

ACCREDITATION CRITERIA FOR SPECIAL INSPECTION AGENCIES

AC291

**September 2019
(Effective January 1, 2020)**

PREFACE

The attached accreditation criteria have been issued to provide all interested parties with guidelines on implementing performance features of the applicable standards referenced herein. The criteria were developed and adopted following public hearings conducted by the International Accreditation Service, Inc. (IAS), Accreditation Committee and are effective on the date shown above. All accreditations issued or reissued on or after the effective date must comply with these criteria. If the criteria are 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. These 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:** These criteria set forth the requirements for obtaining and maintaining International Accreditation Service, Inc. (IAS), Special Inspection Agency accreditation. These criteria supplement the IAS Rules of Procedure for Special Inspection Agencies.

1.2 **References and Normative Documents:** Publications listed below refer to current editions (unless otherwise stated).

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

→ 1.2.2 ISO/IEC Standard 17020, Conformity assessment – Requirements for the operation of various types of bodies performing inspection.

1.2.3 ISO/IEC Standard 17024, Conformity assessment – General requirements for bodies operating certification of persons.

1.2.4 IAS Rules of Procedure for Special Inspection Agency Accreditation.

1.2.5 IAS AC371, Accreditation Criteria for Training Agencies for Workforce Qualification Programs.

1.2.6 IAS AC478, Accreditation Criteria for Inspection Practices of Metal Building Assemblers.

1.2.7 *ICC/IAS Model Program for Special Inspection*

1.2.8 ILAC P10, ILAC Policy on Traceability of Measurement Results.

1.2.9 ILAC P15, Application of ISO/IEC 17020:2012 for the Accreditation of Inspection Bodies.

→ 1.2.10 Publications of the following Standards Development Organizations (SDOs), AAMA, ACI, ASHRAE, AISC, ANSI, ASCE, ASME, ASTM, AWPA, AWS, AWWA, CSA, NHMA, FEMA, NFPA, NHMA, SDI, SJI, SMACNA, TIA, TPI, UL and WDMA may also be used, as applicable.

2.0 DEFINITIONS

Applicable definitions of ISO/IEC Standard 17000 series apply.

2.1 **Approved:** Acceptable to the building official or authorized representative of the local AHJ.

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

| 2.3 **Authority Having Jurisdiction (AHJ)/Authorizing Agency (AA):** An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or procedure.

→ 2.4 **Extending Accreditation:** Process of enlarging the scope of accreditation.

- 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 building code, 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 in the breach of the assembly to extend the fire; smoke or other resistance rating of the assembly at the breach due to penetration by electrical, plumbing or mechanical items tested to ASTM E814/UL 1479, by expansion and construction joints tested to UL 2079/ASTM E1966, and by perimeter joints tested to ASTM E2307 in buildings.
- 2.9 **Intumescent Fire-resistant Coatings:** Thin film liquid mixture applied to substrates by brush, roller, spray or trowel that 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 **Management System Documentation:** Documentation, inclusive of operating process and technical work instructions, such as the inspection procedures/methods/checklists/forms/report templates, etc., on the requirements stated in these criteria (AC291) and ISO/IEC Standard 17020, including policies and objectives for effective implementation at all levels of operation.
- 2.12 **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 criteria.
- 2.13 **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.
- 2.14 **Professional Engineer (P.E.):** An engineer licensed to practice the applicable discipline in the jurisdiction where the project is to be constructed.

- 2.15 **Qualified:** Meeting the minimum requirements of Table 1, unless otherwise determined by the AHJ.
- 2.16 **Registered Architect (R.A.):** An architect licensed to practice the applicable discipline in the jurisdiction where the project is to be constructed.
- 2.17 **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 where the project is to be constructed.
- 2.18 **Scope of Accreditation:** Specific conformity assessment services for which accreditation is sought or has been granted.
- 2.19 **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 *International Building Code* Chapter 17, Section 1702, or the code most currently adopted by the AHJ in the jurisdiction where the project is to be constructed.
- 2.20 **Special Inspection Agency (SIA):** A third-party entity approved by the building official to perform special inspections.
- 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 **Witnessing:** Observation of the approved agency carrying out conformity assessment services within its scope of accreditation.

3.0 ELIGIBILITY

Accreditation services are available to organizations that provide special inspection services

4.0 REQUIRED BASIC INFORMATION

The criteria requirements and documented information that must be submitted by special inspection agencies applying for Special Inspection Agency accreditation are noted below:

Note: An electronic format is preferred.

- 4.1 **Documented Information Submission:** The submission of management system documentation shall comply with all requirements stated in this document – Policy Document complying with each clause/subclause of AC291 listed in this section 4.0, and Inspection Procedure Documents for each category of inspection. This may also include a checklist, a blank form used by the inspector and a reporting template (used to make an inspection report submission), along with the relevant requirements of ISO/IEC Standard 17020:2012 and the building code currently adopted by the AHJ in the jurisdiction where the project is to be

constructed. This includes all additional requirements (technical guides, local laws, bulletins, regulations, directives, executive orders, etc.) promulgated by the AHJ.

4.2 **Legal Status:** The SIA, or the organization of which it forms a part, shall be legally identifiable.

4.3 **Liability Insurance:** The SIA organization or organization of which it forms a part shall provide evidence of liability insurance per contractual requirement or the local requirement enforced by the AHJ.

4.4 **Risk to Impartiality:** The SIA shall identify and document the mechanism and an analysis of perceived risks to impartiality on an on-going basis. Responses to both perceived and actual risks shall be recorded. The SIA shall further consider situations where management, staff and special inspectors experience undue pressure from any source, internal or external, that could influence the results of special inspection, project signoff, contract/quote approval, work scheduling or any other related activity. Such pressures may include: threats, inducements, unreasonable time pressures, bonus/salary schemes, productivity incentives, etc.

4.4.1 Compensation of inspectors must not directly depend on the number of inspections they perform and in no case on the results of such inspections.

4.4.2 A company-wide Ethics Procedure and Conduct shall be documented and implemented.

4.4.3 An affidavit signed by the principal owners/stakeholders of the SIA and acknowledged by all employees whose job responsibilities are related to special inspection functions, attesting to compliance with the third-party requirements described below:

4.4.4 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 personnel, facility, technology or methodology) 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 to allow full access to its services by interested parties. Rules and regulations of the local jurisdiction regarding Special Inspections shall be adhered to in the performance of Special Inspections.

4.5 **Confidentiality:** The SIA shall have a policy that ensures confidentiality of the customer information by the SIA and by any subcontractors, taking into account any relevant legal and statutory requirements. Implementation of Sections 4.4 and 4.5 must provide objective evidence that the SIA personnel have 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.

4.6 **Organization and Independence:** The SIA size, structure and composition shall be suitable for competent performance of the tasks within the SIA's scope. A single person (1 inspector)

agency (SPA) may be accredited provided all relevant requirements of this document are effectively implemented. Categorization of the SIA shall match the requirement of ISO/IEC Standard 17020, Clause 4.1.6 (Type-A, B or C).

The SIA shall maintain an up-to-date organizational chart clearly showing the functions and lines of authority for its staff. Any relationship between special inspections and other activities within the organization shall also be defined. The position of the technical manager (and deputy technical manager) and quality manager (and deputy quality manager) (however named) shall be clearly shown in the chart.

Job descriptions and responsibilities of key personnel shall be defined including:

- 4.6.1 A technical manager (however named) with the necessary qualifications and experience and who has overall responsibility for the technical operations.
- 4.6.2 A quality manager (however named) with the necessary qualifications and experience and who has the responsibility for the management system and its implementation. This person shall have direct access to the highest level of authority within the organization. Necessary qualifications and experience must be sufficient to effectively perform their responsibilities.
- 4.6.3 Field supervisor(s) who is (are) responsible for the results of inspections, and the training and monitoring of 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.
- 4.6.4 Deputies in the absence of technical manager, quality manager and/or field supervisor(s).

Note: The purpose of nominating a deputy is to satisfy the need for competent management in the absence of the manager. In an organization where the absence of a key person causes the cessation of work, the requirement for deputies may be waived. Other positions that could affect the quality of inspection activities, such as manager and inspectors, shall be described.

- 4.7 **Technical Competency of Special Inspectors:** A matrix matching inspector qualifications, certifications and relevant experience to categories in which they are authorized to conduct special inspections, shall be maintained and used for dispatch. Inspector education, certification and relevant documented experience shall satisfy the requirements of the AHJ or Table 1 (if none are specified). The matrix shall include the date of employment and expiration dates for certifications (if any).

IAS shall assess the appropriateness of the competence requirements, education, training, technical knowledge, hands-on skills as demonstrated onsite or by interview onsite or at the office. Personnel found to possess inadequate skills and job knowledge will be expected to undertake training, mentoring or gain additional experience to correct such discrepancies.

The matrix shall also identify staff that are authorized by the SIA to perform technical reviews, final sign off and release of reports, including any additional requirement of the AHJ. SIA staff that are authorized to perform onsite supervision and monitoring and onsite training shall also be identified.

4.8 **Jobsite Safety:** Safety procedures addressing perceived risks in each field of inspection, along with measures for mitigating such unsafe conditions during field inspections and testing, shall be implemented by the SIA. Special conditions applied to each project/installation by local, state and Federal authorities shall be binding.

4.9 **Measuring and Monitoring Resources:** The SIA shall document policies and procedures on equipment maintenance, including equipment used to perform special inspections and/or verify testing under special inspections in the field.

4.9.1 Special inspection agencies shall maintain a list of test and measuring equipment used for conducting special inspections under these 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 (MRA).

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 SIA's responsibility to ensure that such testing equipment is properly calibrated prior to use, specifically when another entity is responsible for supplying or performing tests being witnessed and reviewed for acceptance by the SIA.

4.9.2 The SIA shall have policies and procedures for 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.

4.9.3 All testing and measurement equipment (SIA owned, SIA leased/rented or supplied by others) used at job sites shall be sorted into different categories, depending upon the precision of measurement and complexity of process, as follows:

4.9.3.1 Equipment calibrated by an external source (accredited partner with IAS in an MRA).

4.9.3.2 Equipment for which verification of calibration is done internally by SIA or others.

Verifiable documents shall be readily available before final acceptance of results of tests/measurements.

4.9.3.3 Equipment that does not require ongoing calibration, but verification before use.

4.10 Record and Document Control: All documented information issued to personnel in the SIA as part of the management system documentation shall be reviewed and approved for use by authorized personnel prior to issue. A master list or an equivalent document control procedure (in any form) identifying the current revision status and distribution of documents in the management system shall be established and be readily available to preclude the use of invalid and/or obsolete documents. Records shall be maintained by the SIA for a period specified by the AHJ or a period, as per a contractual requirement, whichever is longer, and shall include, at least the following but not limited to:

- 4.10.1 Legal entity status and AHJ's registration requirement, if any;
- 4.10.2 Human resources record for confidentiality, impartiality and conflict of interest;
- 4.10.3 Liability insurance;
- 4.10.4 Perceived risk analysis and mitigation records;
- 4.10.5 Signed quotes/contracts;
- 4.10.6 Record of inspection schedules/dispatch record;
- 4.10.7 Inspector's competency matrix (for each category of inspection and for contract employees, if any);
- 4.10.8 List of subcontractors (for inspection, testing and calibration, if any);
- 4.10.9 Special inspection reports with discrepancy logs and all resolutions, if any;
- 4.10.10 Calibration record of measuring and monitoring equipment (owned, rented, witnessed and/or supplied by others);
- 4.10.11 Chain of custody of samples (created or supervised), if kept separately;
- 4.10.12 List of controlled documents (including: management system manual, process documents, inspection procedures, worksheets prepared by the inspector, templates and other forms);
- 4.10.13 Internal audit, corrective measures, preventive actions and plans for improvement;
- 4.10.14 Customer complaints with record of resolution;
- 4.10.15 Feedback analysis;
- 4.10.16 Training plan(s) and/or training records;
- 4.10.17 Supervision and monitoring plan for special inspectors, including a report of evaluation.
- 4.10.18 Uniquely identified management system documents generated by the SIA. Such identification shall include: the date of issue and/or revision identification, page numbering, total number of pages, a mark to signify the end of the document and the issuing authority.

4.10.19 Procedures established to describe the process for changing and controlling electronic documents.

4.10.20 Documented policies and procedures on how the SIA shall retain records (electronic record and hard copy record) to have foolproof protection in case of accidental loss (both at facility and remotely).

Note: Some records need not be maintained separately if they are part of, or subparts of, other records.

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.

4.10.21 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.

4.11 Quotation and Contract: Contracts or work orders (RFQ or agreement of similar intent) for special inspections shall ensure a clear and demonstrable understanding between the SIA and its customer (owner or their authorized representative). The scope of the inspection work to be undertaken by the SIA shall be clearly defined and agreed to in writing. Where appropriate each contract or request should be reviewed by the SIA to ensure that:

4.11.1 The SIA has the capability and only conducts work within its area of expertise (manpower and other resources to perform inspection) to meet the customer's requirements,

4.11.2 Contract conditions are agreed to in writing,

4.11.3 Special equipment needs are identified,

4.11.4 Personnel training needs, if any, are identified,

4.11.5 Regulatory and statutory requirements are identified,

4.11.6 Special safety requirements are identified,

4.11.7 The extent of subcontracting arrangements required are identified and communicated,

4.11.8 Documentation needs are identified, report submission schedule/modes are communicated,

4.11.9 The final contract or request accepted by the SIA agrees with the original version that was reviewed,

4.11.10 Perceived risk analysis is done for a specific quote, as applicable,

4.11.11 All records of contract review are retained.

4.11.11.1 For routine or repeat work requests, review may be limited to considerations of time and human resources and an acceptable record in such cases would be a signed acceptance of the contract by an appropriately authorized person.

4.11.11.2 In situations where verbal agreements are acceptable, the SIA should keep a record of all requests and instructions received verbally, dates and the identity of the customer's representative.

4.12 **Sample Handling:** Procedures for the preparation, acquisition, handling and storage of material samples or field-prepared specimens in accordance with applicable codes and/or standards shall be documented by the SIA. Traceability of samples prepared by SIA or other agencies involved in preparation, storage and transportation of samples, must be maintained.

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

4.13 **Outsourced Inspection Services:** Outsourcing part of the SIA's responsibility is permitted only to accredited SIAs (accredited to the same scheme by an accreditation body that is a partner with IAS in an MRA), unless specified otherwise by the AHJ. The outsourced organization (otherwise called subcontractor) must have documentation substantiating that it agrees to operate under the SIA's management system for subcontracting process qualification. A list of current outsourcing resources must be maintained. Accreditation shall not be granted for special inspection categories where the SIA does not have the demonstrated competence or resources required to perform the inspection or when it intends to subcontract the entire special inspection category on a permanent basis.

Contract inspectors, who work under the SIA's system, are not considered to be subcontractors when they perform inspections in the same manner as regular employees, use the SIA's forms and procedures and are managed under the SIA's Management System.

Note: The terms "subcontracting" and "outsourcing" are considered to be synonyms. Logistics services provider for measuring and testing equipment is not considered as a subcontractor.

4.14 **Complaints & Appeal:** Policies and procedures for processing complaints and appeals from clients and regulatory agencies shall be in place and evidence of implementation shall be documented. Records of all complaints and resolutions shall be maintained and evidence of implementation shall be documented.

4.15 **Feedback Collection:** Policies and procedures for client feedback shall be in place and evidence of implementation shall be documented.

Note: Examples of feedback include client satisfaction surveys and review of inspection reports with clients. Jobsite visits or interactions with clients can also generate valuable feedback.

4.16 **Internal Audit:** Policies and procedures for internal audits shall be in place and evidence of implementation shall be documented. Records of internal audits and corrective actions shall be available for review.

Note: For agencies with no additional qualified internal auditors, such internal audits may be performed by an independent individual qualified in conformity assessment.

4.17 **Management Review:** Policies and procedures for management review shall be in place and records of the process shall be available for review. The management review shall, at a minimum, take account of:

- 4.17.1 Internal audit reports;
- 4.17.2 External assessment reports;
- 4.17.3 Complaints from clients;
- 4.17.4 Adequacy of human and equipment resources;
- 4.17.5 Results of client feedback;
- 4.17.6 Training needs;
- 4.17.7 Results of supervision and monitoring activities of inspectors, including verification of inspector's performance related to ethical and impartial behavior;
- 4.17.8 Changes needed in the management system;
- 4.17.9 Perceived risk to impartiality.

4.18 **Status Review and Notification/Reporting Discrepancy:** Policies and procedures shall be in place to notify the building official(s) and registered design professional(s) if corrective actions arising from special inspections remain unresolved. These must be consistent with the building code requirements and those stipulated by the AHJ in the area where the project is to be constructed.

4.19 **Procedures for Dispatching Daily, Intermediate and Final Reports:** Issuance of a final inspection report (sign off documentation or any other applicable contractual deliverable) shall occur only after verification that remaining discrepancies in each special inspection category have been resolved to the satisfaction of the owner or their authorized representative. Evidence of correlation of data shall be made available during onsite assessment.

Note: An example is a sign-off letter that is traced back to all related inspection visits performed, with cumulative compilation of status of closure of discrepancies observed/resolved.

4.20 **Contents and Coverage of Inspection Reports**

- 4.20.1 Inspection reports issued by the SIA shall accurately and clearly present the results of special inspections. Inspection reports shall comply with the reporting requirements of the building code or AHJ's requirements and contain the following minimum information, as applicable: inspection date, and arrival and departure times (or total duration onsite) of the inspector.
- 4.20.2 Information pertaining to review of material records. (Material certification requirements are included, but not limited to those noted, in Appendix A.)
- 4.20.3 Structure/item inspected, including applicable codes, standards, approved construction documents, etc.

- 4.20.4 Results of inspection/tests witnessed or performed.
- 4.20.5 Resolution of any discrepancies noted during previous inspections.
- 4.20.6 Description of samples obtained, if any, including quantity, dimensions and relevant physical characteristics. Samples collected and sent to a test laboratory for evaluation and testing shall have appropriate documents showing an unbroken chain of custody.
- 4.20.7 Identification of measurement and monitoring devices used during inspection and measurement/testing, where results are declared and included as part of the inspection report with attestation.
- 4.20.8 Names and signatures of the inspector and client's representative (if applicable per contract).

4.21 Training

Identification of training needs for each person shall take place at least once per year. This review shall result in documented plans for further training or a statement that no further training is presently required for the individual. Training records should normally be signed by the individual and the reviewer. (If training needs are not signed, they must include the identity of the reviewer and the date and nature of training.) A statement that no further training is needed shall be interpreted as an endorsement, by the organization, of the person's competence in all aspects of their role at the date of the review.

Where records indicate that a member of staff has not maintained current involvement in a particular skill area, the SIA must have documented procedures for managing the progressive reduction of current knowledge, which inevitably results. Procedures must also be in place for providing refresher training where required.

4.22 Supervision/Monitoring of Inspectors

To ensure consistency in inspections and compliance with accreditation requirements, SIAs shall have an effective supervision/monitoring system for their inspectors. The extent, nature and level of supervision/monitoring exercised shall consider the qualifications, experience, training and technical knowledge of the SIA staff and the inspections being undertaken. Regular review of inspection reports by supervisory personnel shall include:

4.22.1 Desk Top Review

- 4.22.1.1 Review of the inspection reports for adequacy and completeness, at periodicity commensurate with project needs, but at least once during each calendar year.
- 4.22.1.2 Technical review by supervisors with the authority and acquired knowledge/expertise in specific area of inspection. For inspections by licensed professionals, the SIA shall determine whether technical reviews are warranted.
- 4.22.1.3 Completeness reviews to ensure all required information is included in the final report prior to its release.

- 4.22.1.4 Competence of the inspector with the SIA's policies, operating procedures and regulatory/statutory requirements to be compiled for specific job responsibility.
- 4.22.1.5 Compliance with requirements imposed by the jurisdiction in which inspections are conducted.
- 4.22.1.6 Review of feedback from the clients (and building department staff, if applicable).

In the event that no inspection activities were performed in a given situation, the supervisor must formally make an attempt to simulate the inspection environment and authorize the inspector to perform inspections on demand.

Note: In case of a single special inspector, random review by peer group or client may be essential, at the discretion of the agency.

Note: In case of inspection performed by a primary inspector and no other equally (at least) qualified personnel are available in the agency, such reports could be self-certified by performing inspector.

4.22.2 Onsite Review

- 4.22.2.1 Review of records maintained of the monitoring of inspectors at least once during their first month of employment.
- 4.22.2.2 Review of records of periodic monitoring of inspectors in the field not less than once every four years for each field of inspection by the SIA. A rolling plan shall be made available at the initial stage of implementation and continuity shall be demonstrated.
- 4.22.2.3 Review of the quality of inspection activities established by the SIA which may include, but are not limited to:
 - 4.22.2.3.1 **Comparison of findings:** Several inspectors (drawn from one or several sites) may inspect an item (either concurrently or over a time interval such that the stability of the inspected item is assured) and the findings are then compared. Comparisons may be numerical or qualitative and a statistical analysis of outcomes may highlight whether the findings from each inspector are satisfactory. Comparison is against the consensus of the group.
 - 4.22.2.3.2 **Measurement audits:** An object of inspection with known reference values or qualities may be used in a manner similar to that described in Section 4.22.2.3.1 above. The extent of variance between the reported results from the inspector and the reference value/quality may be used as a performance valuation tool.
 - 4.22.2.3.3 **Technical witnessing:** An inspector may observe another inspector during an inspection, to confirm the coverage and application of judgment. This technique is frequently used as a measure of the effectiveness of training.

- 4.22.3 **Authorization and Identification of Special Inspectors:** Documentation of the start date of authorization of each special inspector.

5.0 ADDITIONAL INFORMATION (AS APPLICABLE)

Minimum Qualifications for Special Inspectors

Qualification requirements for special inspectors are as specified in Table 1, unless otherwise stipulated by the AHJ/Scheme Owner. Where professional licensing is NOT a local AHJ requirement to perform duties, other equivalent education, qualification and professional experience shall be considered as equivalent, as determined in the Table and application for specified economy or AHJ only. Similarly, where relevant personnel certification courses are not available in the economy (or web-based certification programs are not available), other equivalent personnel certification shall be applied based on relevant and AHJ/Scheme Owner's requirement.

6.0 LINKS TO ADDITIONAL REFERENCES

- 6.1 Asia Pacific Accreditation Cooperation – www.apac-accreditation.org
- 6.2. International Laboratory Accreditation Cooperation – www.ilac.org
- 6.3. International Organization for Standardization – www.iso.org
- 6.4. International Electrotechnical Commission – www.iec.ch
- 6.5. International Accreditation Service – www.iasonline.org
- 6.6 International Code Council – www.iccsafe.org

These criteria were previously issued: January 2005 as Requirements; May 2005, August 2006, May 2007, April 2008, September 2008, October 2009, May 2010, April 2011, October 2011, August 2012, June 2013, February 2016, August 2016 and September 2017.

CREDENTIAL REQUIREMENT FOR SPECIAL INSPECTORS
(where AHJ/AA does not prescribe a specific requirement)

Professional License: A professional engineering or architecture license issued by any of the State Licensing Boards within the U.S. (only applicable to a U.S. domiciled agency). Professional Credentials from other countries may be accepted on a case-by-case basis upon establishment of technical equivalency to licenses issued by U.S. entities.

Recognized Education: The following degreed programs are acceptable (ABET recognition is NOT criteria unless the AHJ/AA wants it mandated in written law/regulation/bulletin or similar other statement):

Engineering Degree: An engineering degree (four or more years) which results in a Bachelor of Science designation from a post-secondary institution accredited by accredited agencies or state approval agencies recognized by the U.S. Secretary of Education.

Architecture Degree: An architecture degree which results in a Bachelor of Architecture designation from a post-secondary institution accredited by accredited agencies or state approval agencies recognized by the U.S. Secretary of Education.

Any other Technical Degree from another Economy: Professional credentials from other countries may be accepted on a case-by-case basis upon establishment of technical equivalency to licenses issued by U.S. entities.

Demonstrable Experience: To qualify as a special inspector based on experience, an inspector needs to demonstrate to the assessor that his/her knowledge and experience are relevant to the inspection tasks being performed.

The following are used as an acceptable means:

- Self-maintenance of a log of national certifications from a third-party training service provider; example: FCIA, IFC, AWS, ICC.
- An inspector is expected to demonstrate skill-based, hands-on competence to the satisfaction of the assessor(s) at the site or similar environment.

Training and Certification

In-house Training: Documented in-house training **could be** considered, provided it includes structured class room or semi-structured web-based training followed by an individual evaluation of skills acquired. Class room/web-based instruction, onsite instruction, and hands-on training by supervisors/qualified inspectors, as determined by each SIA management could be accepted subject to compliance with AHJ/AA requirements.

Documentation shall include project or location of training, type of training, name and signature of training service (name of individual with identity, name of organization may not be sufficient, if no accreditation status could be verified) who provided such training, topics discussed, areas inspected, and other necessary information. The documentation of the in-house training shall be signed by the participant and the instructor(s).

IAS Recognized Certification/Training: Certifications from the following third-party training service and certification service providers (both ISO/IEC 17024 accredited and otherwise) are recognized for special inspection, subject to approval from the respective AHJ/AA:

- **AABC (Air Balance Testing/Mechanical/smoke Control, Stairwell Pressurization):** Certified Test and Balance Technician (AABC-CTBT), Test and Balance Engineer (AABC-TBE)
- **ACG (Air Balance Testing):** Certified Commissioning Technician CxT (ACG-CCT), and Commissioning Authority CxA (ACG-CA)
- **ACI (Concrete):** Field personnel, ACI Concrete Construction Special Inspector (ACI-CCSI)

- **ACI (Concrete and Masonry):** Field personnel: ACI Field Testing Technician-Grade I (ACI-I-F).
- **ACI-CRSI (Adhesive Anchors):** Adhesive Anchor Installer (ACI-CRSI)
- **ACIL:** Construction Materials Engineering and Testing Section Soil Testing Technician Certification
- **ASNT (Structural Steel: Non-Destructive Testing):** NDT II (Radiographic Testing, RT; Magnetic Particle Testing, MT; Liquid Penetrant Testing, PT; and Ultrasonic Testing, UT) qualified in accordance with American Society of Nondestructive Testing (ASNT) document SNT-TC-1A (current edition). NDT III (RT, MT, PT, and UT) certified by ASNT. In-house certification of NDT II is acceptable. In-house certification of NDT III is not acceptable. Program qualification to other documents will be considered on a case-by-case basis
- **AWCI (Exterior Wall System):** Exterior Insulated Finish System Inspector (EIFS-I)
- **AWS (Structural Steel: Welding):** CWI, according to AWS guidelines or CSA Standard W178.2; SCWI according to AWS guidelines
- **CSWIP as administered by TWI Certification Ltd:** For Welding Inspectors
- **FCIA Training Program to FCIA Manual of Practice, (MOP):** The Firestop Standard – The FCIA Firestop Industry Manual of Practice, developed to be the basis for the FM 4991 Approved Firestop Contractor and UL Qualified Firestop Contractor Exam. Once a person passes the exam and is employed / appointed by an FM 4991 Approved or UL Qualified Firestop Contractor they become a Designated Responsible Individual (DRI)
- **FM:** A certification for fire penetration inspectors issued by FM Global
- **ICC (Concrete, Masonry, Structural Steel & Welding, Fireproofing, Soils, and Building):** Reinforced Concrete Special Inspector (47); Pre-stressed Concrete Special Inspector (92); Structural Masonry Special Inspector (84); Structural Steel and Bolting Special Inspector (S1); Structural Welding Special Inspector (S2); Soil Special Inspector (EC); Spray-applied Fireproofing Special Inspector (86)
- **NEBB:** National Environmental Balancing Bureau
- **NFPA (Smoke Control):** Certified Fire Protection Specialist (CFPS) or Certified Fire Inspector (CFI) to NFPA 1031
- **NICET (Earthwork, Shallow Foundations, and Deep Foundations):** Field Personnel, Geotechnical Engineering Technology-Construction Subfield Levels I, II, III, and IV (N-I-GET, N-II-GET, N-III-GET, and N-IV-GET). Laboratory Personnel, Construction Materials Testing-Soils Subfield levels I, II, III, and IV (N-I-CMT, N-II-CMT, N-III-CMT, and N-IV-CMT)
- **NICET (Smoke-Control /Fire Protection):** Level II in; Fire Protection Engineering Technology, Water Based Fire Protection Systems Layout Subfield (N-II-FPSL); Fire Alarm Systems Subfield (N-II-FPFA), Inspection and Testing of Water Based Systems Subfield (N-II-FPIT), and Special Hazards Suppression Systems Subfield (N-II-FPSHS)
- **NPCA (National Precast Concrete Association):** As applicable
- **Portland Cement Association (PCA):** As Applicable
- **PTI (Concrete):** Level 2 Unbonded Post-Tensioning Inspector (PTI-L2)
- **TABB (Air Balance Testing):** Certified Technician (TABB-CT), Supervisor (TABB-S)

AHJ/AA – Authority Having Jurisdiction/Authorizing Authority

Table 1 — Minimum Acceptable Technical Competency for a Special Inspector
(the below table shall be used in absence of any specified requirement by AHJ/AA)

No.	Special Inspection Category	Required Certification(s)
1	Reinforced Concrete	ICC Reinforced Concrete Special Inspector (SI) or ACI Concrete Construction Special Inspector
2	Concrete Construction (Pre-stressed/Precast)	ICC Pre-stressed SI and ICC Reinforced Concrete SI
3	Soils	ICC Soils SI (ICC-EC) or NICET II (geotechnical or construction or construction material testing or soils)
4	Masonry	ICC Structural Masonry SI
5	Structural Steel (Welding), High-Pressure Steam Piping (Welding), Gas Piping (Welding), Hot Water Piping (Welding)	AWS CWI or ICC Structural Welding SI, CSWIP (WI 6/92 where admissible)
6	Nondestructive Testing (NDT) (All applicable Methods)	Hours of field experience as per -CP-189 NDT or SNT-TC-1a NDT, or ACCP or equivalent
7	Structural Cold-formed Steel	ICC Commercial Building Inspector or ICC Residential Building Inspector
8	Steel (High-Strength Bolting)	ICC Structural Steel and Bolting SI
9	Post-Installed Structural Anchors in Concrete	ICC Reinforced Concrete SI or ACI Concrete Construction SI
10	Structural Safety - Stability and Mechanical Demolition, Underpinning, Excavation - Sheet piling, Shoring, and Bracing	RDP, PE, or BS Engineering / Architecture where licensing is not practiced or Valid Site Safety Manager Certification. NICET II (geotechnical or construction or construction material testing or soils)
11	Seismic Isolation Systems	RDP, PE, or BS Engineering with Civil/Structural, where licensing is not practiced
12	Pier and Pile Foundations	NICET II (geotechnical or construction or construction material testing or soils)
13	Wood Construction	ICC Commercial Building Inspector or ICC Residential Building Inspector
14	Wall Panels, Curtain Walls, and Veneers	ICC Commercial Building Inspector or ICC Residential Building Inspector
15	Chimneys	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector
16	Smoke Control Systems	AABC, NEBB or other equivalent Balancing Technician Certification for personnel, and if subcontracted NEEB/AABC or another equivalent accreditation for agency subcontractor
17	Mechanical Systems	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector
18	Heating Systems	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector
19	Fuel-oil Storage and Piping Systems	ICC Commercial Mechanical Inspector or ICC Residential Mechanical Inspector or API Aboveground Storage Tank Inspector

20	Spray-applied Fire-resistant Materials / Intumescent Fire-resistant Coatings / Mastic Fire-resistant Coatings	ICC Spray-Applied Fireproofing SI or ICC Fire Inspector I or Certified Fire Inspector (NFPA 1031, where admissible)
21	Firestop Systems	UL Firestop Examination or FM Firestop Examination or IFC Firestop Special Inspector Examination
22	Sprinkler Systems	ICC Commercial Building Inspector or ICC Residential Building Inspector, or ICC Fire Inspector I or Certified Fire Inspector (NFPA 1031, where admissible)
23	Standpipe Systems	ICC Commercial Building Inspector or ICC Residential Building Inspector, or ICC Fire Inspector I or Certified Fire Inspector (NFPA 1031, where admissible)
24	Exterior Insulation and Finish Systems (EIFS)	AWCI EIFS Inspector
25	Site Storm Drainage Disposal and Detention/Retention System	ICC Soils SI or NICET II (geotechnical or construction or construction material testing or soils)
26	Façade Inspection, as per Owner's Contract Provision or AHJ Requirement	ICC Commercial Building Inspector or ICC Residential Building Inspector, having 5 years of experience in high-rise building construction/maintenance/restoration/ design/engineering, inspection or as per provision of AHJ. Conversant with ASTM E2270 and ASTM E2841 and the following: <ul style="list-style-type: none"> • Factors relevant to historic buildings • Investigation end data collection techniques • Material and repair techniques
27	Metal Building Assembly Inspection	<ul style="list-style-type: none"> • OSHA 10 certificate for employees with more than one year of experience; and Metal Buildings Institute Quality and Craftsmanship Training Series or Ironworker Quality Construction Practices Metal Building Systems training
28	Special Cases	ICC Commercial Building Inspector or ICC Residential Building Inspector

Note(s): Required Minimum Educational Qualification and Required Relevant Experience

1. When qualifications for special inspectors are locally defined by statute, ordinance or rule, and vary from the requirements outlined in these criteria, these local requirements may be recognized for work within the Authorizing AHJ.
2. Professional Development of Special Inspectors requires those individuals to obtain onsite experience performing inspections of actual work to acquire the skills, under supervision and the duration of such training varies with time spent on actual inspection tasks. SIAs need to have defined their own written Professional Development Program to use apprentice/provisional inspectors and will limit their use based upon the level of supervision and the complexity of the special inspection assignment. The complexity of an assignment for newer inspectors should be minimal and task specific. All documents related to work by an associate or apprentice inspector must be co-signed by a qualified special inspector. The written program documentation must establish compliance with the program.
3. An Apprentice Special Inspector having higher educational degree (masters degree, earned PhD, having relevance of subject matters) could reduce the number of years of experience before becoming fully qualified and authorized to perform independent work. A masters degree or an earned PhD may reduce the numbers of years of experience by 1 and 2 years, respectively.
4. Special Inspection Agency shall comply with one of the following education and experience requirements, unless stipulated by the AHJ with an additional requirement(s):

- a. Professional Engineer (P.E.), licensed Architect, or Registered Design Professional (RDP) and a minimum of three months of relevant work experience; or
 - b. 4 Years of verified Bachelor of Science Degree (BS) in Engineering, Architecture, or Physical Science and a minimum of six months of relevant work experience; where licensing is not practiced, minimum experience period may be extended at the discretion of the AHJ; 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 two years structural design/engineering experience, or a minimum of two years in manufacturing/testing
 - f. A minimum of three years of verified relevant work experience.
5. RDPs, PEs, or RAs are exempt from *Required Certification(s)* listed in Table 1 above unless required by AHJ, but are subject to following:
- a. Onsite assessment of competence during assessment, and
 - b. Objective evidence of professional development hours (PDH) in relevant category of inspection specific discipline.

Where licensing is not practiced, Bachelor of Science Degree (BS) in Engineering, Architecture, or Physical Science shall be used as equivalent educational need. ■

■APPENDIX A — Material Certifications

(Standards listed in Appendix A are Reference Documents; typical reference and other equivalent National standards or norms referenced in contract shall be binding)

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 C33 and C330 yearly compliance submittal, sample and test
	Fine Aggregate		ASTM Standards C33 and C330 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
	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

ELEMENT	MATERIAL	PRESENT PRACTICE	ADDITIONAL REQUIREMENTS
	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 onsite storage	Match delivery information with certificate of compliance
Firestop Systems	Penetration Firestop Systems	Visual or destructive inspection to ASTM E2174-05, verifying installation conformance to classified ASTM E814 or UL 1479 design parameters as published in directories	ASTM Standard E2174 10ae1 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 E1966 System Design parameters as published in directories	ASTM Standard E2393 10a 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 E2307 design parameters as published in directories	ASTM Standard E2393 10a 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.