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North America Construction

Quality Check: Why contractors need to pay more attention to quality management

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According to Greek Philosopher Aristotle, “Quality is not an act, it is a habit.” Unfortunately, in the construction industry, quality might not be as much of a habit as it should be.

Contractors have had some longstanding market challenges. Talent shortages. Thin profit margins. A global pandemic, of course. And now, as a result, continued supply chain issues. While these challenges require considerable attention that may have grabbed attention away from quality, they ironically could also benefit from greater attention to quality management.

Why is quality important?

For one, poor quality can waste valuable time, resources, and materials. It can also lead to a variety of problems such as defects, costly rework, safety issues, and reputational damage – all of which can have a big impact on the bottom line and future opportunities.

Given the nature of construction work, contractors have long understood the need for solid safety plans. Quality management, however, is often not approached with the same attention. It’s an afterthought. Yet, losing sight of quality management can have equally catastrophic consequences. That’s why contractors need to understand the importance and enforcement of a Quality Management (Quality Control) Programs and put the same attention they do toward their Safety Plans to delivering quality work that protects their projects, profits, people, and reputations.

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Poor quality is often behind safety problems. If a building component fails, it may cause loss or injury. While such a scenario may be treated as a safety issue, it is also a quality issue. With careful attention to quality, project risks, along with all the potential costs associated with such incidents, can be dramatically reduced.

Poor quality leads to terrible outcomes

Sadly, no one has to look too far to find examples of what could go wrong when contractors lose sight of quality. In fact, three fairly recent examples come to mind:

- On October 12, 2019, the Hard Rock Hotel was under construction in New Orleans when it collapsed killing three workers. Engineers cited beams under the 16th floor of the building were '300% overstressed,' among other issues contributing to the collapse.

- In March 2018, a 950-ton concrete pedestrian bridge at Florida International University collapsed during construction, killing six people on the roadway. Federal officials determined that the collapse was the result of a series of flaws that should have been caught.

- On April 19, 2018, a construction crew's 56-year-old foreman was killed when a communication tower, owned by the Missouri State University, collapsed. The goal of the tower work was to make the structure stronger by replacing diagonal braces so the tower could accommodate the added weight of a new antenna. According to an Occupational Health and Safety Administration (OSHA) investigation, the procedure the workers used was flawed. For one, the report noted that workers removed bolts where the diagonal members met the horizontal braces. Removing those bolts weakened the structure resulting in its collapse. Inevitably, the contractor went out of business following the collapse.

While these events are very different scenarios, there are some very common factors, all are related to a poor quality of work, that contributed to the project failures. In each case, those involved:

- Failed to verify installations
- Falsified Verifications/Inspections
- Had design failures
- Lacked a process of proper document control

Other common quality risks include: the use of damaged and low-quality materials, supplier and vendor failures, subcontractor mishandling, failure to document changes and practices, last-minute changes, scope creep, miscommunication between teams, complexity of designs, lack of a project management system, and ignored audits and testing.

What a QM Program should be

Attention to quality requires taking the added steps necessary, the attention to detail, that puts in place effective and efficient processes that help generate a quality product. It's a key pillar of overall construction project management. More importantly, a Quality Management System (QMS) is often the difference between company's success and failure.

The QMS in construction is the policies, processes and procedures put in place to improve an organization's ability to deliver quality to its clients - whether those are clients/owners, contractors, or subcontractors - on a consistent and constantly improving basis.

Once process/procedure templates have been built they can be easily modified to conform to the project specific requirements. Like a Safety Management System, the QMS will likely exceed the contract level requirements because the QMS reflects how a contractor does business.

What's in a plan?

The QMS at the project level should typically have 2 elements:

- **Quality Control (QC)** - QC is focused on identifying the defects
- **Quality Assurance (QA)** - QA is focused on preventing defects

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The overall QMS would then be procedures/processes tied to the overall program (15) sub-elements, which together summarize all the procedures, processes and protocols that are put into place to achieve quality. These include:

1. Management Responsibility
   - Management Review of QMS Program
2. Documented Quality Management System
3. Design Control
4. Document Control
   - Document Control Plan, Control of Quality Documents
5. Purchasing
   - Subcontractor and Supplier Risk Assessments or Matrix
   - Procurement Log
6. Product Identification and Traceability
   - Material Receiving and Inspection Procedure (MRIR)
7. Process Control
   - Process Management for KPIs
8. Inspection and Testing
   - Audits, MRIR, Work Procedure Planning, Inspection & Testing Traceability Matrix, Inspection and Test Plan (ITP)
9. Inspection, Measuring, and Test Equipment
   - Calibration of Inspection, measured, and Test Equipment
10. Inspection and Test Status
    - Inspection & Testing Traceability Matrix, Inspection and Test Plan (ITP)
11. Nonconformance
    - Quality Risk Analysis, Rework, Incident Alerts
12. Corrective Action and Actions to Prevent Reoccurrence
13. Quality Records
    - Document Control Plan, Control of Quality Documents
14. Quality Audits
15. Documented Training
    - Staff, Craft, Subcontractor
      - QMS Plan
      - Quality Indoctrination
      - Procedures/Process
      - Roles & Responsibilities
      - Rework
      - Noncompliance Report or NCR, which is a construction-related document that addresses specification deviation or work that fails to meet quality standards.
      - Lessons Learned
      - Incident Alerts
      - Project Recognition Program (Safety, Quality, Innovation)
      - Continual Improvement
      - Etc.

Available QM resources

To make a commitment to quality, contractors don't have to start from scratch or go it alone. There are resources available to help. For instance, International Organization for Standardization, or ISO, is an independent, non-governmental, international organization with a membership of 167 national standards bodies.

Through its members, ISO brings together experts to share knowledge and develop International Standards to help companies address business challenges, with quality management being one of them. Its standard, ISO 9001, sets out the criteria for a quality management system. It can be used by any organization, large or small, regardless of industry. This standard is based on a number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continual improvement.

Reaping high quality benefits

Quality management cannot be an afterthought. It is an integral part of project success and in turn, a contractor's success.

While today's construction industry challenges add risks, attention to quality, and a plan to help maintain a high level of quality throughout the life of a project, will help assure project risks do not turn into losses of any kind.

For more insights, check out our Design Professional insurance team's five-part series on quality management:
Design Professionals Project Quality Management
Project quality management, part two: the proposal phase
Project quality management, part three: project planning
Project quality management, part four: project initiation
PQM, part five: Project Execution

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