Professional Certificate in Document Control and Quality Assurance in Construction Engineering

Quality Control in Construction

Quality Control in Construction: Key Terms and Vocabulary

Quality control (QC) is a process that ensures products and services meet specified requirements and standards. In construction, QC involves inspecting and testing materials, equipment, and work processes to ensure they meet project specifications and industry standards. This article explains key terms and vocabulary related to quality control in construction.

1. Quality Control (QC)

QC is a systematic process that ensures products and services meet specified requirements and standards. In construction, QC involves inspecting and testing materials, equipment, and work processes to ensure they meet project specifications and industry standards. QC aims to identify and correct defects and errors before they become expensive problems.

2. Quality Assurance (QA)

QA is a process that ensures products and services meet specified requirements and standards by implementing and monitoring quality control procedures. QA focuses on preventing defects and errors from occurring in the first place. QA includes activities such as developing quality control plans, training staff, and conducting audits.

3. Quality Management System (QMS)

A QMS is a set of policies, procedures, and processes that an organization uses to manage quality. A QMS includes QC and QA processes and is designed to ensure that products and services meet specified requirements and standards. A QMS is typically documented in a quality manual.

4. Inspection

Inspection is the process of examining materials, equipment, and work processes to ensure they meet specified requirements and standards. Inspections can be conducted at various stages of a construction project, including during design, construction, and commissioning. Inspections can be visual or technical and may involve the use of specialized equipment.

5. Testing

Testing is the process of evaluating materials, equipment, and work processes to ensure they meet specified requirements and standards. Testing can be destructive or non-destructive and may involve the use of specialized equipment. Testing is typically conducted in a controlled environment, such as a laboratory.

6. Quality Control Plan (QCP)

A QCP is a document that outlines the QC procedures that will be used during a construction project. A QCP includes details such as the scope of work, the quality standards that will be used, the inspection and testing procedures that will be followed, and the responsibilities of the various stakeholders.

7. Non-Conformance

A non-conformance is a deviation from specified requirements and standards. Non-conformances can occur in materials, equipment, or work processes and can result in defects and errors. Non-conformances are typically documented in a non-conformance report (NCR) and are addressed through corrective action.

8. Corrective Action

Corrective action is the process of addressing non-conformances to ensure that products and services meet specified requirements and standards. Corrective action may involve rework, repair, or replacement of non-conforming materials, equipment, or work processes. Corrective action is typically documented in a corrective action report (CAR).

9. Preventive Action

Preventive action is the process of identifying and addressing potential non-conformances to prevent them from occurring. Preventive action may involve changes to materials, equipment, or work processes or the implementation of new quality control procedures. Preventive action is typically documented in a preventive action report (PAR).

10. Verification

Verification is the process of confirming that materials, equipment, and work processes meet specified requirements and standards. Verification can be conducted through inspection, testing, or both. Verification is typically conducted at various stages of a construction project, including during design, construction, and commissioning.

11. Validation

Validation is the process of confirming that a product or service meets specified requirements and standards under actual or simulated use conditions. Validation is typically conducted at the end of a construction project and may involve the use of specialized equipment.

12. Calibration

Calibration is the process of adjusting the settings of a measuring instrument to ensure that it provides accurate and reliable measurements. Calibration is typically conducted at regular intervals to ensure that measuring instruments remain accurate and reliable.

13. Quality Audit

A quality audit is an independent review of an organization's quality management system to ensure that it meets specified requirements and standards. Quality audits can be internal or external and may be

conducted by qualified auditors.

14. Key Performance Indicator (KPI)

A KPI is a metric that is used to measure the performance of an organization's quality management system. KPIs can be used to monitor progress towards quality objectives, identify areas for improvement, and track the effectiveness of corrective and preventive actions.

15. Root Cause Analysis (RCA)

RCA is a problem-solving technique that is used to identify the underlying causes of non-conformances. RCA involves analyzing data, identifying patterns, and developing recommendations for corrective and preventive action.

In conclusion, quality control in construction involves a range of terms and vocabulary that are critical to understanding the process. By understanding these terms and vocabulary, construction professionals can ensure that products and services meet specified requirements and standards and that defects and errors are identified and addressed before they become expensive problems.