

SPECIAL INSPECTION MANUAL

INTRODUCTION

The purpose of this manual is to provide local building officials, special inspection agencies, engineers, architects, and project owners with guidelines for the use of Chapter 17 of the International Building Code (IBC) in South Carolina. The manual briefly describes the types of projects that require special inspections, the procedure for reporting special inspections, and the minimum qualifications of special inspectors. It defines the duties and responsibilities of the project owner, architect or engineer of record, special inspector and general contractor regarding special inspections.

The Special Inspection Manual in no way relieves any participant from the proper performance of work according to contracts, plans, specifications and applicable building and safety codes.

Individuals offering Special Inspection services for projects and fabrication located in South Carolina shall be licensed or registered by either; the South Carolina Building Codes Council, South Carolina Board of Architectural Examiners or the South Carolina Board of Professional Engineers and Land Surveyors in accordance with South Carolina Code of Laws.

Any questions or correspondence regarding special inspections should be directed to the building official for the jurisdiction in which the project will be located.

TABLE OF CONTENTS

| | |
|--|----|
| CHAPTER 1 – DEFINITIONS | 3 |
| CHAPTER 2 – PERMIT REQUIREMENTS | 4 |
| CHAPTER 3 – ITEMS REQUIRING SPECIAL INSPECTION | 5 |
| CHAPTER 4 - QUALIFICATION OF SPECIAL INSPECTORS | 7 |
| CHAPTER 5 –SPECIAL INSPECTION PROCEDURAL REQUIREMENTS | 10 |
| CHAPTER 6 - REINFORCED CONCRETE AND PRESTRESSED CONCRETE | 11 |
| CHAPTER 7 - PRECAST CONCRETE | 13 |
| CHAPTER 8 - SOILS, EXCAVATION, FILLING, DRILLED PIERS, PILING, EARTH RETAINING STRUCTURES AND DETENTION BASIN | 14 |
| CHAPTER 9 - STRUCTURAL STEEL AND SPRAYED FIRE RESISTANT MATERIALS | 16 |
| CHAPTER 10 - SPRAYED FIRE RESISTANT MATERIAL | 18 |
| CHAPTER 11 - STRUCTURAL MASONRY | 18 |
| CHAPTER 12 - SEISMIC RESISTANCE | 19 |
| CHAPTER 13 - EXTERIOR INSULATION AND FINISH SYSTEMS | 20 |
| CHAPTER 14 - SMOKE CONTROL | 21 |

CHAPTER 1 DEFINITIONS

For the purposes of this document, the following words and terms shall have the meanings shown herein.

Approved Plans. Plans approved by the building official in conjunction with the issuance of a building permit.

Approved Special Inspector. An individual licensed or registered by the Building Codes Council, South Carolina Board of Architectural Examiners or the South Carolina Board of Professional Engineers and Land Surveyors and identified on the Approved Special Inspector Registry.

Approved Special Inspector Registry. A list maintained by the Building Codes Council, identifying special inspectors meeting the requirements identified in Chapter 4 of this document.

Architect of Record. An architect licensed in the state of South Carolina, acting in behalf of the owner.

Engineer of Record. An engineer licensed in the state of South Carolina, acting in behalf of the owner.

CHAPTER 2 PERMIT REQUIREMENTS

Project Submittal

When special inspections will be required for a construction project, a completed Required Special Inspection Form shall be prepared by the architect or engineer of record and submitted with the building permit application. All special inspections required by the International Building Code (IBC) and additional inspections recommended by the designer of record shall be identified on this form. The Special Inspection Form shall also include the names of special inspectors who will perform special inspections for the project and each special inspectors SC registration number.

Special Inspections

When special inspections are required by the IBC, the project owner or his designated architect or engineer of record shall retain the services of a qualified special inspector to test the work indicated by the Special Inspection Plan. Under no circumstances shall these services be provided by a special inspector retained or engaged by the general contractor or any of its subcontractors. Prior to the issuance of a building permit, the approved inspector shall submit a letter to the building official that:

- (A) States the project name, address and control number; and,
- (B) Identifies the work for which he or she has formally been retained, by the project owner, to inspect and/or test.

Approved Fabricators

When components are fabricated at the facility of an approved fabricator, shop inspections are not required. The approved fabricator shall submit the following items to the building official prior to the issuance of a building permit:

- (A) a copy of its current certification; and,
- (B) a letter stating;
 - (1) the name of the fabricator;
 - (2) the address of the fabricator;
 - (3) the control number for the project;
 - (4) the fabricator's file number; and,
 - (5) that upon completion of the fabrication, a Certificate of Compliance will be submitted stating that the fabrication work was performed in accordance with the approved plans, shop drawings and specifications.

A final Certificate of Occupancy should not be issued until a completed Certificate of Compliance has been provided to the building official. The list of organizations approved to certify fabricators shall be maintained by the building official

Plan Submission

When a project's approved plans do not provide the special inspector with the details or information necessary to perform a proper inspection, supplemental documents shall be submitted. The general contractor shall provide one (1) set of the project shop drawings or erection plans to the building official and an additional set at the job site. All drawings shall be marked as approved by the architect or engineer of record for compliance with the design concepts prior to being submitted to the building official.

CHAPTER 3

ITEMS REQUIRING SPECIAL INSPECTION

The requirements for special inspections outlined in this manual shall apply to the following buildings and building elements.

Exceptions

(A) Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.

(B) Special inspections are not required for building components unless the design involves the practice of professional engineering or architecture as defined by applicable state statutes and regulations governing the professional registration and certification of engineers or architects.

(C) Unless otherwise required by the building official, special inspections are not required for occupancies in Group R-3 and occupancies in Group U that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1 of the IBC.

Excavation and Fill

Excavation

All excavations with slopes exceeding those permitted by Section 3304.1 of the IBC.

Fill

All fill greater than 1 foot in depth within the footprint of a structure or within the zone of influence of the structure's foundation; or, for a development consisting strictly of detached one and two family dwellings, where fill is used to support foundations of any building or structure.

Soils and Foundations

Deep foundations

Driven or bored pile foundation systems.

Shallow footings and foundations

All shallow footings and foundations except:

(A) light frame buildings or structures of three stories or less in height involving only continuous or spread footings that meet the requirements of Section 1704.4 of the IBC (unless located at a reduced setback to a slope in accordance with Section 1805.3.5 of the IBC); and,

(B) concrete foundation walls constructed in accordance with Table 1805.5, 1 – 4 of the IBC.

Soils Verification

In addition to the foundations specified above, verification of soil conditions for structures with design soil bearing values in excess of 2000 pounds per square foot or where the structure bears on fill material.

Earth Retaining Structure

Retaining structure for deep excavation

Any slope-retention system (permanent or temporary) for excavations over 12 feet deep.

Retaining walls

Any retaining wall that is:

(A) Over six (6) feet in height measured from grade on the low side of the wall; or,

(B) Supporting surcharge or impounding flammable liquids.

Detention Basin

All detention basins, except where constructed and inspected under a permit issued by a federal, state or local government entity.

Concrete Frame

All reinforced concrete, including prestressed concrete and post-tension slabs except for a slab-on-grade with effective prestress of less than 150 psi.

Steel Frame

All structural steel, including open web joists, bracing and stiffening members, and connections of high-strength bolts or welds (structural, metal deck, shear stud, and metal stud).

Structural Masonry

All masonry construction, except as exempted by Section 1704.5 of the IBC.

Sprayed Fire-resistant Materials

All spray-applied fire resistant materials.

Exterior Insulation and Finish System (EIFS)

All EIFS applications except for applications over water-resistive barriers or over masonry or concrete walls.

Smoke Control

Smoke control systems.

Seismic Resistance For Seismic Design Category of 'C' or higher, special inspections shall be provided, in addition to those specified in Sections 1705, 1708, and 1709, for portions of the seismic resistance systems.

Inspection of Fabricators

All fabrication of structural load-bearing members and assemblies, including wood trusses, metal buildings, precast concrete, bar joists, and structural steel, shall have special inspections during fabrication except where the work is done on the premises of a certified facility in accordance with the IBC.

Special Cases

Special cases or construction that, in the opinion of the building official, involves unusual hazards or conditions.

CHAPTER 4

QUALIFICATION OF SPECIAL INSPECTORS

Any individual offering to perform special inspections or testing shall submit a registration or license issued by the South Carolina Building Codes Council, the South Carolina Board of Architectural Examiners or the South Carolina Board of Professional Engineers and Land Surveyors, for approval by the building official.

Except for professional engineers and architects registered in the State of South Carolina, special inspectors shall meet the following criteria. Work experience shall be related to the field for which the inspector is being qualified and may be obtained by for an engineering firm specializing in the field in which registration is being sought.

An individual shall meet a minimum of one of the requirements identified bellow, for each category in which approval is sought.

Reinforced Concrete (RC)

- (A) Current International Code Council (ICC) Reinforced Concrete Special Inspector, or,
- (B) Engineer in Training (EIT) with one year related experience under supervision of a Licensed PE

Prestressed Concrete (PC)

Pretension tendons (PC1)

- (A) Current ICC Prestressed Concrete Special Inspector Certification
- (B) EIT with one year related experience including plan reading under supervision of a Licensed PE

Post-tension tendons (PC2)

- (A) Current Post-Tensioning Institute (PTI) Certification Level 1

Post-Tension Slabs-on-Ground (PTS)

- (A) Current PTI Certification Level 1

Welding (SW)

- (A) Current American Welding Society (AWS) Certified Welding Inspector
- (B) Current Canadian Welding Bureau Certified Welding Inspector

Nondestructive Testing of Welds (SN)

Nondestructive Testing of Welds (SN)

- (A) Current Nondestructive Testing Level II and/or Level III (MT, PT & UT)
 - (1) The applicant must be Level II certified by the American Society of Nondestructive Testing (ASNT) to perform Magnetic Particle Testing (MT) Liquid Penetrant Testing (PT) and Ultrasonic Testing (UT), or
 - (2) The applicant must be Level II certified by an ASNT Level III examiner to perform MT, PT and UT.
 - The Level III examiner shall be certified by ASNT and must submit a copy of his certification with the Level II certification.

High-Strength Bolting/ Steel Frame (SS)

(A) Current ICC Structural Steel and Bolting Special Inspector

Structural Masonry (SM)

(A) EIT with one year related experience including plan reading under supervision of a Licensed PE

(B) Current ICC Structural Masonry Special Inspection

Sprayed Fire-Resistant Materials (FP)

(A) Current ICC Spray-Applied Fireproofing Special Inspector

Deep Foundations(PDP)

(A) Current National Institute for Certification in Engineering Technologies (NICET) Level II certification in geotechnical engineering technology/construction

(B) EIT with one year related experience under supervision of a Licensed PE

(C) Current SCDOT Foundation Inspector Certification

Excavation and Filling (EF)/Verification of Soils (VS)

(A) Current NICET Level II certification in geotechnical engineering technology/construction

(B) Current NICET Level II in Soils

(C) EIT with one year related experience under supervision of a Licensed PE

(D) Soils Special Inspector

(E) Current SCDOT Earthwork, Drainage and Base Certification

Modular Retaining Walls (MRW)

(A) EIT with one year related experience under supervision of a Licensed PE

Precast Concrete Erection (PCE) (Not a separate registration)

The special inspector shall be registered for Reinforced Concrete (RC) or Welding (SW) as required based on the type of inspection being performed.

Exterior Insulation and Finish System (EIFS)

(A)EIT with one year related experience

Smoke Control (SC)

(A) Current NICET N-II-FPAS

(B) Current NICET N-II-FPFA

(C) Current National Environmental Balancing Bureau

(D) Current Associated Air Balance Council

Inspection of Fabricators

Precast

(A) Current ICC Reinforced Concrete Certification

(B) Precast/Prestressed Concrete Institute Level II

Bar Joist

See welding/bolting requirements

Metal Building

See welding/bolting requirements

Structural Steel

See welding/bolting requirements

Lateral Force Resistance (SR)

(A) EIT with two years related experience under supervision of a Licensed PE

Detention Basin (DB)

(A) Professional land surveyor

(B) EIT with two years related experience under supervision of a Licensed PE

Special Cases (XX)

BCC registration is limited to categories listed above. Special inspectors for special cases shall be approved by the jurisdictional building official.

CHAPTER 5
SPECIAL INSPECTION PROCEDURAL REQUIREMENTS

(A) The general contractor shall provide copies of approved plans, specifications and shop drawings to the special inspector prior to the start of the affected work.

(B) The special inspector shall review the approved plans, specifications and shop drawings in advance of construction to establish that adequate information is available to conduct the required inspections and tests. All errors or omissions in the reviewed plans that create any form of uncertainty or ambiguity shall be resolved through the architect or engineer of record.

(C) The general contractor shall notify the special inspector when work is ready for inspection. A minimum notice of 24-hours shall be provided to the special inspector. The general contractor shall provide access to and means for safe and proper inspection of the work.

(D) It is the responsibility of the general contractor and the special inspector to verify that all work requiring special inspections is inspected and/or tested prior to concealment.

(E) Special Inspectors shall be retained by the project owner or the Designer of Record.

(F) After each inspection, the special inspector shall complete a Special Inspector's Daily Report form and give it to the general contractor. Any discrepancy shall be brought to the immediate attention of the general contractor and noted on the Daily Report form.

(G) The general contractor shall provide a place on-site for the special inspector's daily reports and discrepancy log. The documents shall be located in a conspicuous place in the project office to allow review by the building official.

(H) The special inspector shall submit a report to the building official and the architect or engineer of record weekly until all work requiring special inspections is complete. Weekly reports shall include the following:

- (1)** a summary of the work performed during the reporting time frame;
- (2)** discrepancies or differences with the approved drawings or specifications that were observed during the reporting period;
- (3)** discrepancies that were resolved or corrected;
- (4)** a list of discrepancies requiring resolution; and,
- (5)** all applicable test results.

(I) When the work requiring special inspections is completed and all discrepancies have been resolved, the special inspector shall submit a Completion Report to the building official, the architect or engineer of record and general contractor.

CHAPTER 6

REINFORCED CONCRETE AND PRESTRESSED CONCRETE

Placement of Reinforced Concrete

A special inspector shall be on-site during the placement of reinforced concrete. The inspector shall provide a continuous inspection of the conveying, depositing, and consolidation of concrete, for conformance with the approved plans, specifications and Chapter 19 of the IBC. The special inspector shall observe placement procedures for evidence of segregation, possible cold joints, displacement of reinforcing or forms, and proper support of embedded items, anchor bolts, etc. When the inspector cannot observe the point of deposit of concrete, additional personnel shall be obtained.

Concrete delivery tickets shall be reviewed by the special inspector to verify that the class of concrete ordered is being delivered and conforms to project plans, specifications and code requirements.

Testing of Reinforced Concrete

For each class of concrete placed each day, the special inspector shall obtain a sample for strength tests at the frequency stated in the IBC or approved specifications. A strength test shall be the average of the strengths of two cylinders, made from the same sample of concrete, laboratory cured, and tested at 28 days. Additional cylinders shall be cast if any changes in the mix consistency are noted or when directed by the architect or engineer of record. Concrete test cylinders shall be cast, stored and tested in accordance with Chapter 19 of the IBC. If the strength test of cylinders falls below the specified compressive strength by more than 500 psi, the special inspector shall notify the general contractor and engineer of record immediately so remedial action can be taken in accordance with of the IBC.

Slump, air-content, and temperature tests shall be conducted when strength specimens are made or at the option of the inspector as often as necessary for control checks. All other concrete testing shall be conducted as stated in the project specification and per ASTM Standards.

Bolts Installed in Concrete

An inspection is required prior to and during the placement of concrete around bolts. The special inspector shall verify that the bolt size, location and embedment length are in conformance with the approved plans, specifications and shop drawings. Locations will be noted for documentation and identification purposes, but special inspectors will not be responsible for precision placement or verifying precision placement of bolts and anchors.

Placement of Reinforcing Steel

Prior to the closing of forms or the delivery of concrete to the job site, the special inspector shall verify that the reinforcing steel is in conformance with the approved plans, specifications and shop drawings and Chapter 19 of the IBC. The special inspector shall confirm that the reinforcing steel is of correct size and grade and ensure that the proper spacing, clearances, splice lengths and embedded items have been provided. All reinforcing steel shall be in place prior to the placement of concrete and shall be secured against displacement.

Prestressing Steel, Prestressed and Post-Tension Tendons

Prior to the placement of concrete, the special inspector shall verify that the prestressing steel has the proper chair heights, tendon profiles, clearances, and steel anchorage as detailed in the approved plans, specifications and shop drawings.

The special inspector shall be present during the entire stressing and grouting operation. The steel tendons shall be stressed, with a calibrated stressing ram, at the specified strength, using the procedure approved by the engineer of record. The special inspector shall calibrate or review current calibration data on the proposed stressing equipment and verify that the concrete meets the minimum required compressive strength prior to post-tensioning.

Post-Tension-Slabs-on-Ground

Slab-on-ground, mat or raft foundations on expansive soils shall be inspected in accordance with WRI/CRSI Design of Slab-on-Ground Foundations or PTI Design and Construction of Post-Tensioned Slabs-On-Ground.

CHAPTER 7 PRECAST CONCRETE

Inspection of Fabricator

The following nationally recognized organizations are currently approved by the Building Codes Council to provide certification of fabricators:

- (A) International Code Council,
- (B) Precast/Prestressed Concrete Institute,
- (C) Architectural Precast Association.

When precast concrete is fabricated in a plant that is not certified by a nationally recognized organization, in-plant inspection is required as follows.

The special inspector shall provide in-plant inspections during the fabrication of precast for compliance with the approved plans, specifications and shop drawings. Each precast member shall be inspected for proper form dimension, reinforcing steel, prestressing tendons, embeds and lifting devices prior to concrete placement. It is the fabricator's responsibility to notify the special inspector prior to concrete placement and to have the required plans on-site for the inspection.

The special inspector shall monitor the placement of concrete during casting and obtain samples for strength tests as required by project specifications. Concrete compressive strength results and stressing data shall be recorded for each member and submitted with the Special Inspection Report.

Erection of Precast Concrete

Erected precast concrete members shall be inspected for compliance with the approved erection drawings. The special inspector shall verify proper member location and that no cracking, chipping or marring has occurred during the shipment and erection. Any modifications or damage to precast members shall be reported as a discrepancy and brought to the attention of the precast design engineer of record and project architect or engineer of record.

Precast connections shall be inspected for conformance with the approved plans and precast erection drawings. Connections that deviate from the plans due to field modifications or misalignment shall be reported as a discrepancy and addressed by the precast design professional and architect or engineer of record.

CHAPTER 8

SOILS, EXCAVATION, FILLING, DRILLED PIERS, PILING, EARTH RETAINING STRUCTURES AND DETENTION BASIN

Verification of Soils

The subgrade supporting the footings of buildings or structures shall be inspected immediately prior to the placement of reinforced concrete. The special inspector shall observe and test all footing excavations to verify conformance with approved plans and/or geotechnical engineer's report. The foundation shall be of proper size and depth and free of any loose, deleterious or foreign material.

Where unsuitable bearing conditions are observed, the geotechnical engineer of record and/or the project engineer of record shall be notified immediately so that remedial procedures can be established.

Excavation and Filling

For excavation and fill, a special inspector shall monitor the operations for conformance with the approved plans and/or geotechnical engineer's report.

Note: The approved plans and specifications shall govern if the recommendations of the geotechnical report do not match the approved plans and specifications.

During the placement of engineered structural fill, the special inspector shall provide sufficient observation to verify that the preparation of the natural ground and placement of compacted fill is being performed in accordance with the approved plans and specifications.

The special inspector shall monitor the placement of each lift of structural fill supporting the foundation of any structure. The special inspector shall monitor and test fill to determine whether the type of material, moisture content and degree of compaction are within the recommended limits set forth by the approved plans and specifications.

Drilled Piers and Piles (Deep Foundations)

A special inspector shall be on-site during the construction of driven or bored pile foundations systems. Work shall be in accordance with the approved drawings and as specified by the geotechnical engineer of record.

Earth Retaining Structures

Any slope retention system designed to resist active earth pressure shall have special inspections. The special inspector shall perform the necessary inspections and tests to ensure the system is installed per the approved plans and specifications.

Earth retaining structures (modular, stacked stone, concrete) shall be installed in accordance with plans and specifications prepared by a registered design professional in accordance with the geotechnical exploration and results of the global stability analysis. For modular retaining walls, each lift of backfill and each grid shall be inspected.

After a temporary earth-retaining structure is installed, a biweekly inspection shall be made throughout the life of the project to verify the system is performing as intended and no changes have occurred.

Detention Basin

After a storm water detention basin is constructed, it shall be inspected for conformance with the approved plans. The special inspector shall survey the basin to verify that the proper finish grade elevations have been obtained and if orifice plates, pipe screens or erosion control systems are detailed, that they are installed as per the plans.

CHAPTER 9 STRUCTURAL STEEL

Field Welding of Structural Steel

Special inspections are required for the welding of structural members or connections for compliance with the approved plans, shop drawings, specifications and Chapter 22 of the IBC. The special inspector shall provide a continuous inspection of, structural welding unless the requirements of the IBC are satisfied, thus allowing periodic inspections. For periodic inspection, the special inspector shall check qualifications of welders at the start of work and then make final inspection of all welds for compliance prior to completion of welding. Single pass fillet welds not exceeding 5/16 inch shall be identified on the drawing.

The special inspector shall inspect the equipment, material and technique being employed and verify that the welding is performed by certified welders qualified in the procedure being used. A visual inspection of the completed work shall be made to ensure proper type, size, length and quality of the welds.

Field Bolting of Structural Steel

Structural steel joints using A 325 high-strength bolts, A 490 heat-treated high-strength bolts or equivalent fasteners shall have special inspections. The special inspector shall monitor the prequalification, installation and tightening of bolted connections in accordance with the approved plans and the IBC.

When bolted connections require full pretension, the special inspector shall prequalify the pretensioning method and verify that the specified procedure was used to achieve the design tension. A tension calibrator shall be provided, at the job site, to verify fastener assemblies, to train installation crews, and to calibrate wrenches (if calibrated wrench method is used). This requires a meeting with the special inspector and the steel erector prior to any erection.

Bolts in connections identified as not being slip critical nor subject to direct tension need not be inspected for bolt tension. The special inspector does not need to be present during the entire installation and tightening operation provided that the bolts are installed in properly aligned holes and tightened to the snug-tight condition. Bolts required to be tightened only to a snug-tight condition shall be clearly identified on the approved drawings.

Steel Frame Inspection

The special inspector shall perform an inspection of the structural steel frame to verify compliance with the details shown on the approved plans and shop drawings, such as bracing, stiffening, member location and proper application of joint details at each connection.

Inspection of Fabricator

The following organizations are approved by Building Codes Council to certify fabricators:

- (A) American Institute of Steel Construction;
- (B) International Code Council; and,
- (C) Steel Joist Institute.

Structural steel, bar joists and metal buildings fabricated on the premises of a facility not certified by a nationally recognized organization shall have in-plant special inspections as follows.

The special inspector shall inspect the work during fabrication for compliance with the approved plans, shop drawings, specifications and Chapters 17 & 22 of the IBC. Each member shall be inspected and approved by the special inspector prior to shipment. It is the responsibility of the fabricator to notify the special inspector and have the reviewed plans on-site for the inspection. The general contractor shall coordinate this inspection. Daily reports indicating the members inspected shall be submitted to the building official and architect or engineer of record with the weekly Special Inspection Report.

Nondestructive Testing (NDT) of welds

Nondestructive Testing (NDT) of welds should be performed by an approved NDT inspector (certified in the applicable discipline) in accordance with chapter 4 of this document.

Welds should be inspected in accordance with the requirements of the IBC, AISC, AWS, Structural Prints and Project Specifications.

CHAPTER 10
INSPECTION OF FABRICATOR AND SPRAYED FIRE RESISTANT MATERIAL

Spray-Applied Fire Resistant Materials

When spray-applied fire resistant material is provided for the fire-resistive protection of structural steel members, special inspections are required for conformance to the manufacturer's instructions. Surface conditions shall be inspected prior to the application per IBC. Minimum substrate ambient temperature shall be verified before and after application.

The special inspector shall inspect the fireproofing in accordance with the IBC, and the approved plans and specifications. The thickness and density of the fireproofing shall not be less than the requirements of the listing of the fire-resistive assembly. The cohesive/adhesive bond strength shall be tested for not less than 150 pounds per square foot.

Just prior to concealment, a complete visual inspection of the fireproofed members shall be conducted. The special inspector shall verify that the sprayed fire-resistant materials has no voids, spalls and delamination or has been scraped or knocked off during construction.

CHAPTER 11 STRUCTURAL MASONRY

The special inspector shall provide the inspection and testing of structural masonry for conformance with the approved plans, specifications and the IBC.

The special inspector shall provide periodic inspection of the handling, storage, preparation and placement of elements involved in structural masonry construction. Continuous special inspection shall be performed during grouting operations. During cold weather construction, the special inspector shall verify that the provisions of the IBC are being observed.

Mortar and grout shall be properly mixed using the specified material proportions per the mix design. The method of measuring shall be such that the material proportions are controlled. For empirically designed masonry, glass unit masonry, and masonry veneer in essential facilities, or engineered masonry in nonessential facilities, the minimum special inspection program shall comply with the IBC.

For engineered masonry in essential facilities the minimum special inspection program shall comply with the IBC.

CHAPTER 12 SEISMIC RESISTANCE

Seismic resistance special inspection is only required for structures in Seismic Design Categories C, D, E or F and only when required in the IBC.

Steel construction

Continuous inspection of welding is required.

Structural wood

Inspections to verify continuity of load path within the seismic lateral-force-resisting system. Particular attention should be given to the nailing of diaphragms and shear walls, the connection of drag struts or collectors to the shear walls and the proper installation and tightening of hold-down bolts in shear walls.

Cold-formed steel framing

Inspections to verify continuity of load path with the seismic lateral-force-resisting system are required.

Storage racks and access floors

Inspections to verify proper anchorage to keep racks from overturning are required.

Architectural components

Inspections to verify proper attachment of cladding and veneers are required.

Mechanical and electrical components

Components that must function in post earthquake conditions such as emergency electrical systems or for anchorage of mechanical equipment, piping, and ducting using or carrying flammable or hazardous material are required to be inspected.

CHAPTER 13
EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

Special inspection for EIFS systems should be based on manufacturer's installation instructions. Critical areas necessary for adequate EIFS performance are proper installation of waterproofing membrane and installation of flashings at windows, doors, joints, eaves, corners and penetrations.

CHAPTER 14

SPECIAL INSPECTION FOR SMOKE CONTROL

Special inspection of smoke-control systems, although related to mechanical systems rather than structural or architectural systems, is required because the mechanical ductwork and signaling devices are likely to be concealed during the building construction, and the ductwork shall be leakage tested prior to concealment.

The test scope shall be in accordance with the IBC:

(A) during erection of ductwork and prior to concealment for the purpose of leakage testing and recording of device location; and,

(B) prior to occupancy and, after sufficient completion for the purposes of pressure difference testing, flow measurements and detection and control verification.

The special inspector for smoke control shall have expertise in fire-protection engineering, mechanical engineering and certification as an air balancer.