

**UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
AUDIT AND ADVISORY SERVICES**

**Construction: Change Order Management
Project #21-036**

November 2021



University of California
San Francisco

Audit & Advisory Services

UCSF Box 0818
1855 Folsom Street
San Francisco, CA 94143

tel: 415.476.3851
fax: 415.476.3326

www.ucsf.edu

November 12, 2021

BRIAN NEWMAN

Senior Associate Vice Chancellor, UCSF Real Estate
Vice President, UCSF Health

SUBJECT: Construction Change Order Management

Audit and Advisory Services (“A&AS”) conducted a review of construction projects change order management. The purpose of this review was to assess the processes and internal controls in place over the change order management process for UCSF Campus and Health construction projects.

Our services were performed in accordance with the applicable International Standards for the Professional Practice of Internal Auditing as prescribed by the Institute of Internal Auditors (the “IIA Standards”).

Our review was completed, and the preliminary draft report was provided to department management in September 2021. Management provided final comments and responses to our observations in November 2021. The observations and corrective actions have been discussed and agreed upon with department management and it is management’s responsibility to implement the corrective actions stated in the report. A&AS will periodically follow up to confirm that the agreed upon management corrective actions are completed within the dates specified in the final report.

This report is intended solely for the information and internal use of UCSF management and the Ethics, Compliance and Audit Board, and is not intended to be and should not be used by any other person or entity.

Sincerely,

Irene McGlynn
Chief Audit Officer
UCSF Audit and Advisory Services



EXECUTIVE SUMMARY

I. BACKGROUND

UCSF Audit and Advisory Services completed a review to assess the adequacy of the internal controls over the change order management process for UCSF Campus and Health construction projects.

UCSF Campus and Health Design & Construction (D&C) are Units of UCSF Real Estate responsible for the execution of the UCSF Capital Plan and have teams to provide comprehensive project management including programming and design, budget development, construction administration, inspection and move-in assistance.

UCSF construction projects are governed by the California Public Contract Code and the UC Facilities Manual that provide guidelines for planning, bidding, contracting, design and construction administration.

The UC Facilities Manual describes contract modifications as changes to the work required during construction which can be accomplished through a change order or field order (FO). Specifically, a change order "is a post-award modification to the contract. A change order may revise, add to, or delete previous requirements of the work, adjust the contract sum, or adjust the contract time." An FO is "used only when (1) emergency conditions exist where life or property are endangered, (2) the extent of the work cannot be determined due to unknown conditions, or (3) a delay in proceeding with the work would affect the critical path and cause a delay to the entire Project. Field orders are not to be issued when the scope of the work and an estimated cost can be determined. A change order or a directed change order must be used instead."¹

As of FY 2021 UCSF Campus had a total of 58 active construction projects with a total budget of \$895.8M and UCSF Health had a total of 68 active projects with a total budget of \$783.4M.

Effective management and controls over the change order process is important to minimize risks for cost overruns, delays in project completion, unnecessary/unjustifiable owner or contractor-initiated change orders and contractor disputes.

II. AUDIT PURPOSE AND SCOPE

The purpose of this review was to assess the adequacy of internal controls over the change order management process for construction projects. The scope was limited to the selection and review of a total of four active construction projects during fiscal year 2021, two each from Campus and UCSF Health:

Campus Projects:

- UCSF Research and Academic Building at ZSFG, \$174,669,674
- 2 North Point Seismic and Tenant Improvement, \$22,902,711

Health Projects:

- Moffitt/Long Operating Room HVAC System Upgrades, \$16,652,478

¹ UC Facilities Manual Volume 5, Chapter 13: Contract Modifications

- Moffitt 12th East Inpatient Satellite Compounding Pharmacy, \$5,605,401

Procedures performed as part of the review included interviews and walkthroughs with relevant personnel; review of applicable policies and procedures; data analysis of change orders; and validation testing of a sample of change orders to determine if pricing is reviewed and approved and in accordance with contract terms and conditions.

For more detailed procedure steps including sampled projects and change orders reviewed, please refer to Appendix A.

Work performed was limited to the specific activities and procedures described above. As such, this report is not intended to, nor can it be relied upon to provide an assessment of compliance beyond those areas specifically reviewed. Fieldwork was completed in July 2021.

III. SUMMARY

Based on work performed, the controls over change order management were overall functioning effectively. Opportunities for improvement exist in the areas of change order justification, documentation of assessment performed to determine cost reasonableness and supporting documentation for labor costs.

The specific observations from this review are listed below.

1. Justification for additive change orders exceeding \$100,000 was not always prepared or sufficiently documented to support why competitive bidding was not performed.
2. Labor cost breakdown and details were either lacking or not sufficient to support the change order cost proposals of UCSF Health projects.

Additionally, during the course of the review, a potential opportunity for improvement was identified regarding greater clarity on the definition and distinction between change order and amendment.

IV. OBSERVATIONS AND MANAGEMENT CORRECTIVE ACTIONS

No.	Observation	Risk/Effect	Recommendation	MCA
1	<p><i>Justification form for additive change orders exceeding \$100,000 was not always prepared or sufficiently documented to support why competitive bidding was not performed.</i></p> <p>(a) Justification for Change Orders was not present: In our review of additive change orders with costs exceeding \$100,000, we noted that a Change Order (CO) Justification form was not prepared for 2 out of 8 Campus CO's and for 2 out of 5 UCSF Health CO's. The details of the change orders are as follows:</p> <p>Campus</p> <ul style="list-style-type: none"> • UCSF Research and Academic Building at ZSFG – CO #10 for \$462,838 • 2 North Point Seismic and Tenant Improvement – CO #6 for \$979,432 <p>Health</p> <ul style="list-style-type: none"> • Moffitt/Long HVAC: CO #6 for \$268,256 • Moffitt Pharmacy: CO #17 for \$388,014 <p>The UC Facilities Manual requires that change orders exceeding \$100,000, be advertised for competitive bidding. Otherwise, justification in support of the decision not to competitively bid must be documented. In addition, California Public Contract Code (PCC), sections 10507.7 et seq., requires the University of California to formally competitively bid the purchase of goods and/or services that exceed ≥\$100,000 per annual year unless an exception</p>	<p>Without adequate documentation to support the justification of the change order, it is not possible to demonstrate why competitive bidding was not performed and whether costs proposed by the contractor are reasonable. Additionally, there is increased risk of non-compliance with UC Facilities Manual and California Public Contract Code</p>	<p>a) As part of the Change Order review process, management should ensure justification for additive change orders exceeding \$100,000 is documented when competitive bidding is not performed.</p> <p>b) Project Management staff should adequately document change order justification to clearly indicate reasons for not doing competitive bidding, including steps performed to determine price reasonableness of the cost proposals.</p>	<p>Action Plan: (a) UCSF Real Estate will review the current departmental standards for Change Order documentation for the Project Management Staff and update as needed. A Project Managers training session will be scheduled to review required change order documentation for additive change orders exceeding \$100,000.</p> <p>(b) Health Design & Construction (D&C) Contract Administration revised the Change Order desk procedure in September to require the Contract Manager to review and approve all Change Orders over \$100K to ensure compliance with the requirements of the UCOP Facilities Manual and the Public Contract Code. The justification form includes criteria for price reasonableness</p>

No.	Observation	Risk/Effect	Recommendation	MCA
	<p>applies and the basis for the award is documented in writing.</p> <p>(b) Competitive bidding was either not performed or not sufficiently documented as not necessary</p> <p>Explanation as to why competitive bidding was not performed was not sufficiently documented. The two Health projects reviewed had five change orders greater that \$100,000. Two change orders had no justification (as noted above). The justifications for the remaining three changes were deemed to be insufficient. For campus projects reviewed there were eight change orders exceeding \$100,000 of which two change orders had no justification (as noted above) Justification for the remaining six were deemed insufficient</p> <p>Majority of the change order justifications reviewed had the following documentation as reason for not bidding which were deemed as not adequate since they do not include all the factors that must be considered in the written justification as per UC Facilities Manual, Volume 5, Chapter 13, Section 13.2.7².</p> <ul style="list-style-type: none"> • General Contractor (GC) is the only one who could implement these change orders now during construction; • Competitive bidding would delay the end of construction; 			<p>Action Complete</p> <p>(c) To further reinforce justification requirements Campus D&C added additional references to the Change Order Justification Form PC05.03.02-F100 in the Playbook SOPs PC05.03.02.1 and PC05.03.02.2.</p> <p>Action Complete</p> <p>(d) Campus and Health will work together to create a common Design & Construction change order justification form. And also standardize acceptable justifications and determinations of cost reasonableness. Project Managers will receive training on the justification process at a future monthly Mastery of Project Management event.</p>

² Per the UC Facilities Manual, the written justification for the substantial change order shall identify the primary factors supporting the decision to proceed by change order. In addition to the primary factors, all of the following factors also must be considered in the written justification to determine if a change order is justified: Cost, Rework, Incidental, Schedule.

No.	Observation	Risk/Effect	Recommendation	MCA
	<ul style="list-style-type: none"> • Unfeasible for another GC or sub to work onsite while the general contractor and their subs are contracted/onsite; • The GC is the awarded contractor so they and their subs are already performing similar work; other contractors would not be able to work in the building while maintaining the expected schedule of occupancy. <p>c) Cost reasonableness was either not performed or not documented for cost proposals:</p> <p>For the COs where competitive bidding had not been obtained, documentation was not present on the steps performed to determine cost reasonableness of the cost proposals in the absence of competitive bidding.</p> <p>While the project managers indicated that they have several meetings with the contractors to negotiate/discuss costs, consult with experts within construction and design and at times consult external experts to review costs, this is not documented.</p> <p>The UC Facilities Manual, Volume 5, Chapter 13, Section 13.2.7, <i>Guidelines for Substantial Change Orders</i> states that in order to execute an additive change order, it must be “convincingly demonstrated that no advantage would be gained by conducting an advertised bid for the work.” Also, the written justification should include the factors (such as those relating to cost and schedule) considered to support the decision not to competitively bid.</p>			<p>Target Completion Date: 01/28/2022</p> <p>Responsible Party: Associate Vice Chancellor, Campus D&C and Executive Director, Health D&C</p>

No.	Observation	Risk/Effect	Recommendation	MCA
2.	<p><i>Labor cost breakdown and details were either lacking or not sufficient to support the change order cost proposals of UCSF Health projects.</i></p> <p>Change orders are made up of cost proposals describing adjustments to the contract sum due to extra work. The general contractor and subcontractors provide supporting documentation to substantiate the costs listed (generally time and materials) on the cost proposal.</p> <p>We noted that 14 out of 20 cost proposals (totaling \$150,000) for UCSF Health construction projects did not have adequate supporting documentation for the labor cost breakdown. The labor rate and time breakdown associated with the extra work was not provided.</p> <p>Per the UC Facilities Manual (Volume 5, Chapter 13.2 Change Orders), the proposed costs must be determined to be fair and reasonable. Additionally, the contractor is required to provide an estimate with detailed backup.</p>	<p>In the absence of a detailed labor breakdown provided with the cost proposal, it is difficult to determine if the labor hours required to perform the work is reasonable.</p>	<p>Management should provide training to project management staff to ensure that cost proposals include a breakdown of the labor costs.</p>	<p>Action Plan: The Project Manager is accountable for demonstrating and providing appropriate documentation that the Change Order meets the requirements of the Facilities Manual, Volume 5, Chapter 13, Section 2.7.</p> <p>The Project Managers will be trained on these requirements and expectations of UCSF Real Estate Leadership related to appropriate documentation required for Labor Cost Breakdown justification and price reasonableness at a future monthly Mastery of Project Management event.</p> <p>Target Completion Date: 01/28/2022</p> <p>Responsible Party: Executive Director, Health D&C</p>

V. OPPORTUNITIES FOR IMPROVEMENT

No.	Observation	Risk/Effect	Recommendation																				
1	<p><i>There is a lack of clarity on the definition between change orders and amendments.</i></p> <p>Currently, change orders and amendments are used interchangeably. The template used for change order and amendment is the same. Amendments are used to add funds to the project and is within the original approved scope. Amendments do not change the Maximum Acceptance Cost. A change order on the other hand are additional costs added to the project because of owner added changes or unforeseen circumstances.</p> <p>Upon review of the change orders for the four projects selected, it was noted that the total number of change orders included amendments as well. Including amendments with change orders can distort the number and amount of change orders. A change order with a value greater than 10% of original budget can be a red flag indicating undue risk in the construction management process.</p> <p>The table below provides an overview of the total number of change orders as per the initial listing provided and the actual number of change orders noted during the review:</p> <table border="1"> <thead> <tr> <th>Project</th> <th>No. of change orders per report</th> <th>Actual no. of change orders</th> <th>No. of amendments</th> </tr> </thead> <tbody> <tr> <td>UCSF Research and Academic Building at ZSFG</td> <td>24</td> <td>4</td> <td>20</td> </tr> <tr> <td>2 North Point Seismic and Tenant Improvement</td> <td>12</td> <td>7</td> <td>5</td> </tr> <tr> <td>Moffitt/Long HVAC</td> <td>8</td> <td>6</td> <td>2</td> </tr> <tr> <td>Moffitt Pharmacy</td> <td>21</td> <td>16</td> <td>5</td> </tr> </tbody> </table>	Project	No. of change orders per report	Actual no. of change orders	No. of amendments	UCSF Research and Academic Building at ZSFG	24	4	20	2 North Point Seismic and Tenant Improvement	12	7	5	Moffitt/Long HVAC	8	6	2	Moffitt Pharmacy	21	16	5	<p>By not having a clear definition and distinction between a change order and an amendment, it is open to interpretation and may cause confusion. Also tracking and trending of change orders maybe distorted.</p>	<p>Management should obtain clarity on the definition of an amendment vs change order and update the procedures accordingly. As part of the process, management may want to consider adding a flag in its project management system, Unifier, to track change orders and amendments separately.</p> <p>Additionally, project managers should be trained on the distinction between contract amendments and change orders</p>
Project	No. of change orders per report	Actual no. of change orders	No. of amendments																				
UCSF Research and Academic Building at ZSFG	24	4	20																				
2 North Point Seismic and Tenant Improvement	12	7	5																				
Moffitt/Long HVAC	8	6	2																				
Moffitt Pharmacy	21	16	5																				

APPENDIX A – Procedures Performed

To conduct our review, the following procedures were performed for the areas in scope:

- Reviewed University of California Facilities Manual
- Reviewed Campus and UCSF Health procedures and standard operating procedures
- Reviewed contracts for the following four construction projects selected to understand background and project requirements

	Project Name	Contract Type	Total Contract Sum	Total Approved Change Orders ³	% of Change Order Reviewed
Campus Projects	UCSF Research and Academic Building at ZSFG	Design Build	\$174,669,674	\$1,005,626	100%
	2 North Point Seismic and Tenant Improvement	Construction Management at Risk	\$22,902,711	\$2,901,998	66%
Health Projects	Moffitt/Long Operating Room HVAC System Upgrades, Project No. 13-750	Long Form Lump Sum Contract	\$16,652,478	\$2,493,960	92%
	Moffitt 12 th East Inpatient Satellite Compounding Pharmacy, Project No.: 17-119	Long Form Lump Sum Contract	\$5,605,401	\$1,408,383	58%

- Interviewed key personnel to gain an understanding of current processes, including
 - Construction Project Managers
 - Director of Construction Management and Project Controls
 - Director, Business Administration, Health Design & Construction
 - Director of Project Management Services
 - Director, Health Construction Contracts
 - Chief Administrative Officer, Department of Orthopedic Surgery
- Assessed whether change orders, selected on a judgmental sample basis, were supported with appropriate documentation and conducted the following analyses:
 - Compared change orders to related contract provisions to assess conformance, including around supporting documentation requirements and application of overhead and profit markups.

³ Excludes amendments. Amendments are used to add funds to the project and is within the original approved scope. Amendments do not change the Maximum Acceptance Cost. A change order on the other hand are additional costs added to the project because of owner added changes or unforeseen circumstances

- Assessed whether change order costs contained unallowable, non-compensable, inappropriate, or duplicative costs.
 - Tested whether labor rates, overhead, and fees applied comply with contract terms.
 - Assessed whether a review of the change orders merit was performed by the project manager to determine whether the change order work was actually beyond the scope of the base contract.
- Reviewed all change orders exceeding \$100,000 for the selected project to determine if there is appropriate justification for not soliciting bids for the work.