Minimum Required Quality Assurance Level			
Description	Level 1	Level 2	Level 3
Non-essential facilities§ designed in accordance with empirical requirements, masonry veneers and glass unit masonry	X		
Essential facilities§ designed in accordance with empirical requirements, masonry veneers and glass unit masonry		X	
Non-essential facilities§ designed in accordance with allowable stress, strength design, or prestressed masonry requirements		X	
Essential facilities§ designed in accordance with allowable stress, strength design, or prestressed masonry requirements			X

§ Essential and non-essential facilities as defined by adopted building code or by ASCE 7-98.

Figure 17-1 Minimum level of quality assurance tests, submittals, and inspections required by MSJC Code and Specifications. (*From MSJC* Building Code Requirements for Masonry Structures, *ACI 530/ASCE 5/TMS 402, and* Specifications for Masonry Structures, *ACI 530.1/ASCE 6/TMS 602, 2002 edition.*)

Quality Assurance under the MSJC Code is essentially the same as Level 1 Special Inspection under IBC requirements, and Level 3 Quality Assurance is the same as Level 2 Special Inspection.

17.2.2 Quality Assurance Requirements in the General Conditions

The foundation of the quality assurance program is laid in the AIA General Conditions, which stipulate that, when required by the A/E, the contractor must "furnish satisfactory evidence as to the kind and quality of materials and equipment" to be furnished under the contract. The A/E usually requires that such evidence be submitted in the form of shop drawings, product data, and samples. Through review of such submittals, the A/E has an opportunity before work begins to verify that the materials and equipment proposed are in conformance with the requirements of the contract documents. Division 1 sections establish procedural requirements for such submittals, but the informational content and the physical examples themselves help assure that the design intent and required standard of quality are understood and will be met.

17.2.3 Quality Assurance Requirements in the Specifications

Division 1 may include several project specification sections that establish quality assurance procedures, including project meetings, submittals, and product options and substitutions. Divisions 2 through 16 of the Specifications are composed of individual technical sections, each addressing a distinct subject area. With each subject come specific issues and requirements concerning quality assurance and quality control. Each part

Quality Assurance	Minimum Tests and Submittals	Minimum Inspection
Level 1 (not required by International Building Code)	Certificates for materials used in masonry construction indicating compliance with the contract documents	Verify compliance with the approved submittals
Level 2 (similar to International Building Code Level 1 Special Inspection)	Certificates for materials used in masonry construction indicating compliance with the contract documents Verification of f'_m prior to construction, except where specifically exempted by code	As masonry construction begins, verify the following are in compliance • proportions of site-prepared mortar • construction of mortar joints • location of reinforcement, connectors, and prestressing tendons and anchorages Prior to grouting, verify the following are in compliance • grout space • grade and size of reinforcement, prestressing tendons and anchorages • placement of reinforcement, connectors, and prestressing tendons and anchorages • proportions of site-prepared grout and prestressing grout for bonded tendons • construction of mortar joints Verify that the placement of grout and prestressing grout for bonded tendons is in compliance. Observe preparation of grout specimens, mortar specimens, and/or prisms Verify compliance with the required inspection provisions of the contract documents and the approved submittals.
Level 3 (similar to International Building Code Level 2 Special Inspection)	Certificates for materials used in masonry construction indicating compliance with the contract documents Verification of f'_m • prior to construction • every 5000 sq.ft. during construction Verification of proportions of materials in mortar and grout as delivered to the site	From the beginning of masonry construction and continuously during construction of masonry, verify the following are in compliance • proportions of site-mixed mortar, grout, and prestressing grout for bonded tendons • grade and size of reinforcement, prestressing tendons and anchorages • placement of masonry units and construction of mortar joints • placement of reinforcement, connectors, and prestressing tendons and anchorages • grout space prior to grouting • placement of grout and prestressing grout for bonded tendons Observe preparation of grout specimens, mortar specimens, and/or prisms Verify compliance with the required inspection provisions of the contract documents and the approved submittals.

Figure 17-2 Requirements for Quality Assurance Levels 1, 2, and 3. (*From MSJC* Building Code Requirements for Masonry Structures, *ACI 530/ASCE 5/TMS 402, and* Specifications for Masonry Structures, *ACI 530.1/ASCE 6/TMS 602, 2002 edition.*)

of the CSI Three-Part SectionFormat™ addresses different types of requirements. Since quality assurance is an administrative process, quality assurance provisions are addressed in Part 1, General, including articles entitled "Submittals" and "Quality Assurance."