2020 NACA VIRTUAL Conference

- September 21 – 30
BRINGING CLARITY TO THE FOGGY WORLD OF CONSTRUCTION AUDIT
SESSION # 14
BY: TONY KHOURY
About the Speaker

Tony Khoury, CFE, PMP, CCA, – Biography

Tony Khoury is the Vice President and Director of Engineering and Construction Audit Division with the New York City Economic Development Corporation. He has over 30 years of Project Development Experience in design build, retail development, infrastructure, and Environmental recovery projects. He has a Master’s degree in Civil Engineering in Construction Management from Polytechnic University, currently NYU Tandon School of Engineering, and a Bachelor’s Degree in Civil Engineering from the University of Texas at Austin. He specializes in providing expert opinion on commercial construction damages, construction contract compliance, construction audit services, cost estimating, and environmental related matters. He has provided construction oversight/audit services for over $10 billion of construction projects. Prior to NYCEDC, Tony was the senior technical advisor to the Governor Office of Storm Recovery (GOSR), President and CEO of KCI – a Design Build Firm, National Development Director for Xando-Cosi, Area construction director for McDonald’s Corporation, and Construction and environmental Area Manager for Mobil Oil Corporation.
LEARNING OBJECTIVES

LEARN HOW THE ROLE OF CONSTRUCTION AUDITOR IS CHANGING

LEARN HOW TO BRING AGILITY TO THE TYPICAL ROLE OF A CONSTRUCTION AUDITOR

LEARN HOW TO DO MORE WITH LESS BY BEING PROACTIVE IN YOUR APPROACH TO CONSTRUCTION AUDIT
Poll Question #1

How do you identify yourself?

1. Owner/Owner's Representative

2. Consultant

3. General Contractor

4. Insurance representative
Traditional Role of a Construction Auditor

- Conduct yearly Risk Assessment and Audit Plan
- Conduct Construction Audits
- Review Contracts for Compliance
- Provide assurance to owners
- Identify risks and ensure mitigations with adequate controls
- Review additional cost and scope for fairness and reasonableness
Traditional Risk Assessment and Audit Plan

Planning Phase
- Identify Hierarchy
- Develop Questionnaire

Execution
- Interview Stakeholders
- Rate Risk and Controls
- Understand Residual Risk

Final
- Rate the Residual Risks
- Develop Heat Map
- Select Projects to Audit
Where do we typically start when conducting Audits?

- Have you ever been asked to do an audit and you don’t know where to begin because everything seems mixed up?
- Have you ever been told that we have everything you need to find out later that the promised records are vague?
- Have you ever been told that we have a clear scope and budget to discover later that the owners and contractors are on different planets?
How Long Have you Been Doing Construction Audit?

1. 1 to 2 Years
2. 3 to 5 Years
3. 6 to 10 Years
4. More than 10
<table>
<thead>
<tr>
<th>Planning</th>
<th>Testing</th>
<th>Wrap up</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Background research</td>
<td>• Review documents</td>
<td>• Identify findings</td>
</tr>
<tr>
<td>• Audit engagement/statatement of work</td>
<td>• Conduct stakeholder interviews</td>
<td>• Hold exit meeting with stakeholders</td>
</tr>
<tr>
<td>• Risk control matrix</td>
<td>• Flow out Processes</td>
<td>• Conduct root cause analysis</td>
</tr>
<tr>
<td>• Document request list</td>
<td>• Select samples to test from submitted documents for adequate risk</td>
<td>• Develop audit report with issues and recommendations</td>
</tr>
<tr>
<td>• Understand project scope</td>
<td>and controls</td>
<td>• Track issues for implementation</td>
</tr>
</tbody>
</table>

**Pre COVID-19 Construction Audit Process**
What Can Go Wrong?

- Design/Scope/Cost/Owner's Direction
- Contract/Processes
- Vague/Foggy/Unclear
- Owner's Personnel
- Contractor/A&E
- Unqualified/Questionable
- Baseline Schedule w/ Updates/Floats
- Meeting Minutes/Field Reports/Status Updates
- Inadequate Documentation
- Fraud
<table>
<thead>
<tr>
<th>Remote Auditing</th>
<th>Technology Support</th>
<th>Limitations/Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Consideration</td>
<td>- Electronic</td>
<td>- Physical Inspections of</td>
</tr>
<tr>
<td>- Planning</td>
<td>documentations</td>
<td>sites</td>
</tr>
<tr>
<td>- Document</td>
<td>- Remote Access</td>
<td>- Personal Interviews</td>
</tr>
<tr>
<td>Review</td>
<td>- Artificial</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intelligence</td>
<td></td>
</tr>
<tr>
<td>- Site</td>
<td>- Drone Field</td>
<td>- Audit methods</td>
</tr>
<tr>
<td>Reconnaissance</td>
<td>Field Visits</td>
<td>creativity</td>
</tr>
<tr>
<td>- Remote</td>
<td>- Areal Support</td>
<td>- Technology</td>
</tr>
<tr>
<td>Interviews</td>
<td>- 3D 4D simulations</td>
<td></td>
</tr>
<tr>
<td>- Closing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What is your Background in?

1. Accounting
2. Finance
3. Engineering
4. Architect
5. Others
Next-Generation Construction Auditing

**Governance**
- Strategic Vision
- Organization Structure
- Resource and Talent Management
- Aligned Assurance

**Methodology**
- Dynamic Risk Assessment
- Agile Audit Approach
- High Impact Reporting
- Continuous Monitoring

**Enabling Technology**
- Advanced Analytics
- Robotic Process Automation
- Process Mining
- Artificial Intelligence
What is Agile Construction Auditing Methodology?

Agile Construction auditing is designed to be flexible and iterative. This means that rather than rigid audit plans, there’s a continually updated backlog of audits and projects, prioritized based on risks and company needs that can be undertaken once resources are available.
Agile Construction Audit Approach

**Plan**
- Flexible
- Value Added Focus
- Active Business Owner’s Involvement

**Fieldwork**
- Integrated Fieldwork Execution
- Assign Focus Areas
- Discuss Roadblocks
- High Efficiency and value
- Feedback

**Review**
- Consolidation of Previous Insight
- Review Completed Work with Stakeholders
- Collaboration in Drafting Report
- Consolidation of Viewpoints and future Insights
How Often does your Organization (or your Client) Conduct Risk Assessment?

1. Once per year
2. Semi Annually
3. Quarterly
4. As Often as Needed
What is a Dynamic Risk Assessment

A dynamic risk assessment is a continuous process of identifying risk, assessing and producing ways to mitigate such risks.
Dynamic Risk Assessment

- Process of Continually Observing and Analyzing Risks
- Process of Adapting to Changing Priorities
- Respond Quickly to Risks as they Change
Dynamic Risk Assessment

**Agile**
- More Frequently Performed
- Continuous Reassessment of Driving Priorities/Risks in Real Time

**Integrated**
- Effective when Continuously Monitored
- Success Rate is Tied to Agile Methodology Implementation

**Aligned**
- Consistent View of Risk Across the Organization
- Address the Organization’s Objectives
Data Analytics Integrated Into Construction Audit Cycle

- Data Analysis to Understand Business Context
- Understand Process Flow (Identify Variants)
- Potential High-Risk Variants Identified
- Controls Over High-Risk Variants Assessed
- Continuous Monitoring for New Variants

Reimagine Construction Audits and Controls
Data Analytics – Changing the Game

- Learn How Processes are Actually Working
- Identify Control Failure
- Provide Immediate Corrective Action
- Learn not Just “What” Went Wrong but “To What Extent” and “Why”
- Focus on Efficiency. Do it Once
Poll Question #5

What Audit Challenges Have you Seen in Your Business Due to COVID-19?

1. Audits/ Projects Cancellation
2. Staffing Layoffs/ furlough
3. Financial Support
4. Working Remotely
5. Getting Proper Documents for Audits
## Post COVID-19 – Quantifying Current Challenges to Construction Audit

<table>
<thead>
<tr>
<th>Workforce</th>
<th>Audited Projects</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Working Remotely</td>
<td>• Added Safety Requirements</td>
<td>• Cancellation/ Delay of Projects</td>
</tr>
<tr>
<td>• New Safety Requirement</td>
<td>• Inspections and Approval Process Automation</td>
<td>• Assessing current contracts structure</td>
</tr>
<tr>
<td>• Skilled Labor Shortage</td>
<td>• Technology Advancements</td>
<td>• Stricter Financial Restrictions</td>
</tr>
<tr>
<td>• New Work Approach</td>
<td>• Flexible design</td>
<td>• Adoption of New Technology</td>
</tr>
<tr>
<td>• Productivity Slow Down</td>
<td>• Claims</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Schedule Delays</td>
<td></td>
</tr>
</tbody>
</table>

![NACA Logo](image)
Areas with Auditing Difficulties

Slow Down in Productivity
- social distancing and equipment sharing
- Alternate shifts/ Qualified Workforce

Supply Chain Disruption
- Manufacturing Shut Down
- Additional Taxes/ Government Shut Down

Temperature Monitoring
- Personal Protection Equipment
- Additional Cleaning
Added Audit Difficulties due to Schedule Impact

Nature of Schedule Impact
- Work Suspensions (Full Stoppage)
- Work Disruptions (Restrictions/Slowdown)

Impacts to the Critical Path
- Isolate Period of Delay
- Evaluate Status of Project Prior to Delay
- Measure amount of Delay and assess Impact on critical Path and completion Date
- Evaluate Root Cause of Delay

Handling Time Extensions & Contract Modifications
- Follow Contract Requirements
- Discuss with Project Attorney
Added Audit Difficulties due to Project Delay

Direct
- Mobilize/ Demobilize
- Productivity Slow Down
- Expediting Schedule
- Supply Chain Disruption
- Personal Protective Equipment

Indirect (Overhead)
- Site Management Labor Costs
- Additional Equipment
- Site Security
- Insurance/ Bonding Costs
How Can we Make Things Go right?

- Design/Scope/Cost/Owner’s Direction
- Contract/Processes
- Clarify Scopes/Establish Processes Provide clear Directions
- Owner’s Personnel
- Contractor/A&E
- Hire the Right People for the Right Job
- Baseline Schedule w/ Updates/Floats
- Meeting Minutes/Field Reports/Status Updates
- Document/Document/Document
How to Get the Fog Out

- People – Proper Skills/ Proper Training/ Accountable
- Enabling Technology - Data Analytics/ Cloud Base
- New Methodology - Being Agile, Dynamic Risk Assessment
- Processes and Documentations
- Benchmarking