañada College, College of San Mateo, Skyline College

### III. PROJECT INFORMATION



#### **College of San Mateo: Science Building**

*Project Overview.* The College of San Mateo Science Building is an approximately 37,800 assignable square foot (asf) (58,500 gross square feet - gsf) facility that provides space for Biology, Chemistry, Physics, Earth Sciences, Astronomy, lab support areas, lecture halls, faculty offices, an Observatory, and a Planetarium. This project is funded by local general obligation bonds approved by the voters in November 2001. The base price of the project was set at \$18,000,000.

*Design-Build Team Prequalification.* The District received eight Prequalification Applications from interested Design-Build Entities. The applications were reviewed and evaluated to determine eligibility for participation in the Design-Build competition. Seven teams met the essential requirements and were interviewed. As a result of the prequalification process, three teams that best met the requirements identified in the prequalification documents were invited to compete in a design and cost competition through a Request for Proposal (RFP) process.

*Request for Proposal Issued.* On October 28, 2003, a Request for Proposal was issued to three Design-Build teams as determined by the prequalification process. On December 19, 2003, two of the three finalists submitted Design-Build proposals: McCarthy Building Companies, Inc/LPA, and Charles Pankow Builders, Ltd/Kwan Henmi. One of the three pre-qualified firms, Rudolph & Sletten, withdrew from the competition halfway

through the competition period, not allowing the District sufficient time to add an alternative firm without placing the other two firms at a disadvantage.

*Evaluation of Proposals.* A Selection Committee—comprised of representatives of College Administration, Faculty, District Facilities and Swinerton Management and Consulting—reviewed each proposal in detail based on the criteria established in the Request for Proposal. Additionally, each of the two finalists had an opportunity to present their design and cost proposals to the Selection Committee.

*Solicitation of Governing Board Participation in the Evaluation Process.* On January 28, 2004, the San Mateo County Community College District (SMCCCD) Board of Trustees was briefed on the proposals and their compliance with the selection criteria set forth in the RFP.

*Contract Award.* On February 11, 2004, the SMCCCD Board of Trustees approved the award of a Design-Build contract to McCarthy Building Companies, Inc., in an amount not to exceed \$20,500,000. The contract award included latitude to accept alternate options over the base price of \$18,000,000 that were later included in the project. In addition to these voluntary alternates, a number of changes were encountered and added during construction, including unforeseen conditions, and owner-generated scope changes. The cost of these changes totaled \$3,517,870.

Additionally, in compliance with the California Community Colleges Design-Build Guidelines, the SMCCCD Board of Trustees awarded a stipend in the amount of \$20,000 to Charles Pankow Builders, Ltd. as compensation for the significant effort involved in the development of their proposal.

*Project Timeline.*

- Contract Award: February 2004
- Ground-breaking: May 2005
- Dedication of Science Building: September 2006
- Completion of Planetarium: December 2006



### **Skyline College Student and Community Center / Science Annex**

*Project Overview.* The Skyline College Design/Build project consists of two facilities: the *Student and Community Center (Student Union), Building 6*, and the *Science Annex, Building 7A*. The *Student and Community Center* is an approximately 26,000 assignable square foot (37,000 gross square foot) facility which houses the College's Bookstore, Food Services, Student Activities, Security, Student Health Services, Student Government, meeting rooms and a community conference facility. The *Science Annex* is an approximately 17,000 assignable square foot (26,000 gross square foot) facility. This building accommodates Natural Science laboratories and support facilities. The project was approved by the voters of San Mateo County under local Bond Measure C in November 2001. The base construction cost for this project was estimated at \$20,500,000.

*Design-Build Team Prequalification.* The District received five Prequalification Applications from interested Design-Build Entities. The applications were reviewed and evaluated to determine eligibility for participation in the design/build competition. As a result of the prequalification process, the top three teams were invited to compete in a design and cost competition through an RFP process.

*Request for Proposal Issued.* On March 17, 2004, a Request for Proposal was issued to the top three Design-Build teams as determined by the prequalification process. Responses to the RFP were submitted on May 11, 2004. The three firms that were invited to submit proposals included: Bovis Lend Lease, McCarthy Building Companies, and Hensel-Phelps Construction.

*Evaluation of Proposals.* A Selection Committee—comprised of representatives of College Administration, Faculty, District Facilities and Swinerton Management and Consulting—reviewed each proposal in detail based on the criteria established in the Request for Proposal. Additionally, each of the two finalists had an opportunity to present their design and cost proposals to the Selection Committee.

*Solicitation of Governing Board Participation in the Evaluation Process.* On July 28, 2004, the San Mateo County Community College District (SMCCCD) Board of Trustees was briefed on the proposals and their compliance with the selection criteria set forth in the RFP.

*Contract Award.* On July 28, 2004, the SMCCCD Board of Trustees approved the award of a Design-Build contract to Hensel-Phelps Construction with Steinberg Architects, in an amount not to exceed \$21,500,000. The contract award included latitude to accept alternate options over the base price of \$20,500,000 that were later included in the project. During the course of construction a number of Owner-generated changes occurred, including additional scope and a voluntary structural code upgrade to comply with a pending code change. The cost of these changes, including the voluntary code upgrade to the building structure was \$6,019,610.

Additionally, in compliance with the California Community Colleges Design-Build Guidelines, the SMCCCD Board of Trustees awarded a stipend in the amount of \$20,000 each to Bovis Lend Lease and McCarthy Building Companies, as compensation for the significant effort involved in the development of their proposal.

*Project Timeline:*

- Contract Award: July 2004
- Ground-breaking: November 2005
- Completion of Construction: December 2006





### **Districtwide Athletic Facilities Upgrade**

*Project Overview.* The Districtwide Athletic Facilities Upgrade was a project to modernize and upgrade the District’s athletic facilities. The project included upgrades of athletic fields, tennis courts, and tracks as well as infrastructure including bleachers, restrooms, fencing and parking. The District issued certificates of participation to be repaid with local redevelopment funds to pay for this project. The base construction price for the project was set at \$16,700,000.

*Design-Build Team Prequalification.* Despite extensive efforts to generate interest in this project, including advertising in multiple trade publications, the local newspaper, on the District website, and conducting an additional outreach and a prequalification conference, only two teams elected to participate in the prequalification process. After review and evaluation of their prequalification application submittals, both entities were invited to participate in the design and cost competition.

Additionally, a prequalification process was completed for manufacturers of synthetic turf products to be used in the Athletic Facilities Upgrade. Four companies submitted applications and two manufacturers, FieldTurf and SportExe, were pre-qualified.

*Request for Proposal Issued.* The RFP was issued to the two prequalified teams on December 1, 2003. However, only one of the firms was confident enough in its resources and ability to achieve the high standards established for this project to submit a proposal. On January 14, 2004, Robert A. Bothman Construction/CMX submitted a proposal; Hunt

Construction/Valley Crest withdrew from the competition one week prior to the submittal of proposals.

*Evaluation of Proposals.* A Selection Committee—comprised of representatives of College Administration, Faculty, District Facilities and Swinerton Management and Consulting—reviewed the submitted proposal in detail based on the criteria established in the Request for Proposal. Additionally, the Design-Build firm had an opportunity to present their design and cost proposals to the Selection Committee.

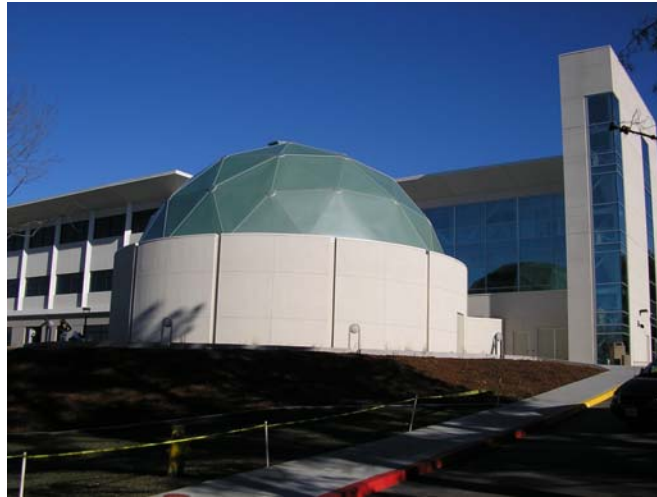
*Solicitation of Governing Board Participation in the Evaluation Process.* On January 28, 2004, the San Mateo County Community College District (SMCCCD) Board of Trustees was briefed on the proposals and their compliance with the selection criteria set forth in the RFP.

*Contract Award.* On February 11, 2004, the SMCCCD Board of Trustees approved the award of a Design-Build contract to Robert A. Bothman, Inc., in an amount not to exceed \$18,000,000. The contract award included latitude to accept alternate options over the base price of \$16,700,000 that were later included in the project. During the course of construction, a number of Owner-generated scope changes occurred, including changing a specified natural grass field to synthetic turf. The added cost for these changes totaled \$3,054,803.

*Project Timeline:*

- Contract Award: February 2004
- Ground-breaking: April 2004
- Completion – Phase 1: August 2004
- Completion – All Remaining Phases: April 2006:

**IV. Design-Build Process: Reporting Requirements Pursuant to Education Code 81700**



**College of San Mateo, Science Building, CSM 36**

Project Name: Science Building, CSM 36

Owner: San Mateo County Community College District

Program Manager/Construction Manager: Swinerton Management & Consulting

Bridging Architect: tBP Architects

Design-Builder: McCarthy Construction with LPA, Roseville (architect), CA

Location: College of San Mateo, San Mateo, CA

Square Footage: 58,500 Gross Square Feet (GSF)  
37,800 Assignable Square Feet (ASF)

**Project Cost:**

Initial Construction Contract Amount:	\$20,500,000
Final Construction Cost:	\$24,017,870
Total Project Cost:	\$28,415,742

Financing: Local Bond Funds

**Schedule:**

- Contract Award: February 2004
- Ground-breaking: May 2005
- Dedication of Science Building: September 2006
- Completion of Planetarium: December 2006



**Skyline College, Student Services and Community Access Center/Science Building Addition**

Project Name: Student Services Center and Science Building Addition

Owner: San Mateo County Community College District

Program Manager/Construction Manager: Swinerton Management & Consulting

Bridging Architect: KMD Architects/K2A Architects

Design-Builder: Hensel-Phelps Construction with Steinberg Architects, San Jose, CA

Location: Skyline College, San Bruno, CA

Square Footage:

Student Support and Community Services Center: 37,000 GSF, 26,000 ASF

Science Building Addition: 26,000 GSF, 17,000 ASF

Project Cost:

Initial Construction Contract Amount: \$20,500,000

Final Construction Cost: \$27,519,610

Total Project Cost: \$30,965,739

Financing: Local Bond Funds

Schedule:

- Contract Award: August 2004
- Ground-breaking: November 2005
- Completion of Construction: December 2006



**Districtwide Athletic Facilities**

Project Name: Districtwide Athletic Facilities

Owner: San Mateo County Community College District

Program Manager/Construction Manager: Swinerton Management & Consulting

Bridging Architect: Beals Sports

Design-Builder: Robert A. Bothman with CMX (Landscape Architect)

Locations: Cañada College, Redwood City CA, College of San Mateo, San Mateo, CA, and Skyline College, San Bruno, CA

Square Footage: N/A

**Project Cost:**

Initial Construction Contract Amount:	\$16,431,557
Final Construction Cost:	\$19,486,360
Total Project Cost:	\$20,092,684

Financing: Local Funds (Non-Bond)

**Schedule:**

- Contract Award: February 2004
- Ground-breaking: April 2004
- Completion: June 2006



## **V. BENEFITS REALIZED WITH DESIGN-BUILD**

### **Risk Shifting**

In delivering projects through Design-Build, the responsibility for design errors moves away from the Owner and becomes the responsibility of the Design-Build Team. In the case of the District's Design-Build projects, the District was not liable for any additional costs caused by errors in the design drawings. To illustrate this point the Library/Learning Center/Student Center project, a state-capital outlay project at Cañada College is currently under construction. This \$23 million project is the flagship project at Cañada College and is being delivered through the traditional design-bid-build project delivery process where the District hires the architect and the contractor separately. Construction is approximately 90% complete. Change orders attributable to document problems total approximately \$768,000, or 3.4% of the construction contract value, well within the standard of care for a project of this size and complexity.

Under traditional project delivery, the financial liability for changes caused by document problems belongs to the District. With Design-Build, the financial liability for document problems is transferred to the Design-Build Entity. Total change orders attributable to document problems on all of the District's Design-Build projects was \$0.

### **Schedule**

The San Mateo District had the unique opportunity to benchmark the College of San Mateo and Skyline College Design-Build projects against a comparable project at the District's third college, Cañada College that was being delivered utilizing the traditional project delivery method. The Library/Learning Center/Student Services project at Cañada College is a 70,000 gsf, \$23 million new building funded primarily by the State. The design of this project began at the same time as the projects at the College of San Mateo and Skyline. However, the construction of this building is being conducted according to the traditional design-bid-build process. The project at Cañada College is still under construction and scheduled for occupancy in time for the Fall 2007 semester – one year later (two academic semesters) than the Science Building at the College of San Mateo, and one semester later than the project at Skyline College. The two Design-Build projects could have been completed even sooner if delays were not encountered during the approval process (see discussion below).

Shortening of project schedules allows an Owner to avoid costly escalation in construction costs. For example, if escalation is running at approximately 8% per year, a one year delay on a \$20 million project could “cost” the project as much as \$1.6 million. In addition, opening a new academic facility one year sooner provides the college with the ability to offer new course curriculum, retain and attract new faculty and potentially increase enrollment.

### **Cost Certainty**

While the District is still responsible for costs associated with unknown/differing conditions and any Owner scope changes, the District was able to implement the Design-

Build projects within a higher degree of budget certainty than projects delivered utilizing the more conventional design-bid-build.

As stated earlier, there were no change orders attributable to document problems or design errors. Also, because the architect and the contractor worked collaboratively on the construction documents, and involved District staff in design decision early in the process, there were minimal changes required by the Owner.

### **Creativity, Innovation and Efficiency**

The best example of creativity and innovation occurred when proposals were submitted on the Science Building project at the College of San Mateo. The structural performance criteria stipulated that all projects were required to conform to the Field Act. One Design-Build Team submitted a combination pre-cast/poured-in-place concrete structure while a competing Design-Build Team submitted a steel brace-framed structure. Both proposals were for the same cost, however each design-builder's innovation and approach to their project allowed them to free up construction dollars for other aspects of the project.

Compared to the traditional project delivery of design-bid-build, the Design-Build process is more collaborative. This overall team collaboration has resulted in broader and more comprehensive problem solving, more candid dialogue on challenges and opportunities presented during construction, and furthering of a common purpose.

## **VI. PROBLEMS IDENTIFIED WITH DESIGN-BUILD**

As the first Community College District to fully embrace Design-Build, SMCCCD encountered several learning opportunities. There have been many lessons learned and the staff is working to incorporate these in future projects.

### **Division of the State Architect (DSA) Review/Approval**

The one major issue that has had an adverse impact on these projects is the lack of timely review and approval by DSA. Securing DSA approval for the Design-Build buildings was very difficult, especially in regards to the Planetarium project at College of San Mateo. Both the Science Building and the Planetarium were originally scheduled to be completed in December 2005. As the first Design-Build projects to be reviewed by DSA, it was expected that some challenges might be encountered. However, delays in obtaining approval were much longer than anticipated. The Science Building took approximately six months for DSA review and approval and was separated from the review of the Planetarium to allow construction to proceed.

The total length of time required for DSA review and approval of the Planetarium was nearly twelve months. These review periods are in contrast to the current three-month commitment from DSA to review project plans and specifications. The delays had an adverse impact on the academic program and caused construction cost increases due to inflation. To improve in project approval timelines by DSA, the Governor appointed a Task Force between the Community Colleges and DSA in 2005. The purpose of the AB 3010 Task Force was to develop a number of initiatives to improve DSA project approval timelines and to promote greater collaboration. It is expected that the challenges encountered in these first series of projects will be avoided in the future.

With construction completed on the Design-Build projects, there are specific observations about how DSA can improve their capabilities to review projects more quickly. Specific opportunity areas for improvement include: requiring consistency amongst DSA structural engineers; acquiring up-to-date software analysis tools; improving communication, and improving the Rapid Interpretation Process (RIP).

**Consistency:** During the review and approval process, several meetings were held with structural engineers from both the design team and DSA. Attendance at meetings by DSA staff was inconsistent, resulting in varied interpretations and an inability to reach closure on many issues. The process can be improved by ensuring that assigned DSA staff, including DSA's plan review consultants, are present at all meetings and, if interpretations are required, they are made consistently and timely. The assignment of a consulting structural plan reviewer should be made as early as the initial preliminary review meeting.

**Current software:** The Planetarium at CSM was designed using a geodesic dome due to the unique academic program being taught inside the facility. Due to the geometry of the building and the aluminum structure, the structural engineers



performed calculations utilizing a special analysis and modeling program. Unfortunately, DSA was not familiar with this type of analysis and did not have access to the program. As a result, DSA staff required the structural engineers to perform numerous hand-calculations to substantiate their structural designs. DSA engineers need access to the latest analysis tools and training in order to be able to analyze sophisticated building structures.

***Improved communication:*** Delays were caused by the lack of communication or inefficient communication between the District design team, DSA engineers and DSA consultants. It was not always clear to the District design team who held approval authority within DSA. Also, on some occasions, there were as many as five DSA staff in attendance at meetings, which was not an efficient use of staff time.

***Rapid Interpretation Process (RIP):*** On one interpretation issue, the District initiated the RIP, but the issue was not resolved. Instead, it was returned to the regional office for negotiation. If the RIP is to work, decisions need to be made in a timely manner, and not returned to the regional office for negotiation.

## **VII. LESSONS LEARNED FROM DESIGN-BUILD**

### **Learning Curve**

Design-Build is a new experience for community college districts. Creating a new qualification process, selection method, RFP and contract is a responsibility that requires a great deal of time and expertise in order to realize the benefits of Design-Build. The San Mateo County Community College District has learned a tremendous amount from past projects and will be incorporating the lessons-learned into future projects, including;

#### **➤ Project Scoping**

One of the lessons learned is to ensure that the project scope is well defined and documented in the Bridging documents issued. Project parameters need to be defined sufficiently to enable design-builders to develop proposals that meet all of the District's needs and requirements for the specified building and to be able to commit to a contract price.

#### **➤ Bridging Documents**

The San Mateo County Community College District utilized a "bridging" approach in planning the design and construction of its academic buildings. A level of specificity was required to ensure that the academic program to be housed within the facility is accommodated in the facility solutions presented. There is a constant tension between providing sufficient documentation to ensure that the District's objectives are reached without documenting too much and inhibiting the creativity of the design-builder. The key to a successful set of bridging documents is to prioritize the District's issues and concerns and to have the bridging documents fully describe those so that they are fully addressed.

#### **➤ Bridging Architect**

During the initial development of the Bridging Documents, it was unclear as to what extent the Bridging Architect and their consultants would be needed during construction. The District's experience is that the involvement of the Bridging Architect during construction is nominal and limited to interpretation of design intent.

#### **➤ Evaluation of the Proposals from Design-Builders**

Proposals from design-builders are often in the form of written narratives and a few drawings. The challenge is to be able to sift through the proposals and to develop a process that will enable an "apples to apples" comparison of the proposals. The evaluation criteria needs to be clearly articulated in the Bridging Documents and a format prescribed in which the proposals are to be submitted.

#### **➤ DSA Review/Approval**

As discussed above, DSA review and approval is critical. The lesson learned for future projects is to involve DSA early and often. The initiatives developed by the AB 3010 Task Force may lead to significant improvements in this area.

## **VIII. CONCLUSION**

The outcomes of the projects at the San Mateo County Community College District have substantial bearing statewide. With the passage of Proposition 1D in November 2006, the sunset date of AB1000 has been extended to the end of 2011. Design-Build has been successful on several projects, including two additional projects not covered by Education Code 81700, but by Government Code 5956 – an ESCO Agreement covering Districtwide utilities, and a separate Faculty/Staff Housing.

One indicator of the District's success is that the San Mateo County Civil Grand Jury commended the District's construction practices and programs and cited them as a model that should be followed by all school districts in the County.

In total, the San Mateo County Community College District has completed five design-build projects and will continue to implement projects utilizing Design-Build on future projects. Planning is currently underway on significant projects at the College of San Mateo and Skyline College.