CHAPTER 17

QUALITY ASSURANCE DURING CONSTRUCTION

This chapter is unique to Massachusetts

17.1 GENERAL

17.1.1 Scope. The requirements in this chapter provide minimum standards for quality assurance of materials, fabrication and construction of select components, assemblies and systems for structures that are designed by one or more registered design professionals.

17.1.2 Purpose. The purpose of the quality assurance requirements in this chapter is to provide assurance to the responsible registered design professional(s) (RDP(s)), the owner, and the authority having jurisdiction (AHJ) that materials, fabrication and construction regulated by this chapter comply with the design as delineated in the construction documents.

17.1.3 Extent of quality assurance. For the purposes of Chapter 17, quality assurance shall be defined as tests, inspections and observations of the work to such an extent that they provide reasonable evidence and documentation to the responsible RDP that the work is being constructed in accordance with the RDP's design. Said RDP shall determine the frequency and extent of the applicable tests, inspections, and observations required in Chapter 17.

17.1.4 Structures requiring quality assurance: A quality assurance program is required for structures, components, assemblies or systems which are required to be designed by a RDP.

Exceptions:

1. Buildings in Use Group R-3 – Note that townhouses are treated as R-2 use.

2. Structures of 50,000 cu ft of volume or less, out to out of walls and roofs and down to the top of the floor on ground, except as otherwise required by the AHJ.

17.1.5 Involvement of the owner and registered design professional. The owner shall provide for the responsible RDPs to prepare, direct, and monitor a quality assurance program that reflects the requirements of Chapter 17. As specified hereinafter, and as applicable, each RDP responsible for the design of components, assemblies or systems governed by Chapter 17 shall prepare, direct, and monitor a quality assurance program for those parts for which the RDP has design responsibility, or for which the RDP develops criteria for design to be performed by others. The responsible RDP shall select qualified agents to assist with the implementation of the quality assurance program.

17.1.6 Responsibilities of the contractor. The contractor shall provide a quality control program for the construction regulated under Chapter 17. Quality assurance and its implementation does not relieve the contractor of its responsibilities for quality control of the construction, for compliance with the project construction documents, nor for any design for which it is responsible.

17.1.6.1: Whenever the owner reserves a quality control procedure for itself in the construction documents, such quality control procedure shall be made part of the required quality assurance program and shall be directed and monitored by the responsible RDP.

17.1.7 Building permit. The quality assurance programs, including the required tests, inspections and observations, shall be submitted by the permit applicant as a condition for issuance of a building permit.

17.1.8 Reports. As fabrication and construction progress, inspection reports and records of tests and inspections shall be forwarded to the responsible RDP for review and approval. The RDP shall maintain all test and inspection records and make them available to the AHJ in the manner requested by the AHJ. The RDP shall note any unresolved construction deficiencies in writing to the AHJ and the owner.

17.1.9 Remedial action. When deviations from design requirements that require remedial action are determined during tests, inspections or observations, the responsible RDP shall promptly report such to the contractor. If the contractor fails to have required corrective action performed, this lack of action shall be reported to the AHJ and the owner.

17.1.10 Final report. Prior to issuance of a certificate of occupancy, a final report stating that the quality assurance program has been satisfactorily completed, and that any deficiencies reported to the AHJ have been rectified, shall be submitted by the responsible RDP to the owner and the AHJ.

17.1.11 Performance specifications. The responsible RDP shall identify, in the quality assurance program submitted with the application for building permit, components, assemblies or systems that the RDP has specified to be designed by a RDP under the control of the contractor, from a performance specification provided by the responsible RDP. The responsible RDP shall review the design of these elements or systems for conformance to the performance specification and shall include them in the quality assurance program.

17.1.12 Reference Standards: Where standards referenced by 780 CMR contain provisions for quality assurance, the responsible RDP shall determine which of the quality assurance requirements are appropriate and shall include the appropriate requirements in his or her quality assurance program. Notwithstanding any other provision in 780 CMR to the contrary, the responsible SER is not obliged to include in his or her quality assurance program any requirement for quality assurance from the referenced standards that he or she determines is not appropriate.

17.1.13 Testing standards: Testing methods for quality assurance shall be the same as required by 780 CMR and its referenced standards for determining acceptance of materials and their installation.

17.2 DEFINITIONS

AGENT. Qualified company or individual assigned to execute the specific tests and inspections required by the quality assurance program.

CONTRACTOR. The entity in control of construction.

CONSTRUCTION DOCUMENTS. The plans, specifications, approved shop drawings and all other documents that describe the design of a construction project for which a building permit has been issued by the AHJ.

CURTAIN WALL. An exterior enclosure wall of a building, including all of its components.

FABRICATOR. The entity performing off-site manufacture and/or assembly of construction components or systems.

QUALITY ASSURANCE. See Section 17.1.3.

QUALITY ASSURANCE PROGRAM. The program prepared and monitored by the responsible Registered Design Professional (RDP)

QUALITY CONTROL. The operational procedures that contractors have in place to insure compliance with construction documents.

REGISTERED DESIGN PROFESSIONAL (RDP). As defined in Chapter 2.

SPRAYED FIRE RESISTIVE MATERIAL. A cementitious or fibrous material that is spray applied to structural elements, walls, floors and roof to provide fire resistive protection.

STRUCTURAL ENGINEER OF RECORD (SER). The responsible RDP whose professional seal of registration and signature appear on the structural design documents submitted with the building permit application, or the alternate SER who succeeds the SER as provided in Section 17.4.3.

17.3 QUALITY ASSURANCE FOR STRUCTURAL COMPONENTS AND ASSEMBLIES

17.3.1 General. The responsible RDP shall prepare a quality assurance program for materials, fabrication and construction that includes the structural tests, inspections and observations required by Section 17.3.

17.3.2 Structural Observations. The responsible RDP or a RDP designated by the responsible RDP shall conduct site visits at significant construction stages, to verify that required structural tests and inspections are being performed and to make observations for general conformance with the RDP's design as delineated in the Construction Documents.

17.3.3 Structural tests and inspections. The quality assurance program shall include a list of structural tests and inspections that are to be conducted during fabrication and installation in accordance with the provisions in this chapter. The program shall include:

a) a complete list of materials and work requiring structural tests and inspections;
b) the tests and inspections to be performed;
c) a list of qualified agents for the project; and
d) the frequency and extent of tests and inspections.

17.3.3.1. The structural engineer of record (SER) shall list in the program of structural tests and inspections the names of all responsible RDPs who are not under the SER's control and who have performed design of structural components and assemblies for the project, together with the work that each of these responsible RDPs has performed.

17.3.3.2. Waiver of structural inspection by the SER: Where, in the opinion of the SER, any portion of the contractor's quality control program meets the inspection and test requirements of Chapter 17, the SER may reduce the specified quality assurance program following approval by the AHJ. When this is done, the final inspection report shall include reference to the results of those inspections performed by the contractor. Also, as construction progresses, the contractor shall submit reports of the affected inspections and tests to the SER.

17.3.4 Alternate Structural Engineer of Record (Alternate SER). If, for any reason, the SER cannot continue with the project until the completion of the construction of the structural components and assemblies, the owner shall retain or otherwise provide for an alternate qualified RDP, to be known as the *alternate SER*, to review the design of the SER, assume full responsibility for that design, and to prepare (if necessary), direct, and monitor the quality assurance program required by Section 17.3. The alternate SER shall make any necessary changes to the design and the quality assurance program of the SER that he deems is necessary.

17.3.5 Inspection of fabricators. Where fabrication of structural components or assemblies is being performed in an off-site facility, fabricators shall be inspected as follows:

17.3.5.1 Prefabrication inspection. The inspector shall verify that fabricators designated for the project maintain complete and sufficient quality control procedures that assure the fabricator's ability to conform to approved construction documents.

Exception:

Prefabrication inspection may be waived by the RDP if the designated fabricator maintains an agreement with a recognized independent inspection or quality

control agency that conducts periodic in-plant inspections at the fabricator's plant, at a frequency that will insure the fabricator's ability to conform to the construction documents. This waiver does not eliminate structural inspection during fabrication in accordance with Section 17.3.4.2.

17.3.5.2 Inspection during fabrication. During fabrication the agent shall confirm that the fabricator is suitably executing its quality control procedures and producing a product that conforms to the construction documents. However, structural tests and inspections during fabrication may be reduced, at the option of the RDP, if the fabricator meets the Exception under Section 17.3.4.1.

17.3.6 In-situ soils and controlled structural fill. Structural tests and inspection for bearing capacity of in-situ soils shall be as required in Table 17.3.6a. Structural tests and inspections for controlled structural fill designed to support the structure shall be as required in Table 17.3.6b.

Table 17.3.6a In-Situ Bearing Strata for Footings

Item	**Scope** (Frequency determined by responsible RDP)
Bearing Strata QC Review	Review contractor's field quality control procedures.
General Excavation	Inspect strata for conformance to the structural drawings, specifications, and/or geotechnical report. Ensure that excavation is to proper depth or material. Ensure that excavation is controlled and contains no unsuitable materials.
Bearing Surfaces of Footings	Inspect bearing surfaces for conformance to the requirements of the structural drawings, specifications, and/or geotechnical report.

Table 17.3.6b Controlled Structural Fill (Prepared Fill)

Item	**Scope** (Frequency determined by responsible RDP)
Controlled Structural Fill QC Review	Review contractor's field quality control procedures.
Fill Material	Test material for conformance to specifications or geotechnical report. Perform laboratory compaction tests in accordance with the specifications to determine optimum water content and maximum dry density.
Installation of Controlled Structural Fill	Provide full-time inspection of the installation, in accordance with the specifications.
Density of Fill	Perform field density tests of the in-place fill in accordance with the specifications.

17.3.7 Foundations. Structural tests and inspection for foundation systems shall be as required in Table 17.3.7a and Table 17.3.7b.

Table 17.3.7a Pile Foundations

Item	**Scope** (Frequency determined by responsible RDP)
Pile Foundations QC Review	Review Contractor's quality control procedures.
Pile Materials	Inspect documents identifying pile material and certifying grade of material for conformance to the Contract Documents, and that the identification is maintained from the point of manufacture to the point of delivery to the site.
. Pile Installation	Perform full time inspection of installation. Maintain accurate records for each pile. Review final location of each pile.
. Precast Concrete Piles	Perform structural tests and inspections as listed under category *Precast Concrete Construction.*
. Cast-in-place Concrete and Reinforcing Steel Components of Piles	Perform structural tests and inspections as listed under category *Cast-in-Place Concrete Construction.*
. Specialty Piles	Responsible RDP to provide inspections and testing criteria for each type of specialty pile.

Table 17.3.7b Pier Foundations

Item	**Scope** (Frequency determined by responsible RDP)
Pier Foundation QC Review	Review Contractor's quality control procedures. Review scope and frequency of testing and inspections.
Pier Installation	Perform full time inspection of installation. Maintain accurate records for each pier. Verify bearing strata for geotechnical requirements.
Cast-in-place Concrete and Reinforcing Steel Components of Piers	Perform structural tests and inspections as listed under category *Cast-in-Place Concrete Construction.*

17.3.8 Cast-in-place concrete construction. Structural tests and inspection for cast-in-place concrete construction, including post-tensioned concrete, shall be as required in Table 17.3.8.

Exceptions:

1. Concrete slabs supported directly on the ground that do not support other structural elements.

2. Concrete patios, driveways and sidewalks, on grade.

Table 17.3.8 Cast-in-Place Concrete Construction

Item	**Scope** (Frequency determined by responsible RDP)
. Cast-in-place Concrete Construction QC Review	Review Contractor's field quality control procedures. Review frequency and scope of field testing and inspections.
. Mix Design	Review mix designs prior to placement. Verify use of required mix design.
. Materials	Review material certifications for conformance to specifications.
. Batching Plant	Review Plant quality control procedures and batching and mixing methods.
. Reinforcement Installation	Inspect reinforcing for size, quantity, condition and placement. Verify adequate cover per specifications.
. Anchor Rods	Inspect anchor rods prior to and during placement of concrete.
. Post-Tensioning Operations	Inspect tensioning and anchorage of tendons. Inspect grouting of bonded tendons. Verify concrete strength prior to stressing of tendons and removal of shores and forms from beams and structural slabs.
. Formwork	Inspect form sizes for proper sizes of concrete members.
. Concrete Placement and Sampling Fresh Concrete	Observe concrete placement operations. Verify conformance to specifications including cold-weather and hot-weather placement procedures. Perform slump, density and air content tests at point of discharge.
. Evaluation of Concrete Strength	Test and evaluate in accordance with the specifications.
. Curing and Protection	Observe procedures for conformance to the specifications.
. Welding Reinforcing Steel	Verify weldability of reinforcing steel other than ASTM A706.
. Mechanical Reinforcing Splices	Verify proper embedment, joint fit-up and tightness of mechanical parts.
. Shotcrete	Inspection of shotcrete placement for proper application techniques.

17.3.9 Precast concrete. Structural tests and inspection for precast concrete shall be as required in Table 17.3.9 and Section 17.3.5.

Table 17.3.9 Precast Concrete Construction

Item	Scope (Frequency determined by responsible RDP)
. Precast Concrete Construction QC Review	Review Contractor's field quality control procedures. Review frequency and scope of field testing and inspections.
. Plant Certification/Quality Control Procedures	Review Plant quality control procedures. Inspect plant storage and handling procedures. Confirm that approved submittals are in the plant and are being used for fabrication. Review welder's certifications.
. Materials	Review material certifications for conformance to specifications.
. Formwork	Inspect form sizes.
. Reinforcement Installation	Inspect reinforcing and prestressing strands for size, quantity, condition and placement for conformance with Contract Documents, and responsible RDP approved submittals. Inspect welding.
. Mix Design	Review mix designs prior to placement. Verify use of required mix design.
. Concrete Placement	Inspect concrete placement procedures.
. Curing and Protection	Inspect for maintenance of specified curing temperatures and techniques.
. Evaluation of Concrete Strength	Test for conformance to specifications in accordance with approved submittal.
. Prestress Operation	Inspect application of prestressing forces. Inspect grouting of bonded, post-tensioned, prestressing tendons.
. Site Erected Precast Elements	Inspect for compliance with responsible RDP approved submittals and Contract Documents. Review site storage and handling procedures for consistency with design of precast elements. Verify that responsible RDP approved erection drawings are on site and are being used for erection. Verify that responsible RDP specified erection procedures are being followed. Observe tensioning and grouting for all bonded post-tensioned tendons. Review welder's certifications. Monitor finished products for structural defects.
. Connections/Embedded Items	Inspect interface connections including end and edge doweling. Inspect embedments for proper location. Inspect shimming, bearing, bolting and welding of connections.
. Field Correction of Fabricated Items	Review documentation of responsible RDP approved repair and verify completion of repairs.

17.3.10 Masonry construction. Structural tests and inspection of masonry materials and construction shall be as required in Table 17.3.10.

Table 17.3.10 Masonry Construction

Item	**Scope** (Frequency determined by responsible RDP)
. Masonry Construction QC Review	Review Contractor's field quality control procedures.
. Materials	Review material certifications for conformance to specifications.
. Evaluation of Masonry Strength (f_M=)	Verify strength in accordance with the specifications.
. Proportioning, Mixing and Consistency of Mortar and Grout	Inspect field-mixing procedures for conformance to the specifications.
. Installation of Masonry	Inspect placement for conformance to the specifications. Verify cleanout hole locations (high lift grouting). Verify the installation of bond beams and special shapes.
. Reinforcement Installation	Inspect reinforcing steel for size, quantity, condition and placement for conformance to responsible RDP approved submittals and Contract Documents. Inspect welding of reinforcement and review welder's certifications. Inspect mechanical splices.
. Grouting Operations	Inspect grouting procedures for conformance with the specifications. Inspect cells prior to grouting. Assure observation holes have been installed prior to high lift grouting.
. Weather Protection	Inspect protection for cold and hot weather for conformance with the specifications.
. Anchorage	Inspect anchorage of masonry to other construction for conformance to the Contract Documents.

17.3.11 Steel construction

17.3.11.1 Structural Steel. Structural tests and inspection for structural steel materials, fabrication and erection shall be as required in Section 17.3.5 and Table 17.3.11a.

Table 17.3.11a Structural Steel

Item	**Scope** (Frequency determined by responsible RDP)
. Steel Construction QC Review	Review Contractor's field quality control procedures. Review frequency and scope of field testing and
. Fabricator Certification/ Quality Control Procedures	Review each Fabricator's quality control procedures.
. Fabricator Inspection	Inspect in-plant fabrication, or review Fabricator's approved Independent Inspection Agency's reports.

. Materials	Review materials certifications for conformance to the specifications.
. Anchor Rods	Review Contractor's as-built survey. Verify that all anchor rods have been properly torqued and have adequate fit-up.
. Bolting	Test and inspect bolted connections in accordance with specifications. Verify bolt size and grade.
. Welding	Check welder qualifications. Visually inspect fillet welds and test full-penetration field welds in accordance with specifications.
. Shear Connectors	Inspect for size and placement. Test for proper weld attachment.
. Structural Framing, Details and Assemblies	Inspect for size, grade of steel, camber, installation and connection details. Check against approved construction documents and shop drawings.
. Open Web Steel Joists	Inspect for size, placement, bridging, bearing and connection to structure. Visually inspect all welds of a minimum of 5% of the joists, randomly selected.
. Expansion and Adhesive Anchors	Review installation procedures for both mechanical anchors and adhesive anchors. Verify that materials are suitable for job conditions.
. Metal Decking	Verify gage, width, and type. Inspect placement, laps, welds, side lap attachment and screws or other mechanical fasteners. Check welder qualifications.
. Field Correction of Fabricated Items	Review documentation of responsible RDP approved repair and verify completion of repairs

17.3.11.2 Light Gauge Metal Framing. Structural tests and inspection for light gauge metal framing (cold-formed steel) materials, fabrication, and erection shall be as required in Section 17.3.5 and Table 17.3.11b.

Table 17.3.11b Light Gauge Metal Framing

Item	**Scope** (Frequency determined by responsible RDP)
. Light Gauge Metal Framing QC Review	Review of Contractor's field quality control procedures. Review scope of testing and inspections.
. Fabricator's Quality Control Procedures.	Review fabricator's quality control procedures.
. Material Certification.	Review for conformance to contract documents.
. Fabrication Inspection.	Inspect in-plant fabrication or on-site fabrication.
. Installation.	Verify that type, size, quantity, location, details, and connections of framing members conform to responsible RDP approved submittals, and the contract documents..
. Welding.	Check welders= qualifications. Verify that welding conforms to AWS specifications, responsible RDP

	approved submittals, and the contract documents. Visually inspect welds.
. Other Fasteners.	Verify fastener type and installation procedures. Verify that fasteners conform to responsible RDP approved submittals and the contract documents. Verify that fasteners are installed tight.
. Field Correction of Fabricated Items	Review documentation of responsible RDP approved repair and verify completion of repairs.

17.3.12 Wood construction. Structural tests and inspection for conventional, wood framing or engineered wood components and assemblies, including fastening and other connection methods, shall be as required in Section 17.3.5 and Table 17.3.12.

Table 17.3.12 Wood Construction

Item		**Scope** (Frequency determined by responsible RDP)
. Wood Construction QC Review		Review contractors quality control procedures. Review scope and frequency of testing and inspections.
. Fabricator Certification/ Quality Control Procedures for prefabricated wood components		Review Fabricator's quality control procedures.
. Material Grading		Inspect Lumber for conformance to the Contract Documents. Check moisture content as applicable.
. Framing, Details and Connections		Inspect members for size, placement and connection details. Inspect blocking between floors and at posts. Verify proper connection hardware and its installation. Inspect bearing, nailing and completed connections for conformance to the responsible RDP approved submittals and Contract Documents.
. Shear Walls, Diaphragms and Hold-downs		Inspect thickness and grade of plywood, blocking, hold-down anchors and the edge and field nailing of the plywood to the framing for conformance to the responsible RDP approved submittals and Contract Documents. Review panelized construction for proper plywood overlaps.
. Wood Trusses		Inspect size and location of nail plates, split rings, bolts, or other connection devices for conformance to responsible RDP approved submittals and the Contract Documents. Verify that nails, bolts, hold-down anchors or clips or other devices are tight and otherwise properly installed. Verify that permanent web bracing, including X-bracing has been installed.

. Laminated Lumber		Inspect grade, nailing, end bearing and end attachment for conformance to responsible RDP approved submittals and the Contract Documents.
. Anchor Bolts		Verify that anchor bolts have been placed as indicated on the plans.

17.3.13 Special cases. A quality assurance program shall be prepared and monitored by the responsible RDP for permitted work that is, in the opinion of the RDP, unusual in nature, such as:

1. Application of structural materials, components, assemblies or systems that are alternatives to those recognized by this code or its applicable reference standards.

2. Construction or installation of structural materials, components, assemblies or systems required to be installed in accordance with manufacturer's instructions that prescribe requirements not recognized by this code or its applicable reference standards.

17.4 QUALITY ASSURANCE FOR CURTAIN WALL CONSTRUCTION

17.4.1 Scope. A quality assurance program shall be prepared and monitored by the responsible RDP in accordance with Table 17.4.

Table 17.4 Curtain Walls (Wall Panels and Veneers)

Item	**Scope** (Frequency determined by responsible RDP)
. Curtain Wall QC Review	Review contractors quality control procedures. Review scope and frequency of testing and inspections.
. Precast Concrete Panels.	Perform applicable structural tests and inspections as listed under category *Precast Concrete Construction*.
. Light Gage Metal Framing for Panels.	Perform applicable structural tests and inspections as listed under category *Light Gage Metal Framing*.
. Proprietary Light Weight Curtain Walls Systems.	Review manufacturer's fabrication methods and quality control procedures. Review material certification, and inspect fabrication of structural framing, details, connections, and fasteners for conformance to responsible RDP approved submittals and the contract documents.
. Masonry Veneers.	Perform applicable structural tests and inspections as listed under category *Masonry Construction*. Verify that relieving angles, ties to the backup structure, and other structural supports are installed in conformance with the contract documents and responsible RDP approved submittals.

. Field Correction of Fabricated Items	Review documentation of responsible RDP approved repair and verify completion of repairs.

17.5 QUALITY ASSURANCE FOR SPRAYED FIRE RESISTIVE MATERIALS

17.5.1 Scope. A quality assurance program for sprayed fire-resistive materials shall be prepared and monitored by the responsible RDP. Tests and inspections shall be as required in Table 17.5.

17.5.2 Density and thickness. Density and average thickness of the sprayed fire resistive materials shall be determined in accordance with ASTM E 605 – also see 780 CMR 703.5

17.5.3 Bond Strength. The cohesive/adhesive bond strength shall be determined in accordance with the field test specified in ASTM E 736 by testing in-place samples of the sprayed fire resistive material selected as specified in Sections 17.5.3.1 and 17.5.3.2 – also see 780 CMR 703.5.

17.5.3.1 The test samples for determining the cohesive/adhesive bond strength of the sprayed fire resistive materials shall be selected from each floor, roof and wall assembly at the rate of not less than one sample for every 10,000 square feet (929 m^2) or part thereof of the sprayed area in each story – also see 780 CMR 703.5.

17.5.3.2 The test samples for determining the cohesive/adhesive bond strength of the sprayed fire resistive materials shall be selected from beams, girders, joists, trusses and columns at the rate of not less than one sample for each type of structural element for each 10,000 square feet (929 m^2) of floor area or part thereof in each story – also see 780 CMR 703.5.

Table 17.5 Sprayed Fire Resistive Materials

Item	**Scope** (Frequency determined by responsible RDP)
. Sprayed Fire Resistive Materials QC Review	Review contractors quality control procedures. Review scope and frequency of testing and inspections.
. Materials	Review material certifications for conformance to specifications.
. Installation	Review surfaces to receive sprayed fire resistive materials, temperature at application, equipment and application procedures. Verify installation procedure with manufacturers

	written instructions.
Testing	Perform bond and density tests.

17.6 QUALITY ASSURANCE FOR SMOKE CONTROL SYSTEMS

17.6.1 Scope. A quality assurance program for the installation and operation of smoke control systems shall be prepared and monitored by the responsible RDP. Tests and inspection of smoke control systems shall be performed during erection and prior to concealment of ductwork for the purposes of identifying leakage and recording of the actuating device locations. Prior to occupancy and after substantial completion, pressure difference testing, flow measurements and detection and control verification shall be performed.

17.6.2 Qualifications. Testing and inspection agents for smoke control systems shall have expertise in fire protection engineering and mechanical engineering and shall be certified as air balancers.

17.7 QUALITY ASSURANCE FOR STAIRS AND RAILINGS

17.7.1 A quality assurance program for the fabrication and installation of stairs, handrails and guardrails shall be prepared and monitored by the responsible RDP. Anchorage of stair and railing assemblies to structural supports shall be inspected for compliance with contract documents.

17.8 QUALITY ASSURANCE FOR NON-STRUCTURAL ASSEMBLIES

Quality assurance programs shall be prepared and monitored by the responsible RDPs for seismic load resisting connections, supports, and anchorages of the non-structural components, assemblies, and equipment listed below, where such seismic load resisting connections, supports, and anchorages are required elsewhere in this Code:

1. HVAC ductwork containing hazardous materials.

2. Piping systems and mechanical units containing flammable, combustible, or highly toxic chemicals.

3. Electrical equipment used for emergency or standby power systems.

4. Suspended ceiling systems, interior partitions, and access floors.

5. Steel Storage racks.

6. Other mechanical and electrical equipment in buildings in Seismic Performance Category D.