

SAN DIEGO STATE UNIVERSITY
SCIENCE LABORATORY BUILDING

Final Report

July 8, 2002

**KPMG Construction Cost Review
San Diego State University
Science Laboratory Building SD-452**

PROJECT OVERVIEW

KPMG was retained by the California State University's (CSU) Office of the University Auditor to perform a review of the San Diego State University (SDSU) new Science Laboratory Building. Capital Planning, Design & Construction (CPDC) at the Chancellor's Office began the project in early 1992. As a result of a gap in bond funding from the State, the project was put on hold until 1996. In October of 1997, CPDC issued a Memorandum of Understanding that delegated the administration of the project to San Diego State University.

The new Science Laboratory Building permanently houses the Chemistry and Geology teaching and research laboratories and the Environmental Health & Safety office. The original building, constructed in 1960, became obsolete as a laboratory facility and is currently being renovated to house Math and Science. A bridge connects the new and the old buildings. The project totaled 97,000 square feet of new construction including seventeen (17) faculty offices. Site development consisted of a street level loading dock, landscape, and hardscape.

The project faced considerable challenges with delays and personnel changes by the contractor and architect. The Architect/Engineer (A/E) firm, at various times, assigned eight different staff members to the project and was eventually absorbed by another firm. The contractor utilized four different project managers and two superintendents over the course of the project. Two subcontractors were declared insolvent during construction. This was the last project constructed by Blake Construction in California before closing their California office.

The University was presented with a claim from the Contractor in the amount of \$1,601,692 that has since been resolved, with the exception of two subcontractors that have active lawsuits.

KPMG reviewed project records from the following firms involved in the project's development and execution:

Contractor:	Blake Construction Company Inc.
Architect/Engineer (A/E):	Ehrlich-Rominger Architects (ERA)
Merged with HDR	ERA + HDR
San Diego State University	Facilities Planning & Management (FPM)
Inspection (IOR)/Project Manager (PM):	R. G. Wade

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CONSTRUCTION BID PROCESS

Initial project estimates, provided by the A/E, totaled \$26,357,000. The original Notice to Contractors indicated a bid date of July 10, 1997, which was eventually revised to August 19, 1997 by Addendum #4.

Prior to bid, four Addendums were issued as follows:

- Addendum #1:* Issued June 27, 1997 - Bid date was changed from July 10, 1997 to July 31, 1997.
- Addendum #2:* Issued July 14, 1997 – Changed date of Addendum #1 from June 27, 1996 to June 27, 1997 and revised various specification sections.
- Addendum #3:* Issued July 25, 1997 – Bid date changed from July 31, 1997 to August 12, 1997. Revised specification sections and architectural drawings.
- Addendum #4:* Issued August 4, 1997 – Bid date was changed from August 12, 1997 to August 19, 1997. Addressed bidding questions and revised specification sections.

Two allowances were included in the specifications in the amount of \$110,000 for all building signage and \$379,000 for Energy Management Controls specified under Division 17.

The initial specifications listed nine (9) additive alternates as follows:

- Alternate 1:* Provide PVC-coated galvanized steel ductwork in lieu of galvanized steel ductwork in exhaust air duct runs connected to fume exhaust hoods, extending from the end of the stainless-steel ductwork to the roof line.
- Alternate 2:* Provide charcoal filters for four air handling units.
- Alternate 3:* Provide laboratory benches identified in laboratory furniture drawings.
- Alternate 4:* Provide the second traction passenger elevator including cab, guides, motor, hoistway doors and all items for that elevator in lieu of the plaster on metal stud knockout panels provided in the base bid.
- Alternate 5:* Provide sandstone veneer in lieu of plaster finish on certain portions of the exterior of the building. Provide two-piece tapered clay Mission roof tiles in lieu of one piece “S” tile. Provide all blackboards, marker boards, projection screens and bulletin boards.
- Alternate 6:* Provide chemical fume exhaust hood assemblies.
- Alternate 7:* Provide two hazardous materials storage modules, unit “A” and unit “B” including final connections and building utility systems.
- Alternate 8:* Provide four insulated rooms with laboratory casework, electrical devices therein, and the connection to insulated room electrical panels. Provide final electrical connection from insulated room panel to electrical feeder.
- Alternate 9:* Provide stainless steel ductwork in lieu of PVC-coated ductwork supplied under Add Alternate #1.

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There were eight responsive bidders listed on the Abstract of Bids, with Blake Construction being the apparent low bidder at \$26,117,000. Blake Construction was awarded the construction agreement on September 19, 1997. None of the Alternates were accepted or incorporated into the original construction contract.

Additional findings related to the project include:

- The Abstract of Bids was appropriately completed and signed.
- Blake Construction furnished an appropriate Payment and Performance Bond in the original contract amount as required.
- Blake Construction Co., Inc. is a California Corporation.
- The original construction period was to cover 850 calendar days.
- Liquidated damages were stated to be \$3,000 per day.
- Notice to Proceed was issued on November 11, 1997, with a start date of November 18, 1997.
- Original completion was established as March 17, 2000.
- Notice of Completion was recorded as April 17, 2001 (396 days after the original completion date).
- Time extensions were granted in change orders to extend the final completion date.

Recommendation:

None

CONTRACTOR COMPLIANCE - SUBCONTRACTING PRACTICES

The "List of Proposed Subcontractors" (CM Form 701.04) identified 20 separate work divisions and 16 subcontractors. Some subcontractors performed multiple trades. We were unable to locate a copy of the "Expanded List of Subcontractors" (CM Form 701.04 A) in the project files. However, the project files did include a letter to the Chancellor's office that transmitted all original bids and it is likely that this included the Expanded List of Subcontractors. This was the first campus-managed project and many project files were shared with the Chancellor's Office. We were able to conduct our review utilizing the actual subcontracts issued against the construction contract. Our review disclosed the following:

- Sadler Electric was listed as the Electrical subcontractor, but due to their inability to obtain bonding, the University appropriately approved the substitution of Gould Electric.
- Native Landscape, originally listed as the Landscaping subcontractor, refused to execute a contract with Blake Construction. The University appropriately notified Native Landscape that if they did not respond within five days, as required, Rey Art Landscape Co. would be considered an approved substitute. A copy of the final approval for the substitution of Rey Art as the Landscaping subcontractor was available in SDSU project files.
- Davey Roofing, originally listed as the Roofing subcontractor, refused to execute a written contract with Blake Construction. The University appropriately notified Davey Roofing that if they did not respond within five days, as required, Leitner Roofing Co. would be considered an approved substitute. A copy of the final approval for the substitution of Leitner Roofing Co. as the Roofing subcontractor was found in SDSU's project files.
- McDowell Grading was originally listed as the Grading subcontractor. Prior to completion of subcontracted work, McDowell filed for bankruptcy. In accordance with the contract General Conditions, Section 4.01 that refers to Public Contract Code Section 4100 et seq., specifically 4107(a)(2), a request for substitution must be made when the listed subcontractor becomes bankrupt or insolvent. Blake appropriately filed for substitution December 15, 1998, replacing McDowell with National American Insurance Company. In the interest of timely completion of the project, Blake reserved the right to self-perform portions of the Grading work.
- 1st Mechanical was originally listed as the HVAC subcontractor. Blake substituted University Mechanical to complete the HVAC work on the project that was appropriately approved by the University.

As part of the bid process review, KPMG typically samples the Contractor's original bid files. The project files have since been transferred to Blake's Washington DC office. However, they agreed to provide documents by mail and did so with all subcontract change order information and original subcontract amounts. To date, Blake has not responded to repeated requests for copies of bid documents although they continue to agree to send them.

Recommendation:

None

CONSTRUCTION CHANGE ORDERS

Forty-six (46) Change Orders incorporating 268 Change Proposals (CP's) were approved on the project. The net total equaled \$853,370 (comprised of additive changes of \$1,611,956 and deductive changes of -\$758,586). Included in the total deductive changes were credits for the two allowances included in the base bid: \$110,000 for signage and \$379,000 for controls. The total changes added 3.26% to the total contract amount, which is within industry standards for a project of this type. However, changes due to A/E errors & omissions totaled \$1,401,395, or 5.37% of the total contract amount. This was more than likely caused by personnel changes within the A/E firm and loss of continuity.

Recommendation:

1. The University should work with CPDC to determine whether to pursue compensation for costs due to A/E errors and omissions.

Campus Response:

1. We concur. The University will work with CPDC and General Counsel to determine whether any costs due to AE errors and omissions can be recovered. The University is preparing an analysis; when completed, our findings will be discussed with CPDC and General Counsel. A resolution will be completed by January 2003.

As part of our review process, we sampled change orders and traced subcontractor estimates to the actual subcontractor change orders. The Contractor furnished a "Subcontractors History by Change Order" for each subcontract. KPMG reviewed approximately 148 of the total change proposals and was able to trace all sampled subcontractor quotes/backup included with change orders to the applicable subcontracts.

In several instances, we found that Blake arbitrarily charged amounts for as-builts, layout, and change coordination. Even though these amounts were insignificant (\$7,066 included in the \$749,723 of changes reviewed), they are not allowed by contract unless they are specifically defined as actual costs.

Recommendation:

2. The University should ensure that project management consultants comply with the requirements of the CSU General Conditions to ensure that changes are appropriately reviewed and processed.

Campus Response:

2. We concur. The University will continue to work with project management consultants to ensure compliance with CSU General Conditions. A form has been developed and will be used by General Contractors and Subcontractors that automatically calculates change order values and eliminates the possibility of entering extraneous information or costs.

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Labor Burden & Fringe

Blake Construction Co. included minimal work on change orders. Of the \$749,723 in changes reviewed Blake charged \$44,308 in labor costs. Due to the insignificant amount of labor included on changes and the difficulty in obtaining information from Blake, labor burden and fringe cost reviews were not performed.

Recommendation:

None

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Change Order Report Analysis

R. G. Wade Construction Services provided a Change Order Log categorizing change orders by source. The log reconciled to Blake's invoiced changes. The following table summarizes R. G. Wade's report:

Type of Change	C.O. Totals	% of CO	% of Contract
4.1 Errors/Omissions from the Contract Documents	1,401,395	164.22%	5.37%
4.2 Unforeseeable job site conditions	210,561	24.67%	0.81%
4.3 Regulatory agency, bldg. code, safety, health	(31,196)	-3.66%	-0.12%
4.4 Originated by the University	(669,375)	-78.44%	-2.56%
4.5 Unavailability of specified materials	(19,530)	-2.29%	-0.07%
4.6 Other	(38,485)	-4.51%	-0.15%
Total Change Orders	853,370	100.00%	3.27%
Original Contract Amount	26,117,000		
Total	<u>26,970,370</u>		

(1) Included in the 4.4 code are credits for the two allowances that totaled \$489,000.

Recommendation:

None

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DESIGN COSTS

CPDC interviewed seven firms for the design of the Science Lab Building. With participation of the campus FPM, in June 1992, the Chancellor's Office selected Ehrlich-Rominger Architects as the Architect (A/E) for the project. Their contract, dated July 19, 1993, in the amount of \$1,403,354, was amended with numerous additional service authorizations. Because the Chancellor's Office processed invoices through fiscal year 1997, the University records only contained only those invoices processed on-campus.

The following is an analysis of the phases of work delegated to the University, amendments and payments:

Phases Paid by University	Contract	Paid
Bidding Phase	57286.00	57,286.00
Construction Administration	316,320.00	316,320.00
Extra Service 3	4,950.00	4,950.00
Contract Subtotal	378,556.00	378,556.00
Expenses		40,474.85
Total		419,030.85

Recommendation:

None

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PROJECT MANAGEMENT/INSPECTION SERVICES

SDSU issued a Request for Qualifications (RFQ) to provide Project Management (PM) and Inspector of Record (IOR) services. The RFQ included project specific information as well as a request for billing rates and staffing plans, which essentially served as a formal Request for Proposals. Four proposals were received for PM and IOR services. R. G. Wade, Inc. was selected as the most qualified firm to perform on-site PM and IOR services and was awarded a service agreement in the amount of \$798,240 on September 25, 1997.

Numerous sub-consultants had to be retained to perform various reviews relating to the excessive claims alleged by Blake Construction. The PM firm coordinated these efforts in an effort to mitigate additional construction costs to the University. Fees paid for project management and inspection services totaled \$1,050,160 (excluding sub-consultants), representing 3.89% of total construction costs. Given the complications associated with this project, we expected costs to be somewhat higher than the industry standard of 2.5% to 3.5%.

Although the total contract amount was not exceeded, R. G. Wade used funds authorized for sub-consultants for additional PM and IOR costs. The following is an analysis of the agreement and expenditures:

Service Description	Date	Agreement	Paid	Balance
Original Agreement Thru Mar. 1, 2000	Sep. 25, 1997	783,240		
Add. Service #1 - Professional Services	Aug. 12, 1999	130,000		
Additional Service #3 - Thru Nov. 30, 2000	Jul. 31, 2000	80,000		
Add. Service #4 - Final inspection/closeout activities	Mar. 2, 2001	15,245		
Project Manager			511,088	
Inspector			353,870	
Engineer			155,230	
Clerk			10,032	
Subtotal Base Services		1,008,485	1,030,220	21,735
Add. Service #1 - Sub-consultants	Aug. 12, 1999	100,000		
Scheduling (Sub-consultant)			41,608	
Geotechnical (Sub-consultant)			1,733	
Partnering (Sub-consultant)			5,139	
Nail Wall Review (Sub-consultant)			5,228	
Electrical and Earthwork Claim Review			25,631	
Additional Service #2 - Malcolm Drilling Claim Review	Apr. 1, 2000	22,000	22,000	
Subtotal Sub-consultants		122,000	101,339	(20,661)
Subtotal		1,130,485	1,131,559	1,074
Expenses		15,000	15,000	-
Add. Service #1 - Additional Expenses	Aug. 12, 1999	6,000	4,940	(1,060)
Total Agreement		1,151,485	1,151,499	14

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Recommendation:

3. The University should approve the revised use of funds within agreements when funds are utilized for services other than those originally approved.

Campus Response:

3. We concur. The University has taken steps to ensure that any extra service or redirection of funds within a contract is documented by adjustments to the contract scope. Procedures have been updated.

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ACCOUNTING

KPMG conducted a review of the University's cost accounting reporting system and invoice processing practices. The SDSU Facilities Planning & Management provided an automated report that tracked the project budget, actual expenditures and contingency.

The reporting system is maintained independently of the accounting and procurement departments, requiring SDSU Facilities Planning & Management to enter all invoice information in spreadsheets - even though the University accounting department also enters all invoices into the central accounting system. SDSU does, however, regularly reconcile budget and expenditures to the financial accounting system.

Recommendation:

None

LIQUIDATED DAMAGES

The project was delayed 396 days beyond the original completion date of March 17, 2000. Numerous negotiations were conducted throughout the project in attempts to settle a plethora of claims being presented by Blake, either for themselves or on behalf of their subcontractors.

Ultimately, the Trustees waived their right to assess liquidated damages in good faith that all claims had been resolved. Project files contained an abundance of correspondence surrounding the alleged claims. Various change orders documented the efforts conducted by the University in an attempt to avoid formal claims. Examples of these include:

- **Change Order 13** – On July 6, 1999, Blake agreed to a settlement of \$207,500 that was to cover all impacts for the period of November 11, 1997, through March 17, 1999.
- **Change Order 26** – On February 7, 2000, Blake agreed that they had been compensated for all impacts and delays and the Trustees agreed to waive liquidated damages based on the revised completion date of August 18, 2000.
- **Change Order 36** – On March 1, 2001, Blake agreed that they had been compensated for all impacts and delays as of March 1, 2001, and the Trustees agreed to waive liquidated damages based on the revised completion date of March 16, 2001.
- **Change Order 43** – On May 15, 2001, Blake signed this change order stating that the \$50,882 was in full settlement of all claims, with the exception of three subcontractors. Attached to the change order was a copy of a \$1,601,692 claim. The amount included in a claim for three subcontractors - Malcolm Drilling, McCullough Plumbing and RBE, Inc. - totaling \$1,037,935. The balance of \$563,757 was settled by the payment of \$50,882.
- **Change Order 44** - The Contractor agreed that as of May 17, 2001, Blake had been compensated for all known impact and delays. The Contractor further agreed to waive any overhead charges and the Trustees agreed to not assess liquidated damages and granted 32 non-compensable days that revised the completion date to April 17, 2001.
- **Change Order 45** - Issued as the result of the Claims Review Board convened on September 12 – 14, 2001, in the amount of \$350,492. (Did not include McDowell who failed to present documentation and subsequently filed a lawsuit.)
- **Change Order 46** – On February 6, 2002, one of the subcontractor's settlements (Malcolm Drilling) was increased by \$152,485 in order to mitigate a lawsuit.

As we noted earlier in this report, the University was presented with a claim from the Contractor in the amount of \$1,601,692 that was resolved in Change Order 45 through a Claims Review Board, with the exception of two subcontractors that have active lawsuits. Offers are on the table to settle each of these.

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Through various change orders, the University extended the completion date to that as recorded on the Notice of Completion, April 17, 2001. The following is an analysis of those changes:

Description of CO		Tot. Days	Date
Original Completion Date		850	17-Mar-00
Change Order 5	Time Extension	2	19-Mar-00
Change Order 6	Time Extension	29	17-Apr-00
Change Order 13	Time Extension	123	18-Aug-00
Change Order 37	Time Extension	210	16-Mar-01
Change Order 44	Time Extension	32	17-Apr-01
Total Change Orders		396	

Recommendation:

None

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MAJOR EQUIPMENT REVIEW

The initial review of Contract Documents and Specification was performed at the University. R. G. Wade furnished a submittal log, and we selected our sample from that log. Submittal records were provided and reviewed at the campus.

Of the submittals reviewed, all were traced from Project Specifications to submittal data and final acceptance. A project walk-through was conducted with representatives from campus personnel and R. G. Wade in order to verify that specified and approved equipment had been provided and installed by the Contractor.

The following equipment items and specific model data were approved and visually confirmed as installed in the Science Lab Building:

Div. #	Brand	Model #	Description
17000	Siebe Environmental Controls	DMS-3500	Digital management system (controller)
17000	Siebe Environmental Controls	DMS-ETH-001	Echelon network interface module
16614	Koehler Power System	G12-14	Emergency Generator
16614	Koehler Decision Maker 3+	G6-30	Controller
	Imperial Manufacturing	MOH-005D7 (208/230/3)	Cold Room Unit
	Imperial Manufacturing	ACM076 230v	Environmental Room Unit
16300	Besler Electric (Electroswitch)	Series 24 BE1-50/51B-10	Ammeter Switch
16720	Simplex	4903 Series	Audio/Visible Fire Alarm
16720	Simplex	2081-9280	Fire Alarm Battery Cabinet

Recommendation:

None



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August 21, 2002

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UNIVERSITY AUDITOR

AUG 22 2002

THE CALIFORNIA STATE
UNIVERSITY

Mr. Larry Mandel
University Auditor
The California State University
401 Golden Shore, 4th Floor
Long Beach, CA 90802

Dear Mr. Mandel:

The following is San Diego State University's response to KPMG Construction Cost Review Number SD-452, *Science Laboratory Building*. For ease of reference, the report's recommendations have been included with our responses.

Recommendation 1

The University should work with CPDC to determine whether to pursue compensation for costs due to A/E errors and omissions.

Campus Response

We concur. The University will work with CPDC and General Counsel to determine whether any costs due to AE errors and omissions can be recovered. The University is preparing an analysis; when completed, our findings will be discussed with CPDC and General Counsel. A resolution will be completed by January 2003.

Recommendation 2

The University should ensure that project management consultants comply with the requirements of the CSU General Conditions to ensure that changes are appropriately reviewed and processed.

Campus Response

We concur. The University will continue to work with project management consultants to ensure compliance with CSU General Conditions. A form has been developed and

Mr. Larry Mandel
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will be used by General Contractors and Subcontractors that automatically calculates change order values and eliminates the possibility of entering extraneous information or costs.

Recommendation 3

The University should approve the revised use of funds within agreements when funds are utilized for services other than those originally approved.

Campus Response

We concur. The University has taken steps to ensure that any extra service or redirection of funds within a contract is documented by adjustments to the contract scope. Procedures have been updated.

Documentation of policy and control changes relative to Recommendations 2 and 3 will follow under separate cover.

Sincerely,



Stephen W.
President

SLW/jsh

c: Sally F. Roush, Vice President, Business and Financial Affairs
Ellene Gibbs, Director, Business Information Management


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September 18, 2002

MEMORANDUM

TO: Mr. Larry Mandel
University Auditor

FROM: Charles B. Reed 
Chancellor

SUBJECT: KPMG Draft Final Report on the *Science Laboratory Building*
(Project No. SD-452) at San Diego State University

In response to your memorandum of September 18, 2002, I accept the response as submitted with the draft final report on the *Science Laboratory Building* project at San Diego State University.

CBR/amd

Enclosure

cc: Ellene Gibbs, Director, Business Information Management
Stephen L. Weber, President
Richard P. West, Executive Vice Chancellor and
Chief Financial Officer