



Secretary of State Audit Report

Oregon University System: Construction Audit of the Northwest Center For Engineering, Science and Technology at Portland State University

Summary

PURPOSE

The purpose of this audit was to determine whether contracts for the construction of the Northwest Center for Engineering, Science and Technology (NWCEST) were awarded in accordance with Oregon University System (OUS) contracting policies and procedures.

The purpose was also to determine whether Portland State University had processes in place to ensure payments to the project architect and contractors, contract amendments and contract change orders were reasonable and in accordance with contract terms.

We conducted this audit at the request of the Oregon University System.

BACKGROUND

Between 2001 and 2003 the legislature approved approximately \$60.5 million in financing for construction of the NWCEST at Portland State University (University). The project included construction of a five-floor tower over an existing underground parking and office structure, and improvements to the existing structure.

RESULTS IN BRIEF

We found that project contracts were awarded in accordance with OUS contracting policies and procedures. While we did find the project was completed ahead of schedule, the University did not have adequate policies and procedures in place to ensure all payments to project contractors, contract amendments and contract change orders were reasonable and in accordance with contract terms.

Specifically, we identified the following recurring issues regarding the University's processes:

- Inadequate supporting documentation and review of payment applications, contract amendments and contract change orders; and
- Disorganized contract and project files.

We also found the University paid the project construction manager in full for preliminary planning and construction management services before those services were completed.

RECOMMENDATIONS

We recommend Portland State University develop and implement policies and procedures that detail requirements and provide guidance in the following areas:

- Obtaining and reviewing supporting documentation for payment applications and contract amendments;
- Establishing documentation requirements for contractor payment applications, contract amendments and contract change orders; and
- Organizing contract and project files.

We also recommend Portland State University:

- Ensure compliance with existing procedures governing contract change order review.
- Provide construction management training to project staff responsible for reviewing and approving payment applications, contract amendments and contract change orders.
- Evaluate the feasibility of obtaining additional contractor payment, amendment and change order documentation for this project. Where feasible, review documentation to identify potential overpayments and seek reimbursement.

AGENCY'S RESPONSE

Portland State University generally agrees with the recommendations. Its complete response can be found starting on page 5.

Introduction/Background

Between 2001 and 2003 the Oregon legislature approved approximately \$60.5 million in funding for construction of the Northwest Center for Engineering, Science and Technology (NWCEST) located at Portland State University. Of the total project cost, \$38.7 million was financed through state bonds with the remainder paid from donations and federal funds.

The project included construction of a five-floor tower over an existing underground parking and office structure, and improvements to the existing structure. The new tower, which opened in January 2006, includes teaching and research laboratories, classrooms, an auditorium, offices and student services facilities.

The project was constructed in phases using different types of construction contracts. For early work, the University used a construction manager/general contractor (CM/GC) contract.¹ For the tower construction, the University used a fixed price contract for general contractor services.² Finally, for architectural services, the University used an architect's agreement, in which compensation was based on a combination of reimbursable expenses and an agreed upon fixed fee.

Audit Results

We found that project contracts were awarded in accordance with Oregon University System contracting policies and procedures. While we did find the

¹ Under the CM/GC approach, construction management and general construction services are provided at a price not to exceed an agreed upon amount, the guaranteed maximum price (GMP).

² The contractor is compensated based on a fixed price for all work required by the contract, regardless of actual costs.

project was completed ahead of schedule, we also found the University did not have adequate processes in place to ensure all payments to project contractors, contract amendments and contract change orders were reasonable and in accordance with contract terms. The following are the recurring issues we found:

- Inadequate supporting documentation and review of payment applications, contract amendments and contract change orders; and
- Disorganized contract and project files.

We also found the University paid the project construction manager for preliminary planning and construction management services before those services were completed.

Supporting Documentation Was Inadequate

Oregon University System General Conditions for Public Improvement Contracts state that the contractor should submit an application for each payment and, if required, include receipts or vouchers documenting payments made for materials and labor, including subcontractor payments.

Construction contracting best practices state that, for lump sum change orders such as those used in this project, the contractor should submit a properly itemized proposal covering the additional or deleted work. Proposals from contractors and subcontractors should itemize the various components of work and segregate them by labor, materials, fees and markups using a detailed format so that costs can be verified.

We reviewed selected project payment applications, contract amendments and contract change orders and found inadequate documentation in all areas. Without adequate documentation, University officials cannot ensure

costs are reasonable and in accordance with contract terms.

Specifically, we found that the University did not require the CM/GC, whose contract totaled approximately \$5.4 million, to submit supporting documentation with payment applications. We also found inadequate supporting documentation for approximately \$183,000 in payment applications submitted by the architect. For example, detailed labor charges for extra services were not provided.

Additionally, we reviewed contract additions and deductions contained in amendments and change orders that netted \$6.7 million and found that \$2.8 million of the adjustments were not supported by adequate documentation. Specifically, we found that prior to approval of change orders the University did not obtain properly itemized proposals covering the additional or deleted work. For example, one change order included a subcontractor's proposal for additional work totaling \$242,598 that was presented as a lump sum proposal and did not contain a detailed breakdown of the proposed charges.

Approval Process Lacked Detailed Reviews

Construction contracting best practices state that an essential part of the contracting process is contract monitoring, which includes comparisons of invoices and charges to contract terms and conditions. This includes carefully verifying contractor payment claims because a contractor or consultant's tendency to overcharge on contracts can be influenced by opportunity, and opportunity increases when work is not reviewed by the owner.

We reviewed selected payment applications, contract amendments and contract change orders for evidence of detailed review. Examples of items we looked for

included required approval signatures, itemized invoices, recalculation of amounts contained in supporting documentation including fees and mark-ups, and allowability of costs.

We found that most project payment applications, contract amendments and contract change orders contained the required approval signatures. However, we also found that available supporting documentation for payment applications and contract change orders was rarely reviewed in detail prior to approval.

University officials told us project costs, including change orders, were reviewed for reasonableness and adherence to project budget amounts even though supporting documentation was not obtained. For example, proposed change orders were discussed at weekly project meetings to verify the proposals were within the scope of the project and reasonable. However, we found that this review process was not sufficient to ensure architect and contractor payments, contract amendments and contract change orders were in accordance with contract terms. For example, we noted instances in which the contractor and subcontractors included non-reimbursable expenses in change orders, such as change order preparation fees. We also found instances in which the contractor and subcontractors exceeded allowable change order markups.

Additionally, while officials concluded costs were reasonable and within budget, without reviewing supporting documentation the University could not determine if it overpaid for the project.

Finally, we found that architect payment applications were presented in a format that made it difficult for University staff to review charges and determine if payments were reasonable and in accordance with contract terms.

Contract and Project Files Were Disorganized

Best practices for managing construction projects state that construction project documentation should be organized so that relevant documents can be easily retrieved for review and dispute resolution purposes.

While conducting our audit, we noted construction contracts and project files were disorganized. Consequently, project staff could not locate pertinent contract and project documentation in a timely manner. Because of the inadequate filing system, there is a risk construction contract and project documentation could be lost or misplaced and not available for review and dispute resolution.

Construction Manager Was Paid Before Services Were Completed

The construction management contract for the tower construction required the University to make monthly progress payments for professional services provided during the preceding month. We found the University did not follow contract terms when it paid the construction manager in full for services before they were completed, and paid the contract "not-to-exceed" amount rather than the monthly amount specified in the contract.

Since the University paid the contract "not-to-exceed" amount before services were complete, it could have potentially overpaid if actual services rendered were worth less than the amount paid. Although there was no overpayment in this instance, the risk of an overpayment existed.

Policies and Procedures Were Lacking

We found the University did not have policies and procedures requiring contractor submission and University review of

supporting documentation for payment applications and contract amendments prior to approval.

While the University had a written procedure for obtaining and reviewing contract change orders, it did not require project staff to obtain adequate supporting documentation or conduct a detailed review prior to approval.

We also found the University did not have policies and procedures for establishing adequate documentation requirements for contractor payment applications, contract amendments and contract change orders prior to the start of the project.

Additionally, some project staff did not have a clear understanding of their responsibilities when reviewing payment applications and contract change orders.

Finally, the University did not have policies and procedures for organizing construction contract and project files.

Recommendations

We recommend Portland State University develop and implement policies and procedures that detail requirements and provide guidance in the following areas:

- Obtaining and reviewing supporting documentation for payment applications and contract amendments;
- Establishing documentation requirements for contractor payment applications, contract amendments and contract change orders; and
- Organizing contract and project files.

We also recommend Portland State University:

- Ensure compliance with existing procedures governing contract change order review. Specifically, staff should obtain and review in detail supporting documentation for contract

change orders prior to approving them.

- Provide construction management training to project staff responsible for reviewing and approving payment applications, contract amendments and contract change orders.
- Evaluate the feasibility of obtaining additional contractor payment, amendment and change order documentation for this project. Where feasible, review documentation to identify potential overpayments and seek reimbursement.

Agency's Response:

Portland State University's detailed response is outlined in the attached letter. The University believes this response provides valuable background information and puts the project in further context. Portland State University generally agrees with the audit comments and either already has or will be implementing control improvements identified.

Objectives, Scope and Methodology

We conducted this audit at the request of the Oregon University System (OUS).

The purpose of the audit was to determine whether contracts for the construction of the Northwest Center for Engineering, Science and Technology (NWCEST) were awarded in accordance with OUS contracting policies and procedures.

The purpose was also to determine whether Portland State University had processes in place to ensure payments to the project architect and contractors, contract amendments and contract change orders were reasonable and in accordance with contract terms.

To answer the first objective, we reviewed the University's selection

process for the project architect and contractors.

To answer the second objective, we reviewed all project payment applications, contract amendments and contract change orders for mathematical accuracy and approval signatures. To determine whether the University reviewed supporting documentation in detail, we also reviewed 13 architect payment applications, eight architect amendments, three CM/GC contract change orders, three lump sum contract change orders, and all payments to the construction manager.

In addition, we reviewed OUS contracting policies and procedures, relevant *Oregon Revised Statutes* and *Oregon Administrative Rules*, project contracts, contract amendments, and contract change orders.

To obtain information about construction contracting best practices, we also reviewed journal articles, contracting text books and other construction audits.

Finally, we interviewed University and contractor personnel to gain an understanding of contracting, payment, amendment, and change order review and approval processes.

We performed our fieldwork between March 2006 and June 2006. We conducted our work according to generally accepted government auditing standards.

Portland State University's Response to the Audit Report

Portland State University recently completed a new state of the art engineering building as part of the Northwest Center for Engineering, Science and Technology. The building is a LEED Gold Certified sustainable facility providing laboratories, classrooms, an auditorium, offices and student service facilities which further the academic and research missions of the University. The building is also a symbol of PSU's commitment to environmental responsibility demonstrating water and energy efficiency, indoor environmental quality, design innovation, storm water management, and geothermal wells to heat and cool the building.

While the University accepts some results of the audit, we believe that the audit report does not provide a complete picture of what was a successful project. The project faced significant challenges including steeply escalating construction costs due to steel shortages and rising costs for soft metals and other materials. To add further complexity, the building was constructed on top of an existing two-floor subterranean parking garage which remained open through the construction. These factors lead University administration to utilize a fixed fee, competitively bid contract for a major portion of the construction, including the tower, to minimize risk. This approach exceeded expectations by delivering a state of the art, Gold LEED facility on time and within budget.

University administration is very pleased with the results of the engineering building project. The contract was issued in April 2004 in accordance with OUS Standard General Conditions dated July 2002, approved by the Department of Justice. A major portion of the construction contract was issued using a fixed fee format as administration felt this minimized risk in a period of escalating costs. In addition, the University's intent in utilizing a fixed price format for the change orders was to enable the University to transfer the risk to the contractor for cost increases associated with coordination, design clarifications and unanticipated expenses.

The audit notes that supporting documentation was inadequate. The University recognizes that more supplemental information could have been obtained for inclusion in the official project files and will take steps to ensure this occurs in the future. However, the University feels the supporting documents in the project files justify project progression. In addition, the owner's representative, project architect, construction manager, construction inspector and the project manager maintained separate files supporting decisions made throughout the project. Of the eight executed change orders, four related to agreed increases in project scope. The remaining four dealing with the tower construction amounted to 5% (\$1.6M) of the project cost, which is low for a project of this size and complexity. In addition, subsequent review by PSU Facilities since the audit has not identified any material overcharges to the project to date.

Noted areas of concern:

- **Inadequate supporting documentation and review of payment applications, contract amendments and contract change orders.**

The University concurs that improvements could be made in the process for reviewing and approving payment documents. The University also concurs that the process for reviewing architect payment applications could be improved. However, based on the numerous site inspections occurring on the project each day, there is no evidence that the work the University paid for under the agreements was not carried out by the architect. The project was completed within budget and ahead of schedule allowing the University to occupy sooner than anticipated.

- **Contract and Project Files Were Disorganized**

The University concurs with this comment. Budget reductions resulting in a loss of clerical staff coupled with staff turnover have compounded the necessity to redesign and organize the file system. We are in the process of selecting a consultant to work with us to implement a comprehensive plan for our filing systems.

- **Construction Manager Was Paid Before Services Were Completed**

The University concurs with this finding. The Construction Manager (CM) was issued two separate contracts, one for preliminary planning and a second for construction management services. The first contract was paid 11 months after issuance in accordance with the terms of the agreement. The second contract was paid in full prior to completion of the project, but in accordance with the contractor's approved rates of \$10,000-\$15,000 per month for construction services. Full service was delivered by the CM; after final payment, the CM continued to provide services through final project completion. The services of the contractor were exemplary and are appreciated by the University. The University will revise its contracting procedures to require project completion prior to final payment in the future.

- **Policies and Procedures Were Lacking**

The University concurs that policies and procedures could be improved. Facilities staff has visited Oregon State University to discuss their procedures and had a consulting visit from the Contracts Manager from University of California Merced. Based on input from these institutions and the auditors, we have implemented new written procedures for contracts, change requests and pay applications to tighten and improve review, control and compliance. An additional management position for controls compliance is under recruitment for the Facilities Department. Ongoing training, better defined staff roles, the

addition of more qualified staff, the addition of a new contracts compliance manager as well as documented procedures will help the department to formalize contract and project management procedures.

The engineering building project provided the University the opportunity to move forward with an important new educational facility. We are pleased with the success and outcome of the project. Originally, the project faced staggering challenges including escalating materials costs, an aggressive construction schedule, a tight budget, and a challenging construction site. It was critical that the University and contractor coordinated the work to minimally disrupt our campus community and neighbors. Throughout the process from design to completion, the University adhered to stringent State Board of Higher Education and Department of Justice requirements in addition to the City of Portland's high standards for constructability and seismic reinforcements. This project was the second Higher Education facility to receive the prestigious LEED Gold Certification incorporating numerous sustainable features that add to the buildings educational value and also assist in significantly reducing energy costs. The University believes that the close collaboration of the architect, contractor, and construction manager resulted in a project that represents exceptional value for money in a time of constrained resources. Nonetheless, the University will improve its policies and procedures as noted above and appreciates the work of the Secretary of State Audits Division. We believe these improvements will serve to further strengthen University construction management practices.



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*Courtesies and cooperation extended by officials and staff of
Portland State University were commendable and much appreciated.*

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