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ACCREDITATION CRITERIA FOR SPECIAL INSPECTION AGENCIES

AC291

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PREFACE

The attached accreditation criteria has been issued to provide all interested parties with guidelines on implementing performance features of the applicable standards referenced herein. The criteria was developed and adopted following public hearings conducted by the International Accreditation Service, Inc. (IAS), Accreditation Committee and is effective on the date shown above. All accreditations issued or reissued on or after the effective date must comply with this criteria. If the criteria is an updated version from a previous edition, solid vertical lines (|) in the outer margin within the criteria indicate a technical change or addition from the previous edition. Deletion indicators (→) are provided in the outer margins where a paragraph or item has been deleted if the deletion resulted from a technical change. This criteria may be further revised as the need dictates.

IAS may consider alternate criteria provided the proponent submits substantiating data demonstrating that the alternate criteria are at least equivalent to the attached criteria and otherwise meet applicable accreditation requirements.

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ACCREDITATION CRITERIA FOR SPECIAL INSPECTION AGENCIES

1.0 INTRODUCTION

1.1 Scope: This document sets forth the requirements for obtaining and maintaining International Accreditation Service, Inc. (IAS), special inspection agency ("SIA") accreditation and for the qualifying data that must be submitted relating to the scope of inspection for which accreditation is sought. This document supplements the IAS Rules of Procedure for Special Inspection Agency Accreditation. Section 1704 of the *International Building Code*[®] (IBC) provides for special inspection agencies. Under the IBC, final authority for recognition of special inspection agencies rests with the building official having jurisdiction, and nothing contained herein affects or diminishes that authority in any way.

1.2 Reference Documents

1.2.1 *International Building Code*[®] (IBC)¹ currently adopted by the jurisdiction in which the project is to be constructed.

1.2.2 ISO/IEC (International Organization for Standardization/International Electrotechnical Commission) Standard 17020:1998, General Criteria for the Operation of Various Types of Bodies Performing Inspection².

1.2.3 ISO/IEC (International Organization for Standardization/International Electrotechnical Commission) Standard 17024:2003, Conformity Assessment - General Requirements for Bodies operating Certification of persons.

1.2.4 IAS Rules of Procedure for Special Inspection Agency Accreditation³.

1.2.5 IAS AC371 Accreditation Criteria for Training Agencies for Work Force Qualification Programs.

1.2.6 ICC/IAS Model Program for Special Inspection.

1.2.7 ANSI/NOCA 1100 Standard for Assessment-Based Certificate Programs (2009).

1.2.8 ASTM C 33 / C 33M-11 Standard Specification for Concrete Aggregates.

1.2.9 ASTM C 330-09 / C 330M-09 Standard Specification for Lightweight Aggregates for Structural Concrete.

1.2.10 ASTM E 814-11a Standard Test Method for Fire Tests of Penetration Firestop Systems.

1.2.11 ASTM E 1966-07 Standard Test Method for Fire Resistive Joint Systems.

1.2.12 ASTM E 2174-09 Standard Practice for On-Site Inspection of Installed Fire Stops.

1.2.13 ASTM E 2307-10 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate Scale Multi story Test Apparatus.

1.2.14 ASTM E 2393-09 Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.

1.2.15 ASTM E 2659-09 Standard Practice for Certificate Programs.

1.2.16 Firestop Contractors International Association "FCIA Firestop Manual of Practice," Appendix H – 03/25/2007, Revision No. 6, Section 07 84 00, Firestopping Penetrations, Joints and Perimeter Fire Containment.

1.2.17 FM 4991 Approval Standard for Approval of Firestop Contractors.

1.2.18 UL 1479 Standard for Fire Tests of Through-Penetration Firestops.

1.2.19 UL 2079 Standard for Tests for Fire Resistance of Building Joint Systems.

2.0 DEFINITIONS

2.1 Accredited Calibration Provider: A calibration laboratory that is accredited by IAS [or an Accreditation Body with which IAS has a Mutual Recognition Arrangement (MRA) relationship] as operating under ISO/IEC Standard 17025.

2.2 Approved: Acceptable to the building official.

2.3 Approved Agency: An established and recognized SIA regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved.

2.4 Certificate of Compliance: A certificate stating that materials and products meet specified standards or that work was done in compliance with approved construction documents.

2.5 Fabricated Item: Structural load-bearing or lateral load-resisting assemblies consisting of materials assembled prior to installation in a building or structure, or subjected to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a building or structure. Materials produced in accordance with standard specifications referenced by the IBC, such as rolled structural steel shapes, steel-reinforcing bars, masonry units, and wood structural panels or in accordance with a standard listed in the IBC that provides requirements for quality control done under the supervision of a third-party quality control agency shall not be considered "fabricated items."

2.6 Fire Protection Engineer (F.P.E.): An individual with specialized training in fire protection systems for building construction, as evidenced by a bachelor's or higher degree in fire protection engineering from an accredited college, university or engineering school.

2.7 Fire-resistant Materials: Cementitious or fibrous materials, intumescent or thin films that are applied to provide fire-resistant protection of the substrates.

2.8 Firestop System: An assemblage of materials including fire-resistance-rated assembly, penetrating item(s), gap size, the fill, void or cavity materials installed as a system to restore the fire, smoke or other resistance rating of fire-resistive assemblies that have been breached due to penetration by electrical, plumbing or mechanical

items tested to ASTM E 814 / UL 1479, by expansion and construction joints tested to UL 2079 / ASTM E 1966, and by perimeter joints tested to ASTM E 2307 in buildings.

2.9 Intumescent Fire-resistant Coatings: Thin film liquid mixture applied to substrates by brush, roller, spray or trowel which expands into a protective foamed layer to provide fire-protection of substrates when exposed to flame or intense heat.

2.10 Label: An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an approved agency; and that indicates that a representative sample of the product or material has been tested and evaluated by an approved agency.

2.11 Manufacturer's Designation/Mark: An identification applied on a product by the manufacturer indicating that a product or material complies with a specified standard or set of rules.

2.12 Mastic Fire-resistant Coatings: Liquid mixture applied to a substrate by brush, roller, spray or trowel that provides fire-resistant protection of a substrate when exposed to flame or intense heat.

2.13 Professional Engineer (P.E.): An engineer licensed to practice the applicable discipline in the jurisdiction where the SIA is operating.

2.14 Qualified: Meeting the minimum requirements of Table 1.

2.15 Registered Architect (R.A.): An architect licensed to practice the applicable discipline in the jurisdiction where the SIA is operating.

2.16 Registered Design Professional: An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the jurisdiction in which the project is to be constructed.

2.17 Special Inspection: Inspection as herein required of the materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with approved construction documents and referenced standards. Reference the 2009 *International Building Code* Chapter 17, Section 1702, or the most currently adopted code.

2.18 Special Inspection Agency (SIA): A third-party entity approved by the building official to perform special inspections.

2.19 Special Inspection, Continuous: The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.

2.20 Special Inspection, Periodic: The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

2.21 Special Inspector: A qualified person employed by an SIA, who shall demonstrate competence, to the

satisfaction of the building official, for the inspection of the particular type of construction or operation requiring special inspection.

2.22 Structural Observation: The visual observation of the structural system by a registered design professional for general conformance to the approved construction documents at significant construction stages and at completion of the structural system. Structural observation does not waive inspections required by Section 110 or Section 1704 of the IBC.

3.0 BASIC INFORMATION

The following basic information must be submitted by agencies applying for Special Inspection Agency accreditation:

Note: An electronic format is acceptable.

3.1 Data showing compliance with Section 3.0 of the IAS Rules of Procedure for Special Inspection Agency Accreditation.

3.2 A manual showing compliance with the relevant requirements of ISO/IEC Standard 17020:1998, General Criteria for the Operation of Various Types of Bodies Performing Inspection. The relevant requirements are as follows:

3.2.1 The SIA inspection body or organization of which it forms a part, shall be legally identifiable.

3.2.2 SIA's field and type of inspection, including detailed procedures for each field of inspection. IAS offers accreditation in inspection methods as identified in Chapter 17 of the 2009 *International Building Code*, or the most currently adopted code. Reference AC291 Table 1 for minimum qualifications for special inspectors.

3.2.3 Evidence of liability insurance per contract documents.

3.2.4 Detailed information on impartiality, independence and integrity, including documented procedures on how the SIA ensures freedom of employees from external pressures that could impact inspection activities. (Compensation of inspectors must not directly depend on the number of inspections they perform and in no case on the results of such inspections.)

3.2.5 An affidavit signed by an officer of the SIA attesting to compliance with the third-party requirements described in the following note.

Note: The applicant SIA and its inspection staff shall not be part of or have a financial or other interest in the construction, manufacture, representation, supply, installation or maintenance of the structures or components (including any fixtures or appliances) which they inspect, or in entities that supply similar competitive items or services. The SIA and its staff shall not engage in any activities that may conflict with their independence of judgment and integrity. The SIA must operate in a nondiscriminatory, transparent manner so as to allow full access to its services by interested parties.

3.2.6 Policies and procedures on how the SIA ensures confidentiality of client information.

Note: Implementation of Sections 3.2.4 and 3.2.6 must provide objective evidence that the inspector has read and

understood these requirements. Appropriate objective evidence may be in a form, referencing the requirement, or any other method appropriate to ensure personnel understand and attest they are in compliance with the requirements.

3.2.7 An organizational chart and documents defining positions and responsibilities of key personnel, including the following:

3.2.7.1 A technical manager (however named) with the necessary qualifications and experience, who has overall responsibility for the technical operations.

3.2.7.2 A quality manager (however named) with the necessary qualifications and experience who has the responsibility for the quality system and its implementation. This person should have direct access to the highest level of authority within the organization.

Note: Necessary qualifications and experience must be sufficient to effectively perform their responsibilities.

3.2.7.3 Field supervisor(s) who is (are) responsible for the quality of inspections, and the training and monitoring inspectors for each field of inspection. If the field inspection supervisor covers more than one field of inspection, he/she shall be suitably qualified in each field.

3.2.7.4 Deputies in the absence of technical manager, quality manager and/or field supervisor(s).

3.2.7.5 A matrix matching inspector certifications against the fields and types of special inspections shall be maintained and current. [Minimum educational, experience and/or certification requirements for special inspectors are noted in Section 6.0. This matrix also must include the date of employment and date of certification.

Note: Refer to Section 5.2.3.

3.2.8 Documented safety procedures addressing the field inspections.

3.2.9 Documented policies and procedures on equipment maintenance, including the following:

3.2.9.1 Equipment used for performing special inspection in the field.

3.2.9.2 Equipment used for performing testing under special inspection in the field.

3.2.9.3 Special inspection agencies shall maintain a list of test and measuring equipment used for conducting special inspections under this criteria. This list shall include information on range, accuracy, maintenance, calibration status and frequency of calibration. Wherever possible, calibration services shall be provided by a calibration laboratory accredited by IAS or by an accreditation body that is a partner with IAS in a mutual recognition arrangement.

It is recognized there may not be nationally recognized standards available for unique inspection equipment. When such instances exist, calibration procedures must be in compliance with manufacturer's recommendations to the extent that such inspection equipment is calibrated to ensure consistency with the required measuring capabilities. It is the accredited entity's responsibility to

ensure that such testing equipment is properly calibrated prior to use.

3.2.9.4 Handling defective equipment. The SIA shall examine the effect of test and/or measuring equipment found to be defective on previous inspections and, when necessary, take appropriate corrective action.

3.2.10 Policies and procedures on security and backup of stored data (hard and electronic).

3.2.11 All documents issued to personnel in the SIA as part of the quality system shall be reviewed and approved for use by authorized personnel prior to issue. A master list or an equivalent document control procedure identifying the current revision status and distribution of documents in the quality system shall be established and be readily available to preclude the use of invalid and/or obsolete documents.

3.2.11.1 Management system documents generated by the SIA shall be uniquely identified. Such identification shall include the date of issue and/or revision identification, page numbering, the total number of pages or a mark to signify the end of the document, and the issuing authority.

3.2.11.2 Procedures shall be established to describe how changes in documents maintained in computerized systems are made and controlled.

Note 1: Controlled documents include but are not limited to the quality manual, standard operating procedures, special inspection procedures, and copies of forms, checklists, etc., relevant to the inspection activities.

Note 2: Invalid or obsolete documents must be promptly removed from all points of issue or use. Obsolete documents retained for either legal or knowledge-preservation purposes must be suitably marked.

3.2.12 Policies and procedures for contract review to show that the SIA only conducts work within its area of expertise and that the SIA has adequate resources to fully discharge its responsibilities in a competent manner.

3.2.13 Documented procedure for preparation, acquisition, handling and storage of material samples or field-prepared specimens in accordance with the requirements stipulated in applicable standards or codes.

Note: In the absence of such information, the SIA must have procedures for documenting sampling, handling, storage and transportation techniques.

3.2.14 Documented policies and procedures on how the SIA shall retain records of all activities. SIA shall maintain all records pertaining to the contract review.

Note: Such records, including inspection and test reports, shall be held in a secure environment for such period as stipulated in the contract documents or prevailing local laws, whichever is longer.

3.2.15 Policies and procedures for subcontracting to other IAS-accredited agencies.

Subcontracting is permitted only to IAS-accredited SIAs or to qualified special inspectors. The subcontracted SIA must have documentation substantiating that it agrees to operate under the SIA's quality management system. A list of current subcontractors must be maintained.

3.2.16 Documented procedures for processing complaints and appeals from clients and regulatory agencies.

Note: Records of all complaints and resolutions shall be maintained.

3.2.17 Documented procedures for client feedback.

Note: Examples of type of feedback include client satisfaction surveys and review of inspection reports with clients.

3.2.18 Policies and procedures for internal audits.

Note: For agencies with fewer than five employees, internal audits may be performed by an independent individual qualified in conformity assessment.

3.2.19 Policies and procedures for management review. The management review shall take account of:

3.2.19.1 Internal audit reports.

3.2.19.2 External assessment reports.

3.2.19.3 Complaints from clients.

3.2.19.4 Adequacy of human and equipment resources.

3.2.19.5 Results of client feedback.

3.2.19.6 Training needs.

3.2.19.7 Results of supervision and monitoring activities of inspectors.

3.2.19.8 Changes needed in the quality system.

3.2.20 Procedure to notify building official and registered design professional if corrective actions arising from inspection activities remain unresolved. This must be consistent with requirements noted in Section 1704.1.2 of the 2009 IBC, or the most currently adopted code.

3.2.21 Procedure for dispatching and distribution of daily, intermediate and final reports.

4.0 INSPECTION REPORTS

Inspection reports issued by the SIA shall accurately and clearly outline the results of special inspections. Inspection reports shall comply with the reporting requirements of IBC Chapter 17 and contain the following minimum information, as applicable:

4.1 Inspection date, and arrival and departure times (or total duration on-site) of the inspector.

4.2 Information pertaining to review of material records. (Material certification requirements are included, but not limited, to those noted in Appendix A.)

4.3 Structure/item inspected, including applicable codes, standards, approved construction documents, etc.

4.4 Results of inspection/tests witnessed or performed.

4.5 Resolution of any discrepancies noted during previous inspections.

Note: Separate documentation is acceptable.

4.6 Description of samples obtained, if any, including quantity, dimensions and relevant physical characteristics.

4.7 Identification of test/inspection equipment used in the inspection.

4.8 Names and signatures of the inspector and client's representative (as applicable).

5.0 TRAINING AND SUPERVISION/MONITORING OF INSPECTORS

Special inspection agencies shall have procedures for the training and supervision/monitoring of inspectors. Detailed records of training and supervision/monitoring activities shall be maintained and be made available for review by IAS during on-site assessments, reassessments and surveillance visits.

5.1 Inspector Training: All inspectors of the SIA shall undergo training in specific competencies by a supervisor or senior inspector or shall obtain training/education through other formal arrangements that are applicable to the inspector's duties. Plans for continued training to keep pace with developing technology and code changes shall be in place.

All such training shall be documented by the SIA.

5.2 Supervision/Monitoring of Inspectors

5.2.1 To ensure consistency in inspections and compliance with accreditation requirements, special inspection agencies shall have an effective supervision/monitoring system for their inspectors. This also will include regular review of inspection reports by supervisory personnel.

5.2.2 The SIA management shall conduct a review of each inspector at a minimum frequency of once every six months. The six-month review shall include:

- Review of the inspection reports for adequacy and completeness
- Competence of the inspector with the SIA's internal standard operating procedures
- Compliance with requirements imposed by the jurisdiction in which inspections are conducted.
- Review of feedback from the clients and building department staff.

5.2.3 SIA shall have records of monitoring their inspectors at least once during the first month of employment. SIA shall have records of periodic monitoring of their inspectors in the field not less than once every three years for each field of inspection by the SIA.

5.3 Identification of Special Inspectors: When requested by the building official, special inspectors employed by IAS accredited special inspection agencies shall provide company identification that includes the words "IAS Accredited" and the agency's IAS accreditation listing number.

6.0 MINIMUM QUALIFICATIONS FOR SPECIAL INSPECTORS

6.1 Qualifications requirements for special inspectors are as specified in Table 1.

TABLE 1 – Minimum Qualifications For Special Inspectors ^{1,2,3}

Num	Special Inspection Category	Required Experience	Required Certification(s)	Notes
6.2.1	Concrete Construction (Pre-stressed/Precast)	Note 4	ICC Pre-stressed SI and ICC Reinforced Concrete SI	
6.2.2	Reinforced Concrete	Note 4	ICC Reinforced Concrete SI or ACI Concrete Construction SI	
6.3	Nondestructive Testing (NDT)	120 hours for Level II	ANSI/ASNT-CP-189 NDT or SNT-TC-1a NDT	
6.4	Pier and Pile Foundations	Note 4	NICET II (geotechnical or construction or construction material testing or soils)	Note 5
6.5	Post-Installed Structural Anchors in Concrete	Note 4	ICC Reinforced Concrete SI or ACI Concrete Construction SI	
6.6	Soils	Note 4	ICC Soils SI (ICC-EC) or NICET II (geotechnical or construction or construction material testing or soils)	Note 5
6.7	Spray-applied Fire-resistant Materials / Intumescent Fire-resistant Coatings / Mastic Fire-resistant Coatings	Note 4	ICC Spray-Applied Fireproofing SI or ICC Fire Inspector I	
6.8.1	Steel (High-Strength Bolting)	Note 4	ICC Structural Steel and Bolting SI	
6.8.2	Steel (Welding)	5 Years Minimum or per AWS	AWS CWI or ICC Structural Steel and Welding SI	
6.9	Masonry Construction	Note 4	ICC Structural Masonry SI	
6.10	Wood Construction	Note 4	ICC Commercial Building Inspector or ICC Residential Building Inspector	Note 5
6.11	Exterior Insulation and Finish Systems (EIFS)	Note 4	AWCI EIFS Inspector	
6.12	Firestop Systems	Note 4	UL Firestop Examination or FM Firestop Examination	
6.13	Wall Panels, Curtain Walls, and Veneers	Note 4	ICC Commercial Building Inspector or ICC Residential Building Inspector	Note 5
6.14	Smoke Control Systems	Note 4	AABC Technician Certification	Note 5
6.15	Mechanical Systems	Note 4	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector	
6.16	Fuel-oil Storage and Piping Systems	Note 4	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector or API Aboveground Storage Tank Inspector	
6.17	Structural Cold-formed Steel	Note 4	ICC Commercial Building Inspector or ICC Residential Building Inspector	Note 5
6.18	Excavation - Sheeting, Shoring, and Bracing	Note 4	NICET II (geotechnical or construction or construction material testing or soils)	Note 5

6.19	High-Pressure Steam Piping (Welding)	5 Years Minimum or per AWS	AWS CWI or ICC Structural Steel and Welding SI	
6.20	Structural Safety - Stability and Mechanical Demolition	Note 4	RDP, PE, BS Engineering / Architecture or Valid Site Safety Manager Certification	
6.21	Site Storm Drainage Disposal and Detention	Note 4	ICC Soils SI or NICET II (geotechnical or construction or construction material testing or soils)	Note 5
6.22	Sprinkler Systems	Note 4	ICC Commercial Building Inspector or ICC Residential Building Inspector	Note 5
6.23	Standpipe Systems	Note 4	ICC Commercial Building Inspector or ICC Residential Building Inspector	Note 5
6.24	Heating Systems	Note 4	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector	Note 5
6.25	Chimneys	Note 4	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector	Note 5
6.26	Seismic Isolation Systems	Note 4	RDP, PE, BS Engineering / Architecture	
6.27	Special Cases	Note 4	ICC Commercial Building Inspector or ICC Residential Building Inspector	Note 5

¹ It is recognized that development of qualified inspectors requires those individuals to obtain experience performing inspections of actual work. The requirements herein include such experience as do some of the required certifications. To provide a vehicle for individuals to obtain this experience, they may perform inspections in accordance with written associate or apprentice programs that are prepared by the SIA, approved by the IAS, and meet the requirements of the local governing authority. These programs must include at a minimum: passing certification exams, when available, administered by third party agencies such as the ICC and ACI, in-house SIA and third party training, observation by the associate or apprentice of inspections performed by certified inspectors, and performance by the associate or apprentice inspectors of duplicate inspections with certified inspectors. This written program will also define the use of associate or apprentice inspectors and will limit their use based upon the level of supervision and the complexity of the inspection assignment. The complexity of an assignment should be minimal and would often be task specific. Supervision should be direct, with a certified inspector being present at the site with the associate or apprentice. The associate or apprentice to certified inspector ratio on a project site should not exceed 1:1. All documents related to work by an associate or apprentice inspector must be cosigned by a certified inspector. The written program must include documentation of compliance with the program.

² Abbreviations: SI = Special Inspector; ICC = International Code Council; NICET = National Institute for Certification in Engineering Technologies; AWCI = Association of the Wall and Ceiling Industry; UL = Underwriters Laboratories Inc.; AABC = Associated Air Balance Council

³ When qualifications for special inspectors are locally defined, by statute, ordinance or rule, that meet or exceed the requirements outlined in this criteria, these local requirements shall be recognized

Notes:

4. Applicants shall comply with one of the following education and experience requirements:
 - a. Professional Engineer (PE) , licensed Architects, or Registered Design Professional (RDP) and a minimum of three months of relevant work experience; or
 - b. Bachelor of Science Degree (BS) in Engineering, Architecture, or Physical Science and a minimum of six months of relevant work experience; or
 - c. Two years of verified college or technical school (copy of diploma or transcript required) and a minimum of one year of relevant work experience; or
 - d. High school or equivalent graduate (copy of diploma or certificate required) and a minimum of two years of verified relevant work experience; or
 - e. A minimum of three years of verified relevant work experience
5. RDPs, PEs, or licensed Architects are exempt from *Required Certification(s)* listed in Table 1 above, but are subject to on-site assessment of competence by IAS. ■

APPENDIX A — Material Certifications

ELEMENT	MATERIAL	PRESENT PRACTICE	ADDITIONAL REQUIREMENTS
Concrete	Mix	Structural engineer approves mix design based upon submittals, verifies approved mix design supplied based upon batch ticket, sample and test cylinders	Batch plant inspection
	Cement		Manufacturer certification
	Coarse Aggregate		ASTM Standards C 33 and C 330 yearly compliance submittal, sample and test
	Fine Aggregate		ASTM Standards C 33 and C 330 yearly compliance submittal, sample and test
	Admixtures		Manufacturer certification
	Water		Supplier test result submittal, sample and test
	Reinforcing and Prestressing Steel	Verify grade, size and type by mill stamps on bar	Match bundle tags to mill certification submittal, sample and test
	Misc. Chairs, Anchors, etc.		Manufacturer certification
Bolts in Concrete	Bolts	Verify grade and size by bills of lading	Match bills of lading to mill certification submittal, sample and test
	Epoxy	Observe material packaging and labels, verify compliance with project specs or approvals, observe batching per manufacturer instructions, occasionally sample and test	Manufacturer certification, sample and test
Masonry	Block or Brick	Occasionally sample and test	Manufacturer certification, sample and test
	Grout Mix	Structural engineer approves mix design based upon submittals, verifies approved mix design supplied based upon batch ticket, occasional sampling and testing	Batch plant inspection
	Cement		Manufacturer certification, sample and test
	Grout, Coarse Aggregate		Yearly compliance testing, sample and test
	Grout, Fine Aggregate		Yearly compliance testing, sample and test
	Admixtures		Manufacturer certification
	Water		Supplier test result submittal, sample and test

ELEMENT	MATERIAL	PRESENT PRACTICE	ADDITIONAL REQUIREMENTS
	Mortar Mix	Structural engineer approves mix design based upon submittals, verifies approved mix design supplied based upon batch ticket, occasional sampling and testing	Observe field batching, verify mix design compliance, sample and test
	Mortar, Fine Aggregate		Yearly compliance testing, sample and test
	Composite	Test prisms	
	Misc. Centering Devices, Screens, etc.		Manufacturer certifications
	Reinforcing Steel	Verify grade, size and type by mill stamps on bar	Match bundle tags to mill certification submittal, sample and test
Structural Steel	Structural Steel		Match delivery information with mill certifications
	Bolts		Match delivery information with certificate of compliance
	Non-shrink Grout	Observe material packaging and labels, verify compliance with project specs or approvals, observe batching per manufacturer instructions, occasionally sample and test	Manufacturer certification, sample and test
	Anchor Bolts		Match delivery information with certificate of compliance
	Weld-filler Materials	Observe material packaging and labels, verify on-site storage	Match delivery information with certificate of compliance
Firestop Systems	Penetration Firestop Systems	Visual or destructive inspection to ASTM E 2174-05, verifying installation conformance to classified ASTM E 814 or UL 1479 design parameters as published in directories.	ASTM Standard E 2174-09 Verify certification agency labels and classified systems designs. When appropriate, verify that installing contractors are certified to FM 4991, or to UL Qualified Firestop Contractor Program.
	Expansion and Construction Joint Firestop Systems	Inspected visually or destructively, verifying installation conformance to the classified UL 2079 or ASTM E 1966 System Design parameters as published in directories.	ASTM Standard E 2393-09 Verify certification agency labels and classified systems designs. When appropriate, verify that installing contractors are certified to FM 4991, or to UL Qualified Firestop Contractor Program:
	Building Perimeter Fire Barrier Joint Firestop Systems	Inspected visually or destructively, verifying installation conformance to the classified ASTM E 2307 design parameters as published in directories.	ASTM Standard E 2393-09 Verify certification agency labels and classified systems designs. When appropriate, verify that installing contractors are certified to FM 4991, or to UL Qualified Firestop Contractor Program.

Standards listed in Appendix A are included under Section 1.2 Reference Documents.

¹ Published by International Code Council, Washington, D.C.: www.iccsafe.org

² Published by International Organization for Standardization, Geneva, Switzerland: www.iso.org

³ Published by International Accreditation Service, Whittier, California: www.iasonline.org