



Internal Audit Report

SYSTEMWIDE CONSTRUCTION AUDIT

Report No. SC-12-04
April 2012

James Dougherty
Principal Auditor

Approved
Barry Long, Director
Internal Audit & Advisory Services

Table of Contents

- I. EXECUTIVE SUMMARY 2**

- II. INTRODUCTION**
 - Purpose 3
 - Background 3
 - Scope 4

- III. OBSERVATIONS REQUIRING MANAGEMENT CORRECTIVE ACTION**
 - A. Contractor Pool and Rotational Bidding 5
 - B. Change Order Cost for Insurance and Bonds..... 7

- APPENDIX**
 - A. Contractor Volume and Contracting Methods 9
 - B. Control of Funding Restrictions and Requirements 10

I. EXECUTIVE SUMMARY

Internal Audit & Advisory Services (IAS) has completed a systemwide audit of construction management policies and procedures, including internal controls and processes related to the administration of construction activities, and specifically, bidding, change order and funding requirements.

In general, Physical Planning & Construction (PP&C) maintained effective internal controls and processes over bidding, change order and funding requirements, and was in general compliance with applicable UC construction policies and procedures. PP&C together with other campus units maintained an adequate separation of duties and coordination to reasonably ensure funding for capital projects complied with funding restrictions and requirements.

However, two issues relating to the bidding pool and the calculation of the cost of insurance and bonds on change orders were identified during the review, requiring management corrective action as follows:

A. Contractor Pool and Rotational Bidding

During the review period, a small number of contractors received significantly more negotiated and informally bid contracts than other contractors. This trend was due to a small pool of responsible contractors and not selecting contractors on a rotational basis

B. Change Order Cost for Insurance and Bonds

During a construction project we sampled, the contractor changed the way it calculated the cost for insurance and bonds when calculating costs for change orders. The new calculation was contrary to the methodology agreed to in the CM-at-Risk contract, general conditions.

Management agreed to all corrective actions recommended to address risks identified in these areas.

Observations and related management corrective actions are described in greater detail in section III of this report.

II. INTRODUCTION

Purpose

The purpose of this audit was to assess the effectiveness of construction management policies and procedures, including internal controls and processes related to the administration of construction activities, and specifically, bidding, change order and funding requirements. The audit was requested by the Office of Ethics, Compliance and Audit Services at the Office of the President, who provided the audit program we followed.

Background

Physical Planning and Construction (PP&C) is the campus unit responsible for ensuring compliance with all applicable building and life safety codes and public works contracting law, as well as maintaining the aesthetic integrity of the campus. PP&C provides all planning, design, and construction required to construct or alter facilities for the UC Santa Cruz campus as well as for Long Marine Laboratory, Mount Hamilton, Big Creek Reserve, and Monterey Bay Education Science and Technology Center, and 2300 Delaware Avenue. Any alterations to these facilities must be with the approval of the associate vice chancellor for PP&C (campus architect) and must be accomplished under the supervision of PP&C personnel.

While PP&C was the principal unit we worked with during our review, there were other units involved in the processes under review. These included Capital Planning & Space Management, Planning & Budget, and Plant Accounting. The roles these units played will be discussed in more detail in the appendices.

Bidding

According to the California Constitution, the University is subject to "competitive bidding procedures as may be made applicable to the university by statute for the letting of construction contracts, sales of real property, and purchasing of materials, goods, and services."

Change Orders

A change order is a post-award modification to a construction contract. A change order may clarify, revise, add to, or delete previous requirements of the work, adjust the contract sum, or adjust the contract completion time. In general, there are three causes of change orders: 1) changes in design requested by the owner or user; 2) field conditions not described in the bid process or unknown to the owner prior to bidding; and 3) errors or omissions in design which need to be corrected during construction, also known as "document clarification." Change orders may contain one or more items requiring modification. A change order may represent a project that was added to another project rather than separately bid when circumstances made it advantageous and conditions were met.

Funding Restrictions/Requirements

There are many types of funds that may be used to fund capital projects. These include university funds, gifts and private donations, loans, state appropriations, and funding from state

or federal agencies. Depending on the fund source, there may be restrictions or requirements on the use of those funds. These include

- Competitive bidding and public advertising requirements.
- Affirmative action
- Funds may only be used for projects they were provided for.
- An adequate review and approval process to ensure that construction costs are reasonable.
- Prevailing wage rates must be used.
- Reporting requirements.

Scope

We assessed the effectiveness of construction management policies and procedures, including internal controls and processes related to the administration of construction activities, and specifically, bidding, change order and funding requirements by means of interviews with process managers, reviews of relevant policies and procedures, gathering and evaluating data over three fiscal years and into the present fiscal year; reviews of bid and construction documents; sampling change orders; and reviewing funding restrictions and the related control processes. Our procedures included

Bidding

- Documented active projects during the review period.
- Analyzed for trends among contractors awarded contracts.
- Verified that bid documents of a sample project were in compliance with the UC Facilities Manual requirements.
- Verified that the prequalification procedures, including advertisements, were in compliance.
- Verified that the bidding process for prequalified bidders was in compliance.
- Verified that the lowest competitive bid was selected.

Change Orders

- Sampled change orders from a current project.
- Verified that change orders greater than \$100,000 had adequate justification to process as change orders rather than through competitive bidding.
- Verified adequate documentation to support change order expenses.
- Verified math calculations and appropriate approvals.
- Reviewed compliance with contract general conditions.

Funding Restrictions/Requirements

- Reviewed processes and coordination among campus units to ensure funding restrictions and requirements were met.
- Identified funding sources for projects over a three-year period and the amount and use of these sources for projects.
- Reviewed various funding restrictions, including those stated in award documents.

III. OBSERVATIONS REQUIRING MANAGEMENT CORRECTIVE ACTION

A. Contractor Pool and Rotational Bidding		
During the review period, a small number of contractors received significantly more negotiated and informally bid contracts than other contractors. This trend was due to a small pool of responsible contractors and not selecting contractors on a rotational basis.		
Risk Statement/Effect		
The method of selecting contractors did not appear to be impartial and avoid the appearance of favoritism.		
Recommendations/Agreements		
A.1	PP&C will proactively attempt to increase the pool of qualified contractors and rotate through this pool when contracting for small projects.	Implementation Date
		1/2/2013
		Responsible Manager
		Director, Finances & Operations

A. Independence of ISSS Staff - Detailed Comments

The *UC Facilities Manual (Manual)* requires an impartial method for selecting contractors to preclude favoritism and repeated awards to a single contractor.

The *Manual* describes three methods of contractor selection: formal competitive bidding for contracts greater than \$100,000; informal competitive bidding for contracts between \$50,000 and \$100,000; and negotiated contracting for contracts less than \$50,000.

Informal competitive bidding solicits bids from three or more contractors able to perform the work, and awards the contract to the lowest responsible bidder. The *Manual* suggests the following methods for selecting bidders:

1. Regularly solicit bids from all responsible contractors who have expressed interest in receiving informal bids, or
2. Select contractors on a rotating basis from a pool of responsible contractors able to perform such work.

For negotiated contracts, the *Manual* states, "Contractors must be selected on a rotating basis from a pool of contractors able to perform the type of project work required."

Generally, the contractor pool the campus has to choose from for negotiated contracts as well as major and minor capital projects is small. This is due to many factors including the demographics of rural Santa Cruz County and the weak economy. Small contractors often do not have the licenses, insurance and bond levels required for UC contracts, and large contractors from outside the area are only interested in large projects.

Further, campus project managers and users prefer to have work done by contractors they have had a positive experience with, and especially those who have specialty skills for a project that can be employed without additional expenses. Contractors familiar with campus conditions have a better change of completing projects on time and within budget.

Nevertheless, PP&C management agreed that more could be done to improve negotiated/informal bidding. For example, local contractors could be invited to an introduction to contracting at UCSC. This introduction would allow local contractors to learn the requirements of contracting with UC, and the conditions of working on the campus. Contractors could also introduce themselves and talk about examples of their work. Such efforts may not increase the pool of qualified contractors, but they will demonstrate a desire to comply with the *UC Facilities Manual* and avoid the appearance of favoritism in contracting.

B. Change Order Cost for Insurance and Bonds		
<p>During a construction project we sampled, the contractor changed the way it calculated the cost for insurance and bonds when calculating costs for change orders. The new calculation was contrary to the methodology agreed to in the CM-at-Risk contract, general conditions.</p>		
Risk Statement/Effect		
<p>Allowing changes to the standard insurance and bond calculation method could allow a contractor to overcharge the university and give the impression that a contractor was receiving special treatment, which is inconsistent with the normal practice of PP&C project management.</p>		
Recommendations/Agreements		
B.1	<p>PP&C will recalculate the insurance and bonding expense for affected change orders in this project using the standard formula to ensure these expenses were not overcharged.</p>	Implementation Date
		1/2/2013
		Responsible Manager
		Director, Architectural Services
B.2	<p>If there were overcharges, PP&C will discuss with university counsel if we should request a refund from the contractor.</p>	Implementation Date
		1/2/2013
		Responsible Manager
		Director, Architectural Services
B.3	<p>PP&C will ensure that project management addresses exceptions to general conditions, if allowable, by having them reviewed and approved at the appropriate level, and documented; and that this documentation is kept with the project files.</p>	Implementation Date
		1/2/2013
		Responsible Manager
		Director, Architectural Services

B. ISSS Staff Continuing Education - Detailed Comments

The change order process is described in the general conditions of the long-form contract and other contract forms, such as CM-at-Risk, made available through the *UC Facilities Manual*. Procedures include a cost proposal provided by the contractor, signed by the contractor and the campus project manager; a justification for pursuing a change greater than \$100,000 as a change order rather than

separately bid, signed by the project manager, the director of PP&C Finances & Operations, and the campus architect; and supporting documentation reviewed by the project manager.

A sample of change orders from the Biomed Science Facility project was chosen for this review. We reviewed change orders exceeding \$100,000 to determine if doing them as change orders rather than competitively bid was justified. We reviewed supporting documents to ensure that the costs of lump sum change orders were reviewed for reasonableness.

Further, we reviewed the samples to:

- Ensure that change orders were approved in accordance with the contract terms and conditions.
- Ensure that math calculations were without error.
- Verify that change order costs were in accordance with contract terms and conditions.
- Verify that labor and labor burden pricing for change orders was reviewed.
- Verify that materials costs were reviewed.
- Verify that the scope of work required by the change order was a legitimate change in scope of work already including in the base contract.

Aside from a reoccurring anomaly, we found that the change orders sampled were in compliance with the contract general conditions and the *UC Facility Manual*.

The anomaly was changing the method for calculating insurance and bond costs in change orders from the method agreed to in the contract general conditions. The general conditions state: "The cost for Insurance and Bonds shall not exceed 2% of the cost of extra work." The cost of extra work refers to direct costs, and does not include profit and overhead.

The project manager allowed the contractor to charge for insurance and bond costs at the rate of 1.5% of direct costs and other costs to avoid a change order for payment of these costs if not covered by the terms of the general conditions. The contractor had done this for another major capital project on campus. Further, the project manager believed the low rate the contractor asked for would not result in overcharges.

APPENDIX A – Contractor Volume and Contracting Methods

Contract volume (contractors with ten or more contracts per year)				
Contractor	2012	2011	2010	2009
Average # per all contractors	3	3	2	2
Cen-Con Inc.	19	20	9	23
Cyclops Electrical Systems	9	17	9	12
Geo H. Wilson Inc.	11	14		10
Kelso Construction	19	16	13	12

Contract amount (contracts in the amount of \$1 million or more)				
ISEC Inc.	1,710,049			
James R. Griffin, Inc.		2,396,000		
Devcon Construction, Inc.			62,330,474	
DPR Construction			3,457,173	4,044,344
Granite Construction Company				1,244,300
Interstate Construction Inc.				4,949,656
Trinet Construction, Inc.			1,205,000	

Methods of Contracting			
Contractor	Negotiated	Informal	Formal
Cen-Con Inc.	46	20	5
Cyclops Electrical Systems	38	8	1
Geo H. Wilson Inc.	33	1	1
Kelso Construction	44	14	2

APPENDIX B – Control of Funding Restrictions and Requirements

1. Funding sources (dollars per year/percent of total funds for capital projects):

	2010		2011		2012	
Gifts & Private Donations	\$9.9M	9%	\$9.5M	14.5%	\$7.4M	18%
State Grants	\$545K	1%	\$573K	1%	\$4.7M	2%
Federal Grants	\$77K	0.4%	\$4.1M	0.03%	\$4.1M	0.03%
State Appropriation	\$141M	5.6%	\$85M	4.7%	\$3.1M	3.7%
University Funds	\$68.6M	70%	\$39M	65%	\$21M	58%
Borrowed Funds	\$282M	13%	\$17M	14%	\$15.6M	17%

- One project had state and federal grants during FY2011 and FY2012. In FY2012, the total for these two fund sources combined was \$8.8M.
- State appropriations applied to 11 projects in FY2012 for a total of \$3.1M. No new projects have state appropriation funding.
- Gifts and private donations funded 55 projects in FY2012 for a total of \$7.4M.
- Borrowed funds funded 52 projects in FY2012 for a total of 15.6M
- University funds funded 176 projects in FY2012 for a total of \$20.6M.

University funds are the main source of funding for the majority of construction projects.

2. Common restrictions on funding for capital projects are:

- Competitive bidding and public advertising requirements.
- Affirmative action
- Funds may only be used for projects they were provided for.
- Project scope must remain the same.
- An adequate review and approval process to ensure that construction costs are reasonable.
- Prevailing wage rates must be used.
- Reporting requirements.

The above restrictions apply to most funding sources. However, there are restrictions by amount, such as for state appropriations, unless specifically allowed by state budget line item.

3. Campus units responsible for monitoring compliance with funding restrictions or requirements are:

- Capital Projects and Space Management
- Planning & Budget
- Plant Accounting
- Physical Planning & Construction

4. Control Process:

- Capital Planning & Space Management (CPSM) is responsible for developing and coordinating all project documentation necessary for project approval and funding, both on campus and for UCOP. CPSM prepares project planning guides in cooperation with PP&C and the originating campus unit that include the project justification, description, budget and schedule. Project planning guides are like an agreement with the fund source that we will build what we state in the guide. Once a project is approved and funds are transferred into the campus capital accounts, PP&C assumes responsibility for the project and manages it through completion.
- University funds (that are operating funds) allocated for capital projects are transferred through the Office of Planning & Budget (P&B). The P&B director reviews these to ensure the funds can be used for a capital project. There are plant fund numbers that correspond to operating fund numbers. When he receives a transfer of funds (TOF), he uses the appropriate plant fund number for the specific operating fund that is being transferred. If the TOF involves a fund that has never been used for capital purposes before, he asks Accounting to establish a new plant fund number.
- Plant Accounting confirms with Extramural Funds Accounting that a sponsored award allows the funding to be used for a particular capital project. Plant Accounting also allocates external financing (loans) directly in accordance with UCOP approval. Plant Accounting also allocates gifts and private donations to capital projects according to University Relations communications. Plant Accounting assigns fund numbers to the funds it deals directly with, consistent with UCOP's direction. Further, Plant Accounting reviews requests to pay contractor invoices to ensure that expenses are assigned to the right project, are reasonable and that there are sufficient funds for payments. Plant Accounting provides its approval if its criteria are met. This is the third level of approval after that of the project manager and the PP&C director of Finances & Operations.
- PP&C has two main control points regarding the use of funds for a capital project. Project management ensures that the project complies with the contract to meet the scope, budget and schedule. The Finances and Operations Office ensures that each project is identified with unique project number that functions as the organization code in the campus ledger system. It then ensures that all funds from different fund sources allocated to each project are individually tracked, including their budgets. Project managers signoff on contractor invoices and submit them to Finances & Operations who review these again to ensure reasonableness and budget, and assign appropriate ledger codes (foapal). Finance and Operations then forward the invoice to Plant Accounting for approval and payment.
- There is a control over labor rates provided by LCPtracker, an application in wide use around the UC system.
- The director of CPSM coordinates the effort to comply with reporting requirements for the state and federal agencies participating in the funding of the Biomedical Sciences Facility

project. Coordination includes PP&C, the assistant director of Biomolecular Science & Engineering and the dean of Physical & Biological Sciences. Agencies send letters requesting reports to the PIs identified on the grant documents, who then contact the director of CPSM to respond to them.

- In the case of the state agency, California Institute for Regenerative Medicine, the grant conditions included that they could request an external audit to provide assurance that grant conditions were met upon completion of the project. UCOP arranged for the external auditor when it was requested.