



**Internal Audit Department**

## **Science and Health Building Construction Contract**

**October 2015  
Report Number FY 15-10**

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Northern Arizona University  
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Audit Report  
October 20, 2015

### Summary

Northern Arizona University contracted with Mortenson Construction to construct a new Science and Health Building on NAU's north campus. Our audit of this construction project is included in NAU's Fiscal Year 2015 Annual Internal Audit Plan as approved by the Arizona Board of Regents Audit Committee. Construction projects represent high financial risk for the universities. New construction is required to accommodate student enrollment growth and enhance students' learning experiences. The audit links to ABOR's strategic goal of promoting student learning and success.

**Background:** The project is being delivered through the Construction Manager at Risk (CMAR) method. Construction administration and project management are being provided by NAU Facility Services.

The 122,000 square foot Science and Health Building provides an open and flexible platform for research laboratories, with classrooms for chemistry, physics, and health science. The Arizona Board of Regents approved the project during the November 10, 2011, Capital and Project Finance Committee Meeting. Funding for the construction includes \$71.9 million in SPEED bonds. The debt service will be funded by the Technology Research Initiative Fund (TRIF).

The construction contract with the CMAR was executed in April 2013. A notice to proceed was issued in May 2013. Design professional services are being provided through a joint-venture partnership with GLHN Architects and Engineers, Inc., and Richard & Bauer Architecture. Substantial completion of the project was scheduled for May 29, 2015, and occurred on July 3, 2015.

As of January 2015, the guaranteed maximum price for construction, excluding pre-construction and architectural costs, was \$54.8 million.

**Audit Objectives:** The primary objectives of this review were to confirm that:

- contract terms are applied as written;
- charges are adequately supported by actual costs incurred by the CMAR;
- the subcontractor selection process is consistent with ABOR policies;
- proposed change orders are sufficiently documented; and
- fees are applied as specified by the construction contract.

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**Scope:** The scope of this audit was the project construction phase from inception through January 31, 2015 (Pay Application 20). We relied on Facility Services' expertise for the construction technical aspects and to determine whether the University received the contracted scope of work. Accordingly, the audit scope did not include any on-site inspections to assess construction methods, materials, or compliance with design specifications.

**Methodology:** The audit objectives were accomplished using the current Tri-University construction audit program, which includes:

- Reconciling construction payments, as recorded in NAU's financial system, to applications for payments.
- Verifying that pay applications are supported by the contractor's internal financial records.
- Performing a detailed review of transactions charged to General Conditions and other reimbursable costs to ensure they are allowable and adequately supported.
- Verifying subcontractors were selected according to contract requirements and ABOR procurement policies.
- Confirming that overhead and fees on proposed change orders are calculated consistently and per the contract. Determining whether GMP adjustments are properly approved by NAU.
- Assessing whether proposed change orders provide sufficient information to validate price-reasonableness and, where appropriate, rates are consistent with the subcontractor contracts.
- Verifying that charges for bonds, insurance, and sales taxes are documented and per the contract.
- Ensuring that usage of contingency funds and allowances are properly approved.

**Conclusion:** Construction of the Science and Health building was adequately controlled by Facility Services through Pay Application 20. At the time of our review, there are several outstanding items to complete before project close out, including: obtaining final lien waivers and notices that the CMAR released retainage funds to subcontractors, verifying that all punch list items were resolved, confirming that liability insurance, bonds, taxes are charged to the project based on actual costs, and the university formally evaluated the performance of the contracts and reviewed project results. Opportunities for improvement are

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reflected in the remainder of the report. The areas we reviewed during this audit and the status of each are provided in the following table.

<b>General Control Standard</b> (The bulleted Items are internal control objectives that apply to the general control standards, and will differ for each audit.)	Control Environment	Recommendation No.	Page No.
<b>Reliability and Integrity of Financial and Operational Information</b>			
<ul style="list-style-type: none"> <li>Contractor billings and change orders are supported by the contractor's job cost ledger.</li> </ul>	Reasonable to Strong Controls in Place		
<ul style="list-style-type: none"> <li>The contractor's job cost ledger is supported by sub-ledgers that facilitate analyses and reviews, such as equipment rental charges, payroll schedules, and subcontractor payment ledgers.</li> </ul>	Reasonable to Strong Controls in Place		
<ul style="list-style-type: none"> <li>Adequate documentation is provided to support charges made to General Conditions with the pay applications and General Conditions are allowable per the contract.</li> </ul>	Reasonable to Strong Controls in Place	2	6
<ul style="list-style-type: none"> <li>Allowances and contingencies are accurately tracked and properly approved.</li> </ul>	Reasonable to Strong Controls in Place	4	8
<ul style="list-style-type: none"> <li>Subcontractor change order proposals are submitted with sufficient information to determine price reasonableness.</li> </ul>	Reasonable to Strong Controls in Place	1	5
<b>Effectiveness and Efficiency of Operations</b>			
<ul style="list-style-type: none"> <li>The overall contract is clear, effective, and efficient to administer.</li> </ul>	Reasonable to Strong Controls in Place		
<ul style="list-style-type: none"> <li>Allowable costs are sufficiently defined in the contract and are efficiently processed.</li> </ul>	Reasonable to Strong Controls in Place		
<b>Safeguarding of Assets</b>			
<ul style="list-style-type: none"> <li>Insurance coverage during construction is adequate.</li> </ul>	Reasonable to Strong Controls in Place		
<b>Compliance with Laws and Regulations</b>			
<ul style="list-style-type: none"> <li>The contract and ABOR selection process for subcontracted work was followed and the subcontracts are supported by the bid awards.</li> </ul>	Reasonable to Strong Controls in Place		

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<ul style="list-style-type: none"> <li>Change orders are priced per the contract and are properly approved.</li> </ul>	<b>Reasonable to Strong Controls in Place</b>		
<ul style="list-style-type: none"> <li>Sales tax is computed accurately and per state regulations. Overhead and profit are calculated per the contract.</li> </ul>	<b>Opportunity for improvement</b>	3	7

We appreciate the assistance of the staffs of Mortenson Construction and NAU Facility Services during the audit.

Management is supportive of our recommendations and has actively begun working to implement their identified action items.

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**Audit Results, Recommendations, and Responses**

**1. Subcontracts did not disclose all labor rates. Proposed change order documentation from subcontractors is inadequate.**

**Condition:** Both the contract with the CMAR and the revised tri-university contract dated November 2011 require proposed change orders to be priced by contractual unit prices or by cost. If by cost, the subcontractor expenses must be “properly itemized and supported by sufficient data reduced to meaningful unit prices for each assembled component of the work in order to facilitate evaluation.” However, the subcontractor contracts did not always provide labor rates; and there was not always sufficient information provided in the subcontractor documentation to verify the reasonableness of the proposed change orders.

**Criteria:** In order to assess the reasonableness of proposed change order costs, the following information, at a minimum, should be documented and easily identified: labor hours, labor rates, material specifications (including supplier’s name and any product identifier), quantities required, and per unit pricing. Any charges for bonds, insurance, sales tax, etc. should also be itemized. The CMAR should ensure that its subcontractors issue change order proposals that document this information. The negotiated labor rates should be documented in the subcontractor contracts.

**Cause:** Facility Services did not ensure that supporting documentation was available and provided to support every change order proposal from subcontractors to the CMAR. In several instances, the contract between the CMAR and the subcontractor did not disclose labor rates. The need for material pricing also was not effectively communicated to all subcontractors by the CMAR.

**Effect:** It is sometimes not possible to determine if change order proposals are reasonably priced or priced according to subcontractor contracts.

**Recommendation:** Facility Services should ensure that CMAR contracts with subcontractors contain labor rates. Change order proposals should use these rates and contain sufficient documentation to support the reasonableness of the proposals. The information should be retained to facilitate a thorough examination

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of the reasonableness of the proposed change order costs. Facility Services should effectively communicate to the CMAR that all change order proposals must provide detailed pricing and quantities.

**Response:** We concur that to reasonably assess change order costs, details regarding labor hours, rates, materials, taxes and insurances should be documented. Facility Services agrees that material specifications including supplier's name or product identifier should be required to be included on change orders if materials have not already been specified and are subsequently reviewed and approved at the submittal review phase of the work.

For this contract such documentation was required from the CMAR in order to reasonably review, unless the overall value of the change was sufficiently small that additional information was not deemed necessary to validate the reasonableness of the proposed change order. In some cases a combined labor rate was included and reviewed for reasonableness.

This contract version did not specify the CMAR to require labor rates for subcontractors within their subcontracts. The reason the CMAR gave for not requiring labor rates within all subcontracts was to enable them to negotiate labor rates throughout the project. Facility Services and the Design Professional review all labor rates within proposed change orders for reasonableness noting that there is a wide range of what is considered an industry standard for a labor rate (i.e. craft level labor rates for a general "laborer" may be \$12/hour whereas a typical labor rate for an elevator technician may be as high as \$280/hour). We may improve our process by including language in the contract requiring the CMAR provide labor rates for all subcontracts.

We will discuss with the Tri-U construction group including language in the CMAR contract that would require the CMAR to provide labor rates for all subcontracts.

**2. Craft labor rates and the labor burden should be formalized at contract negotiation.**

**Condition:** While supervisory pay rates are provided in the contract and are being applied and adhered to properly, hourly craft labor rates and labor burden rates

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were not provided in the contract. Craft labor base rates range from \$12 per hour to \$26 per hour. The CMAR is applying a labor benefit rate of 51.18% to craft labors' hourly base rates.

**Criteria:** The contract should document that all pay and labor burden rates are reasonable and satisfactory to NAU.

**Cause:** The craft labor rates were reviewed and discussed but not made part of the contract.

**Effect:** The construction project may have higher than expected craft labor costs.

**Recommendation:** All labor rates and the labor burden should be formalized at the time of contract negotiation.

**Response:** Facility Services agrees that we can do a better job of documenting added CMAR craft level labor during the project as additional staff was assigned during the course of the project. Note that all project staff changes were discussed with NAU for approval prior to implementation, and rates for such staff were reviewed by both Facility Services and the Design Professional. We may improve our process by including language in the contract requiring the CMAR provide updated labor rates any time staff is added without prior written approval.

We will discuss with the Tri-U construction group including language in the CMAR contract that would require the CMAR to provide craft labor rates for the duration of construction.

### **3. Sales tax should not be paid on exempt material.**

**Condition:** The CMAR charged the project sales tax of \$3,651 for material that should be tax exempt.

**Criteria:** According to Arizona State tax regulations, materials that are to be incorporated into a project that is subject to prime contracting transaction privilege tax (TPT) may be purchased exempt from TPT. The CMAR should issue the supplier a Transaction Privilege Tax Exemption Certificate (Form 5000) for the exemption. The tax exemption is not available for expendables such as equipment

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rentals, small tools, and propane. This tax is in addition to the tax assessed by the CMAR on gross receipts which are subject to prime contracting transaction privilege tax.

**Cause:** The CMAR inadvertently did not issue a Tax Exempt 5000 to the lumber company.

**Effect:** NAU was overcharged for sales tax by \$3,651.

**Action agreed to be taken:** The CMAR will submit a tax-exempt form to the vendor and credit the project for the excessive sales tax.

**Response:** There are instances in the tax code where NAU is “double-taxed” on projects such as with rentals and temporary materials which are consistent with tax law (an item that both Audit and Facility Services confirmed with appropriate agencies). For the item mentioned herein Facility Services and the Design Professional missed the tax applied to permanent material in our review as tax should not have been charged in this case. The taxes NAU was incorrectly charged were reimbursed by the CMAR in the May 2015 payment application. Based on the initial findings from Audit, Facility Services discovered two other similar instances where taxes were incorrectly applied to the project; however NAU was reimbursed for these overcharges in the same payment application.

#### **4. Contingency and allowances use should be correctly documented.**

**Condition:** Of 13 Allowance Use Authorizations (AUA) tested by Internal Audit, seven were missing NAU approval and one was missing approval by the Design Professional (DP). Three AUAs were missing altogether.

Of 20 Contingency Use Authorizations (CUA) tested by Audit, eleven were missing NAU approval and ten lacked approval by the DP. Three CUAs were missing.

**Criteria:** Use of allowance funds is required to be monitored, construction contingency funds and use of reviewed, and approved by the DP and NAU.

**Cause:** Facility Services rejected CUA #9 that carried over to all remaining CUA's. This rejection precluded approval on all subsequent CUAs, therefore all subsequent CUAs are in process of being revised.

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**Effect:** Timely review and approval of CUAs and AUAs help to prevent project cost overruns. The identified rejected CUA will not affect the GMP.

**Recommendation:** All AUAs and CUAs should be corrected and retained to reflect that NAU authorized use of contingencies and allowance funds.

**Response:** Facility Services can improve the AUAs and CUAs process by ensuring that the contractor makes corrections in a timely manner. In this case Facility Services questioned the validity of CUA #9 which held up processing remaining CUAs as they track remaining funds. Note that when an authorization is rejected all following authorizations need to be corrected and signed when corrections are issued. Holding up CUA #9 did not affect reviewing additional authorizations, but does affect final approval and signature of subsequent CUAs. Note that authorization logs are inclusive of all approved and pending authorizations, and AUAs and CUAs logs are included in all payment applications.

As of October 7, 2015, all submitted AUAs have been executed and approved and provided to Audit for review as well as providing all CUA copies to Audit to review. CUA #9 and all subsequent CUAs are scheduled to be modified and processed by October 23, 2015 and submitted to Audit for review. As noted above by Audit, the identified rejected CUA will not affect the GMP as potential costs are accounted for and tracked in authorization logs.

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