The submittals article may include paragraphs on

- Shop drawings, product data, and samples
- Quality assurance and quality control submittals (which may include design data, test reports, certificates, manufacturer's instructions, and manufacturer's field reports deemed necessary to assure that the quality of the work meets the requirements of the contract documents)
- Closeout submittals (which may include project record documents, operation and maintenance data, and warranty information)

Quality control submittals are different from shop drawings, product data, and samples. They are generally required to document the results of source quality control and field quality control procedures specified in Part 2 and Part 3 of the specification section. Quality control submittals are required as part of a quality assurance program to verify and document that the required quality control procedures have been performed.

The quality assurance article requirements include prerequisites, standards, limitations, and criteria that establish an overall level of quality for products and workmanship under a particular specification section. On any given project, requirements might include

- Qualifications
- Regulatory requirements
- Certifications
- Field samples
- Mock-ups
- Preinstallation meetings

17.3 QUALITY CONTROL PROCEDURES

Quality control includes the systematic performance of inspection and testing to ensure conformance with the required standard of quality. Specific quality control procedures may be required by the contract documents, but other quality control measures are self-imposed by responsible contractors as a normal part of good business practice.

The contract documents establish a standard of quality for various materials, products, and procedures required for the work. To ensure that the specified standard of quality is achieved, the contractor, materials suppliers, manufacturers, fabricators, and installers execute required quality control procedures, and implement other quality control measures they may deem necessary. Quality control includes not only laboratory and field testing and third-party inspection, but simple checking and verifying to ensure that the materials, products, systems, and equipment supplied conform to the specified requirements.

The contractor's quality control begins with the General Conditions stipulation that field measurements and site conditions be correlated with the contract documents before beginning work. Errors, inconsistencies, or omissions discovered must be reported to the A/E for resolution. The General Conditions also establish the right of the owner to require independent testing and inspection, and the contractor's responsibility for securing jurisdictional testing, inspection, and approvals.

17.3.1 Quality Control Requirements in the General Conditions

The AIA General Conditions require the contractor to achieve the specified standard of quality and prevent defective work through control of construc-

tion means, methods, techniques, sequences, and procedures. The General Conditions also assign the contractor the responsibility for coordinating, supervising, and directing the work. The contractor is not relieved of these obligations by the activities or duties of the A/E during the contract administration process.

17.3.2 Quality Control Requirements in the Specifications

The Division 1 sections on quality control include testing laboratory services, inspection services, field samples, mock-ups, contractor's quality control, and manufacturer's field services. These general requirements should cover only the administrative and procedural aspects of quality control that are applicable to all sections of the specifications. Requirements for specific tests, services, or field samples should be covered in the technical sections to which they apply.

The technical sections in Divisions 2 through 16 of the Specifications will vary in the need for, requirements of, and applicability of specific quality control procedures. Part 1 should list specific administrative and procedural requirements that apply to a particular section. Part 2 should specify source quality control, and Part 3 should cover field quality control.

Part 1 General

- *Quality control submittals.* Should list the submittals required for this section of the work, including as appropriate design data, test reports, certificates, manufacturer's instructions, and manufacturer's field reports.

Part 2 Products

- *Source quality control.* Involves checking material or product quality prior to incorporation in the project. Material suppliers implement quality control procedures prior to shipping to manufacturers. Manufacturers incorporate quality control procedures in their manufacturing processes. Manufactured components may in turn be fabricated into larger units that may also be subject to quality control requirements. An example would be a system involving components from several specification sections, which together must meet specific test criteria related to fire resistance ratings.
- *Fabrication tolerances.* Establish a dimensional or statistical range of acceptability for products, which the manufacturer or fabricator must control to ensure proper fit and coordination.
- *Source testing.* May involve the manufacturer or fabricator periodically obtaining or performing tests for verification of conformance with quality standards, for example, sieve analysis of soil materials or aggregates, compressive strength tests for masonry units, acoustical rating analyses of doors, or thermal transmission characteristics of windows. May also include requirements for the owner's independent agent to perform tests of materials sampled at the plant, shop, mill, or factory.
- *Source inspection.* May require owner's independent agent (such as a testing agency or the A/E) to perform inspections at the plant, shop, mill, or factory.
- *Verification of performance.* May require compliance with specified performance criteria before items leave the shop or plant.