Quality Control/Quality Assurance

Quality Assurance encompasses both quality engineering and quality control.

Quality Assurance is the application of standards and procedures to ensure that a product or facility meets or exceeds desired performance criteria.

Quality Assurance is documentation to verify the results obtained.

- Quality Engineering describes procedures to ensure the design for a structure proceeds according to recommended and mandatory criteria set by:
  - related trade and professional associations
  - building code authorities
  - federal, state, and local government entities

- Quality Control includes:
  - setting specific standards for construction performance, usually through plans and specs
  - measuring variances from the standards
  - taking action to correct or minimize adverse variances
  - planning for improvements in the standards

  The architects and design engineers set the criteria for construction, QC ensures that the physical work conforms to those standards.

- Elements of Quality include:
  - Quality Characteristics
  - Quality of Design
  - Quality of Conformance

Quality Characteristics include:
- dimension
- color
- texture
- strength

Quality of Design defines tolerances or ranges of acceptable variation for attributes such as:
- size, spacing, clearance, strength, finish, etc.

Designers must understand the impact that higher standards and tighter tolerances have on cost.

- standards of quality should be appropriate to the intended function and appearance.
Quality of Conformance

- The degree to which the physical work conforms with the standards.
  - Often measured in terms of “rate of rejection”
  - Example: “x” rejects per 100 or 1000
  - Often applies statistical concepts and techniques

“Quality in the Constructed Project”

- a comprehensive manual published by the ASCE
- includes guidelines and recommendations for owners, designers, and constructors on how to provide quality in constructed projects
- addresses peer reviews