The National Association of Construction Auditors
2021 Conference


2020-2021 Update – Construction Audit and Cost Control Experiences and Recommendations
REAL-TIME AUDITING

A TALE OF TWO PROJECTS
SAME OWNER
SAME PRIME CONTRACTOR

Auditing Change Orders After Approval versus Auditing Before Approval
BACKGROUND – Project 1

New Hospital Building

Original Contract
LUMP SUM $120 million

$20 million in change orders

CLOSE-OUT AUDIT
PROJECT 1

DETAILS
- Mechanical Contractor
- $5,000,000 in change orders
- $500,000 in overcharges on labor and material

ISSUES IDENTIFIED
- Material costs were more than double current market price
- Labor was factored at MCAA * 1.2 instead of contractual .90

STATUS
- Contract states all change orders subject to audit
- Contractor says all approved change orders are final
- Still in negotiations
BACKGROUND – Project 2

SAME OWNER

SAME PRIME CONTRACTOR

COST PLUS FEE WITH GMP

RENOVATION OF EXISTING BUILDING

$250,000,000 GMP

REAL-TIME AUDIT
## PROJECT 2 Change order

### BEFORE AUDIT

<table>
<thead>
<tr>
<th>Material</th>
<th>Total Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Commodity Material</td>
<td>$ 300,000</td>
</tr>
<tr>
<td>Total Quoted Material</td>
<td>$ 100,000</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Labor</th>
<th>% of Total</th>
<th>Hours</th>
<th>Rate</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>10.00%</td>
<td>1000</td>
<td>$ 124</td>
<td>$ 124,200</td>
</tr>
<tr>
<td>Superintendent</td>
<td>5.00%</td>
<td>500</td>
<td>$ 116</td>
<td>$ 57,850</td>
</tr>
<tr>
<td>General Foreman</td>
<td>12.50%</td>
<td>1250</td>
<td>$ 110</td>
<td>$ 137,038</td>
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<td>Journeyman</td>
<td></td>
<td>10000</td>
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<td>$ 975,000</td>
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<tr>
<td>Safety</td>
<td>4.00%</td>
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<td>$ 39,000</td>
</tr>
<tr>
<td>Composite Cleanup</td>
<td>3.00%</td>
<td>300</td>
<td>$ 65</td>
<td>$ 19,500</td>
</tr>
<tr>
<td>Warranty</td>
<td>2.00%</td>
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<td>$ 98</td>
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<tr>
<td><strong>Subtotal Labor and Material</strong></td>
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<td></td>
<td></td>
<td><strong>$ 1,772,088</strong></td>
</tr>
<tr>
<td><strong>Markup @ 15%</strong></td>
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The above table outlines the costs associated with the change order, including material and labor rates, as well as a summary of total costs before markup. The total material cost is $300,000 and the total quoted material cost is $100,000. The labor costs are calculated for various positions, with a subtotal of $1,772,088. After adding a markup of 15%, the change order total is $2,037,901.
**Excessive Pricing Identified**

**Electrical Contractor**
- **Gross-Up of Hours**
- **Excessive Labor Rates**
- **NECA Difficult**
- **Commodity Material Overcharge**

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<th>Labor Rates</th>
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<th>Hours</th>
<th>Rate</th>
<th>Total Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreman</td>
<td>10%</td>
<td>800</td>
<td>$ 76</td>
<td>$ 61,028</td>
</tr>
<tr>
<td>Journeyman</td>
<td>60%</td>
<td>4800</td>
<td>$ 58</td>
<td>$ 280,320</td>
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<tr>
<td>Apprentice</td>
<td>30%</td>
<td>2400</td>
<td>$ 38</td>
<td>$ 91,104</td>
</tr>
<tr>
<td>Composite Cleanup</td>
<td>3%</td>
<td>240</td>
<td>$ 38</td>
<td>$ 9,120</td>
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</table>

|                               |             |       |      |             |
| Subtotal Labor and Material   |             |       |      | $ 691,572   |
| Markup @ 15%                  |             |       |      | $ 103,736   |
| Change Order Total            |             |       |      | $ 795,308   |
Right to Verify Change Order Pricing Information: Contractor, subcontractor and sub-sub-contractor agrees that any designated Owner's representative will have the right to examine (copy or scan) the records of the Contractor, subcontractor or sub-sub contractor’s records (during the contract period and up to three years after final payment is made on the contract) to verify the accuracy and appropriateness of the pricing data used to price all change order proposals and/or claims.

Contractor agrees that if the Owner determines the cost and pricing data submitted (whether approved or not) was inaccurate, incomplete, not current, or not in compliance with the terms of the contract regarding pricing of change orders, an appropriate contract price adjustment will be made. Such post-approval contract price adjustments will apply to all levels of contractors and/or subcontractors and to all types of change order proposals specifically including lump sum change orders, unit price change orders, and cost-plus change orders.
$200 million in Cost-Plus Fee CMAR Contracts Awarded by School District for 3 School Renovations

Our audit team was engaged after the CM Proposals were submitted and after the CMs were selected...but before the CMAR contracts were signed and GMPs were submitted.

CMARs proposed to provide CCIP, SDI, Liability Insurance and P&P bonds at excessive %’s.

Audit assisted School District in GMP negotiations to reduce amounts to be charged for CCIP, SDI, and Liability Insurance and P&P Bonds.

Cost Avoidance totaled approximately $3 million for all three projects.
Early Partnership with Owner and involvement in negotiating contract and/or GMPs = “Real-Time Auditing”
Key Contracting Recommendation

In the event that the contractor elects to utilize a Contractor Controlled Insurance Program (CCIP) the maximum to be considered reimbursable costs under this contract will be 2% of the final Cost of the Work (including general conditions costs) but not including Contractor Fee or CCIP charges.

This 2% cost factor will cover all insurance required to be carried by the prime contractor and all applicable subcontractors covered by this agreement (specifically 1% for worker’s compensation insurance, and 1% total for professional liability, pollution liability, cyber liability, general liability insurance, excess liability insurance, umbrella liability insurance combined).

Any contractor costs incurred in connection with the contractor’s elected CCIP program that exceeds the amount reimbursed by the Owner under the formula in this paragraph will be considered to be covered by the Contractor’s FEE. Note: Contractor will not be reimbursed for any deductible stated in the CCIP policy. The deductible is considered covered by the CCIP % and/or the Contractor FEE.
The amount to be reimbursed to the Contractor for conventional contractually required liability insurance (professional liability, general liability, umbrella liability, excess liability, pollution liability, cyber liability, and auto liability) will be actual costs of insurance premiums for insurance required by the contract documents not to exceed an aggregate of .6% of the net reimbursable Cost of Work (not including liability insurance and not including fee). If the Contractor’s cost of contractually required liability insurance is greater than the amount agreed to be reimbursed per this contract provision, the difference shall be considered to be covered by the Contractor’s FEE. **Deductibles are not reimbursable.**

If the Owner elects to use an Owner Controlled Insurance program to provide liability and worker’s compensation insurance for the prime contractor and all trade contractors, then the Prime Contractor shall NOT be allowed to charge any other liability insurance as reimbursable costs. Any such additional liability costs shall be considered covered by Contractor’s FEE.
Using badging Reports to identify overcharges

Project – Interior Finish-Out of 5 Levels of a Research Facility (Personalized Cancer Therapy)

$72MM CMAR

Active Facility with Strict Badging Requirements

Contract Required all CM Personnel to be On Site

The Owner’s Badging System was Used
At the end of the project:

CM asked for Extended GC’s in the Amount of $300K

Owner Reviewed the PCO and Questioned the Labor Hours

Owner Decided to Pull the Badging Reports and Get Us Involved
Started with a Sample Which Increased to a 100% Review of GC’s and SPW Labor

Badging Report Only Showed Days Not Hours

CM explained variances as “Tailgating”

Reports Could Only be Pulled Based on Exact Names

The CM Ignored the Issue Hoping it Would Go Away At One Point, Offered $250K as a Settlement
What was the outcome?

- $269K - 29 People were Billed who did not have Badges
- $350K – 47 GC & SPW People were Billed in Excess of Badging Reports. 50% Negotiated Settlement
- $619K – Credit to Owner
- Settlement would not have been possible without badging documentation
Take-aways

- Owner Badging Controls were not as Strong as They Thought
- Badging was a Requirement, but Neither the Owner or CM were Reviewing Reports
- Badging Reports had Limited Information
- Analysis was More Art than Science
- We have done Badging Reviews for 3 Different Owners
- All 3 Cases Showed Excessive Billings
Cost Avoidance Example
GMP Subcontract with recommendation to Convert to Lump Sum

Cost Plus 7.5% GMP Mechanical Subcontract with $50 Million GMP

Contractor’s Estimating “Experts” recommended converting to Lump Sum at $50 million

Audit Recommended leaving the Contract as a Cost Plus with a GMP

Audit Related Cost Avoidance = $5 million
Key Contracting Point

For Non-Bid Contract Situations Use Cost Plus Fee with GMP Contract Structure versus Negotiated Lump Sum
Cost Avoidance

Key Contracting Point

NON-BID SUBCONTRACT WORK

For scope of work bid packages typically performed by subcontractors and normally awarded on the basis of adequate competitive bidding, whenever only one subcontractor is available to do the work or whenever only one subcontractor submits a responsive bid, Contractor may only award such subcontracts on a cost-plus fee (Fee Not-To-Exceed 7.5%) basis subject to an agreed upon guaranteed maximum price for the “subcontract work”.

Any such non-competitively bid subcontract awards will provide for payment in an amount equal to the Cost of the Work (as defined in this agreement) and will not exceed the agreed upon subcontract guaranteed maximum price (GMP). All terms and provisions of any such subcontract award for will be consistent with the terms and conditions of this agreement with the exception of the agreed upon Fee percentage. All savings under any such cost-plus fee with GMP subcontracts shall be applied to reduce the Cost of the Work under this Agreement and the Guaranteed Maximum Price of this Agreement. Non-competitive subcontract work will not be allowed to be performed on a lump sum basis.
Cost Avoidance Example

$12 million Proposed Lump Sum change order Negotiated to a GMP

$10 million lump sum sitework contract with a proposed $12 million lump sum change order

Audit recommended treating the $12 as a GMP

Final audited cost-plus fee = $9 million
Audit Related Cost Avoidance = $3 million
Key Contracting Point
Management and Audit Partnership

For Large Negotiated Contract or Change Order Situations… Use Cost Plus Fee with GMP Contract Structure versus “Negotiated Lump Sum”
$10 million cost recovery on a pipeline construction audit

– The contract was a cost-plus fee contract

– Total labor cost on the project was approximately $100 million

– Labor Burden was auditable

– Cost Recovery = approx. $10 million
Key Take-Away

Promote contracts that reimburse for labor and labor burden at actual verifiable costs (subject to maximums if desired)
Summary:

Create the right contract and negotiate the right business deal!

Remember the Key to Success in Achieving the Maximum Benefits of Construction Auditing is an Effective Management & Audit Partnership Over the Life of the Project!
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