SPECIAL INSPECTIONS CATAWBA COUNTY

(SICC-2007)

2007 Edition

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Based on North Carolina State Building Code (2006) Edition, effective July 1st, 2006

Administered by

CATAWBA COUNTY, NORTH CAROLINA

BUILDING SERVICES DIVISION

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CHAPTER 1
SPECIAL INSPECTIONS PROGRAM

SICC-101 INTRODUCTION

SICC-101.1 Special inspections required. Effect March 1st 2007, the North Carolina Building Code Council revised section 1704.1 of the NC State Building Code. The revision implements a mandatory statewide program of special inspections. The Catawba County Special Inspections Program was established in response to this mandatory rule. The Special Inspections Program generally encompasses commercial buildings that are designated as essential facilities and buildings that represent a substantial hazard to human life in the event of failure. The Special Inspections Program is administered and monitored by the Catawba County Building Services Division.

SICC-101.2 Content. This document, ***Special Inspections Program (SICC-2007),*** implements the requirements of 2006 NCSBC Chapter 17. The SICC includes excerpts of technical requirements of the NCSBC and reference standards, policies and procedures underpinning the Special Inspections Program in Catawba County, and descriptions of the roles and responsibilities of all parties involved in special inspections. The SICC also includes excerpts from the *"Guide to Special Inspections and Quality Assurance"* developed by the Council of American Structural Engineers. **This document is to be used in conjunction with the 2006 North Carolina State Building Code.**

SICC-101.3 Special inspections and materials testing. The Special Inspections Program is based on the engineering and industry standards adopted by the North Carolina Building Code Council as a part of the NCSBC. These standards are promulgated by nationally recognized organizations such as the American Iron and Steel Institute (AISI); the American Institute of Steel Construction (AISC); the Portland Cement Association (PCA); the National Concrete Masonry Association (NCMA); the American Concrete Institute (ACI); and the Brick Industry Association (BIA). The requirements for special inspections and materials testing contained in the NCSBC (2006) and these standards can be categorized as follows:

- Inspections and testing to substantiate adequacy of the fabrication process, e.g., quality of pre-manufactured steel beams.
- Inspections and testing to substantiate adequacy of construction materials and their installation, e.g., strength of cast-in-place concrete.
- Inspections and testing to substantiate adequacy of site construction techniques, e.g., protection of concrete during cold weather periods, quality of field welding of structural connections, etc.

The above standards do not specify who should perform special inspections. The NCSBC specifies that the owner is responsible to provide a firm independent of the contractor to provide required testing and inspections. Benefits to this method of inspection include:

- Scheduling flexibility and minimizes delays during the construction process. A contractor does not have to wait for County inspectors to proceed with each stage of the **special inspection process** (These inspections are in addition to the inspections specified in the 2006 North Carolina Administrative Code & Policies Section 107. See Appendix C).
- With the increased level of inspection services provided by a licensed professional, compliance with material specifications, quality control and workmanship and are improved.

- Owners retain the engineering firm they deem most qualified to respond to unforeseen circumstances, abide by the owner's construction schedule, and provide special inspection and testing services.

SICC-101.4 Purpose. The purpose of the SICC-2007 is to:

- Clearly define the responsibility of all parties.
- Standardize building code application and implementation.
- Apply the Special Inspections Program uniformly throughout Catawba County.

The SICC-2007 has chapters and procedural outlines identifying the purpose, team members' responsibilities, time requirements, and scope of various construction activities. The SICC-2007 applies throughout the life of the project, **and a copy of the SICC-2007 shall be available at the job site from the time of the Catawba County Building Services Division (CCBSD) preconstruction meeting through final inspections prior to occupancy.**

- At the preconstruction meeting, parties to the meeting shall sign an acknowledgment of the **Statement of Special Inspections (SSI)** which identifies the special inspections requirements for the project.
- The provisions of the SICC-2007 do not relieve any participant from the proper performance of work according to contracts, approved plans and specifications, compliance with the NCSBC building code requirements, and the applicable federal and state safety regulations.

SICC-102 THE SPECIAL INSPECTIONS ENGINEER OF RECORD

SICC-102.1 Special inspections services. Under the Special Inspections Program, the **Owner** of a building (or the registered design professional in responsible charge acting as the owner's agent) shall retain an independent NC registered design professional (**RDP**) to be the **Special Inspections Engineer of Record** (**SIER**). The **SIER** provides special inspection services as required herein, including oversight for the services of an **inspection and testing agency** which shall meet the requirements of ASTM E 329. Both the **SIER** and the **inspection and testing agency** shall be independent of the contractors performing the work requiring special inspections. The **SIER** and the **inspection and testing agency** are subject to County approval. The role of County staff is to confirm that the work of the **SIER** and the **inspection and testing agency** complies with the requirements of the Special Inspections Program.

The **SIER (**referred to as "special inspector" in the NCSBC) shall conduct special inspections in accordance with the requirements of the NCSBC. At the completion of the project, the **SIER** shall prepare a final report of special inspections for review and approval by the **SER**, **AR** and/or **GER**, as appropriate, which shall then be submitted to **Catawba County Building Services Division (CCBSD)** for review and approval, prior to final building inspection approval and issuance of a Certificate of Compliance.

CHAPTER 2
DEFINITIONS AND ABBREVIATIONS

SICC-201 DEFINITIONS

The following words and terms shall, for the purposes of this SICC-2007, have the meanings shown in this chapter. Terms not defined in this SICC-2007 shall have the meanings ascribed to them in the NCSBC and IBC.

Completion letter.
1. A certification by the **SIER** which shall indicate that the construction elements subject to special inspections as identified in the County approved statement of special inspections for a specific material or phase of construction have been inspected prior to concealment, and in the **SIER**'s professional opinion and to the best of the **SIER**'s knowledge, complies with County approved documents and project specifications. A completion letter shall carry the original signature and seal of the **SIER** making the statement.

Fabrication and erection documents. All of the written, graphic and pictorial documents prepared or assembled after issuance of a building permit and in addition to the County approved construction documents, describing the design, location and physical characteristics of the building components or materials necessary for fabrication, assembly or erection of the elements of the project.

Final report of special inspections. A certification by the **SIER** which shall indicate that all construction elements subject to special inspections as identified in the County approved statement of special inspections for all materials or phases of construction have been inspected prior to concealment, and in the **SIER**'s professional opinion and to the best of the **SIER**'s knowledge, a construction project complies with County approved documents and project specifications. The final report of special inspections shall carry the original signature and seal of the **SIER** making the statement.

Inspection and testing agency. An established and recognized agency or agencies, meeting the requirements of ASTM E 329 and accredited, retained by the **Owner**, independent of the contractors performing the work subject to special inspections, and approved by **CCBSD** to perform special inspections and materials testing required by the NCSBC, IBC and this SICC-2007. See IBC-1702.1 **Approved agency**.

Pre-engineered structural elements. Structural elements specified by the **SER** but which may be designed by a specialty **RDP.** Examples are items such as open web steel joists and joist girders; wood trusses; combination wood, metal and plywood joists; precast concrete elements; prefabricated wood or metal buildings; tilt-up concrete panel reinforcement and lifting hardware.

Primary structural system. The combination of elements which serve to support the weight of the building's structural shell, the applicable live loads based upon use and occupancy, and wind, snow, thermal and seismic environmental loads. Items such as curtain wall members, nonloadbearing walls, or exterior facades are not part of the primary structural system.

Secondary structural elements. Building elements that are structurally significant for the function they serve but are not necessary for stability of the primary structure. Examples include: support beams above the primary roof structure which carry a chiller; elevator support rails and beams; retaining walls independent of the primary building; flagpole or light pole foundations; false work required for the erection of the primary structural system; steel stairs or railings; etc., not fully specified on the County approved construction documents.

Special inspection. Inspection or testing of building components requiring special expertise to “ensure” compliance with County approved documents and NCSBC requirements. In this context, “ensure” means “substantiate”. See also NCSBC-1702.1 **Special inspection**.

Special inspections engineer of record (SIER). Referred to as “Special inspector” in NCSBC, the **RDP** who is directly responsible for special inspections, materials testing and related

services as described in the County approved Statement of Special Inspections. The **SIER** shall be retained by the **Owner**, independent of the contractors performing the work subject to special inspections, and approved by **CCBSD** to perform special inspections.

Statement of Special Inspections (SSI). The Statement of Special Inspections is a statement prepared by the **Owner** and the appropriate **RDP**s of record **(AR, GER, SER)** and submitted by the permit applicant. The SSI identifies the scope of the special inspections services applicable to a construction project, and the **RDP**s and Inspection and Testing Agencies who will provide those services. The SSI is required as a condition for permit issuance in accordance with NCSBC.

Structural engineer of record (SER). The **RDP** retained by the **Owner** to design or specify structural documents in accordance with the NCSBC and whose signature and seal appear on the County approved structural construction documents.

NCSBC-1702.1 **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 (see Section 1704).

NCSBC -1702.1 **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.

NCSBC -1702.1 **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.

NCSBC-1702.1 **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 include or waive the responsibility for the inspection required by Section 109, Section 1704 or other sections of this code.

SICC-202 ABBREVIATIONS AND PROMULGATING AGENCIES

A2LA	The American Association for Laboratory Accreditation 5301 Buckeystown Pike, Suite 350 Frederick, MD 21704	www.a2la2.net 301-644-3248
ACI	ACI International (American Concrete Institute) P.O. Box 9094 38800 Country Club Drive Farmington Hills, MI 48333 Farmington Hills, MI 48331	www.aci-int.net 248-848-3700
AISC	American Institute of Steel Construction, Inc. One East Wacker Drive, Suite 3100 Chicago, IL 60601-2001	www.aisc.org 312-670-2400
AISC ASD	Manual of Steel Construction – Allowable Stress Design, 9th Edition	
AISC LRFD	Manual of Steel Construction – Load and Resistance Factor Design, 3rd Edition	
AISI	American Iron and Steel Institute 1140 Connecticut Avenue, Suite 705 Washington, DC 20036	www.steel.org 202-452-7100
AR	Architect of record	
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191-4400	www.asce.org 800-548-2723
ASNT	American Society for Non-Destructive Testing P.O. Box 28515 1711 Arlingate Lane	www.asnt.org 800-222-2768

	Columbus, OH 43228-0518	
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959	www.astm.org 610-832-9585
AWS	American Welding Society 550 N.W. LeJeune Road Miami, FL 33126	www.aws.org 800-443-9353
BIA	Brick Industry Association 11490 Commerce Park Drive, Suite 300 Reston, VA 20191-1525	www.bia.org 703-620-0010
CASE	Council of American Structural Engineers American Council of Engineering Companies 1015 Fifteenth Street N.W., 8th Floor Washington, DC 20005-2605	www.acec.org 202-347-7474
CCBSD	Catawba County Building Services Division	828-465-8399
CCRL	Cement and Concrete Reference Laboratory Building and Fire Research Laboratory National Institute of Standards and Technology 100 Bureau Drive, Stop 8600 Gaithersburg, Maryland 20899-8600	www.bfrl.nist.gov 301-975-5900
CRSI	Concrete Reinforcing Steel Institute 933 North Plum Grove Road Schaumburg, IL 60173-4758	www.crsi.org 847-517-1200
EIFS	Exterior Insulation and Finish Systems	
GC	General contractor	
GER	Geotechnical engineer of record	
ICC	International Code Council, Inc. 5203 Leesburg Pike, Suite 600 Falls Church, VA 22041	www.iccsafe.org 703-931-4533
NCACP	North Carolina Administrative Code & Policies 2006 Edition	
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171-4662	www.ncma.org 703-713-1900
NCSBC	North Carolina State Building Code 2006 Edition	www.ncdoi.com
NEC	NFPA 70-2008 National Electrical Code	
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471	www.nfpa.org 617-770-3000
NICET	National Institute for Certification in Engineering Technologies 1420 King Street Alexandria, VA 22314-2794	www.nicet.org 888-476-3238
NIST	National Institute of Standards and Technology 100 Bureau Drive, Stop 3460 Gaithersburg, MD 20899-3460	www.nist.gov 301-975-8295
NVLAP	National Voluntary Laboratory Accreditation Program National Institute of Standards and Technology 100 Bureau Drive, Stop 2140 Gaithersburg, MD 20899-2140	www.nist.gov/nvlap 301-975-4016
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077	www.portcement.org 847-966-6200
PCI	Precast /Prestressed Concrete Institute 209 West Jackson Boulevard, Suite 500	www.pci.org 312-786-0300

	Chicago, IL 60606	
PTI	Post-Tensioning Institute 8601 North Black Canyon Highway, Suite 103 Phoenix, AZ 85021	www.post-tension.org 602-870-7540
RCSC	Research Council on Structural Connections c/o American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601-2001	www.boltcouncil.org 312-670-2400
RDP	Registered Design Professional	
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021	www.sdi.org 847-458-4647
SER	Structural engineer of record	
SIER	Special inspections engineer of record	
SICC-2007	*Special Inspections: IMPLEMENTATION IN CATAWBA COUNTY - 2007 Edition*	
SJI	Steel Joist Institute 3127 10th Avenue, North Ext. Myrtle Beach, SC 29577-6760	www.steeljoist.org 843-626-1995
SSI	Statement of Special Inspections	
TMS	The Masonry Society 3970 Broadway, Suite 201-D Boulder, CO 80304-1135	www.masonrysociety.org 303-939-9700
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719	www.tpinst.org 608-833-5900
UL	Underwriters Laboratories, Inc. 333 Pfingsten Road Northbrook, IL 60062-2096	www.ul.com 1-847-272-8800
WACEL	WACEL: An Association Of Engineering Laboratories, Inspection Agencies And Building Officials 7900 Wisconsin Avenue, Suite 305 Bethesda, MD 20814	www.wacel.org 301-652-7925

CHAPTER 3
SPECIAL INSPECTIONS CLASSIFICATIONS

SICC-301 GENERAL

SICC-301.1 Required by NCSBC. The NCSBC requires special inspections for certain building elements and components. A statement of special inspections is required as part of the construction documents.

> **NCSBC-1704.1 General.** Where application is made for construction as described in this section, the **Owner** or the **RDP** in responsible charge acting as the owner's agent shall employ one or more special inspectors to provide inspections during construction on the types of work listed under Section 1704 per Section 1704.1.2. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. These inspections are in addition to the inspections specified in Section 107 of the NC Administrative Code and Policies.
>
> **NCSBC-1704.1.1 Building permit requirement.** The permit applicant shall submit a statement of special inspections prepared by the registered design professional in responsible charge as a condition for permit issuance. This statement shall include a complete list of materials and work requiring special inspections by this section, the inspections to be performed and a list of the individuals, approved agencies or firms intended to be retained for conducting such inspections.

SICC-301.2 Elective by Owner. Owners of buildings may elect to follow the Special Inspections Program on projects that otherwise do not fall under the above criteria. In such cases, the **Owner** shall notify the **CCBSD** of this intent prior to issuance of the building permit. **Owners** electing to follow the Special Inspections Program shall follow all applicable requirements of this SICC-2007.

SICC-302 SPECIAL INSPECTIONS REQUIREMENT

Special Inspections per Section 1704.1.2 are required for buildings, building components or other structures per the following:

1. Buildings or other structures listed in Table 1604.5 in category II if:
    a. Building height exceeds 45 feet or three stories, or
    b. The building is an Underground buildings per 405.1
2. Buildings or other structures listed in table 1604.5 in categories III or IV;
3. Piles, piers and special foundations;
4. Retaining walls exceeding 5 feet in height per 1806;
5. Smoke control and smoke exhaust systems;
6. Sprayed fire-resistant materials; or
7. Special case described in NCSBC 1704.13.

The following shall be subject to special inspections:

SICC-302.1 Fabricators.

For fabricated items requiring special inspection, the **SIER** shall conduct special inspection of the fabricator’s shop facilities.

> **NCSBC-1704.2 Inspection of fabricators.** Where fabrication of structural load bearing members and

assemblies is being performed on the premises of a fabricator's shop, special inspection of the fabricated items shall be required by this section and as required elsewhere in the NCSBC.

NCSBC -1704.2.1 Fabrication and implementation procedures. The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to approved construction documents and referenced standards. The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for the fabricator's scope of work.

Exception: Special inspections as required by Section 1704.2 shall not be required where the fabricator is approved in accordance with Section 1704.2.2.

NCSBC -1704.2.2 Fabricator approval. Special inspections required by this code are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building official stating that the work was performed in accordance with the approved construction documents.

SICC-302.2 Structural steel (See SICC-2007 Chapter 6).

a. Steel fabricators. Special inspections of the fabrication process are required, for all steel fabricated assemblies that are themselves subject to special inspections, except as exempted in NCSBC-1704.3.

NCSBC -1704.3 Exceptions:

1. Special inspection of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress carrying elements are capable of being determined.

2. The special inspector need not be continuously present during welding of the following items, provided the materials, welding procedures and qualifications of welders are verified prior to the start of the work; periodic inspections are made of the work in progress; and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding.
   2.1. Single pass fillet welds not exceeding $^{5}/_{16}$ inch (7.9 mm) in size.
   2.2. Floor and roof deck welding.
   2.3. Welded studs when used for structural diaphragm.
   2.4. Welded sheet steel for cold formed steel framing members such as studs and joists.
   2.5. Welding of stairs and railing systems.

b. The SIER shall inspect steel elements, welding material, and high strength bolts for conformance with NCSBC Table 1704.3 to include the Seismic-force resisting-systems identified in the Quality Assurance Plan.

SICC-302.3 Cast-in-place concrete (See SICC-2007 Chapter 7).

a. Components. All structural elements of cast-in-place concrete, including reinforced, prestressed, or post-tensioned concrete elements, and concrete topping on stay-in-place steel decking, both composite

and non composite, except as exempted by NCSBC-1704.4 Exception. To qualify for the exception, the construction shall be on undisturbed, stable, non-problem soil or rock, or as specified by the **SER** or **GER**, as appropriate. See also SICC-302.6 and SICC-302.7 for foundations and walls.

NCSBC -1704.4 Exception: Special inspections shall not be required for:
1. Isolated spread concrete footings of buildings three stories or less in height that are fully supported on earth or rock.
2. Continuous concrete footings supporting walls of buildings three stories or less in height that are fully supported on earth or rock where:
   2.1. The footings support walls of light frame construction;
   2.2. The footings are designed in accordance with Table 1805.4.2; or
   2.3. The structural design is based on a f'_c no greater than 2,500 pounds per square inch (17.2 MPa).
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 pounds per square inch (1.03 MPa).
4. Concrete foundation walls constructed in accordance with Table 1805.5(1), 1805.5(2), 1805.5(3) or 1805.5(4).
5. Concrete patios, driveways and sidewalks, on grade.

b. Seismic-force-resisting systems. (Seismic Design Category C, D, E, or F): Testing of reinforcing steel and prestressing steel as required by NCSBC-1708.3.

SICC-302.4 Precast concrete (See SICC-2007 Chapter 8).

a. Precast concrete fabricators. Special inspections of the fabrication process are required, for all precast concrete elements that are themselves subject to special inspections.

b. Off-site precast components. All architectural and/or structural precast concrete building elements manufactured off-site, usually at a precast concrete plant, with the exception of miscellaneous cast stone items such as sills, coping, pavers, etc., or as otherwise approved.

c. Site-cast precast components. All site-cast, precast concrete elements, including tilt-up concrete wall panels.

d. Seismic-force-resisting systems. (Seismic Design Category C, D, E, or F): Welding of connections as required by NCSBC-1707.2.

SICC-302.5 Masonry (See SICC-2007 Chapter 9).

a. Elements. Masonry elements, depending on the masonry design, classification of the building or type of occupancy (see NCSBC -Table 1604.5 and NCSBC -Table 1617.6).

NCBC-1704.5 Exception: Special inspections shall not be required for:
1. Empirically designed masonry, glass unit masonry, or masonry veneer designed by Section 2109, 2110, or ACI 530/ASCE 5/TMS 402 Chapters 5, 6 or 7 when they are part of nonessential buildings (see Tables 1604.5 and 1617.6).
2. Masonry foundation walls constructed in accordance with Table 1805.5(1), 1805.5(2), 1805.5(3) or 1805.5(4).

b. Seismic-force-resisting systems. (Seismic Design Category C, D, E, or F) as required by NCSBC -1708.1.

SICC-302.6 Wood (See SICC-2007 Chapter 10).

a. Wood fabricators. Special inspections of the fabrication process are required.

b. Seismic-force-resisting systems. (Seismic Design Category C, D, E or F): as required by NCSBC - 1707.3.

SICC-302.7 Soils and foundations (See SICC-2007 Chapter 11).

a. Shallow footings and foundations. Soils and building foundation elements when either of the following conditions exist:

- Problem Soils. The building footprint is located on soils that have been determined by the GER/SER as a problem soils area, as indicated by the approved geotechnical report due to inadequate soil bearing capacities.
- Structural Fill. The bearing material under the building footprint consists of compacted structural fill.

> **NCSBC-1704.7 Exception:** Special inspections not required during placement of fill less than 12 inches (305 mm) deep.

b. Deep foundations. Building foundation elements for the following systems:

- Pile foundations of all buildings.
- Pier foundations of all buildings, assigned to Seismic Design Category C, D, E or F. The Statement of Special Inspections shall specifically include the special inspections required for the seismic-resisting elements.

SICC-302.8 Earth retention systems (See SICC-2007 Chapter 12 and NCSBC Section 1806.2).

All earth retention systems providing a cumulative vertical relief greater than 5 feet in height within a horizontal distance of 50 feet or less of unbalanced fill, including, but not limited to:

- Building foundation walls.
- Retaining walls.
- Soldier piles and lagging.
- Soil nailing systems.
- Sheet piling.
- Braced or shored walls.
- Tied-back walls.

SICC-302.10 Sprayed fire-resistant materials. (See SICC-2007 Chapter 13.)

All sprayed fire-resistant materials applications.

SICC-302.9 Exterior Insulation and Finish Systems (EIFS) (See SICC-2007 Chapter 14).

All EIFS applications, except those installed over a water resistive barrier with a means of draining moisture to the exterior, or those installed over masonry or concrete walls.

SICC-302.11 Smoke control. (See SICC-2007 Chapter 15.)

All smoke control systems.

SICC-302.12 Architectural, Mechanical, Electrical Components. (See SICC-2007 Ch 16.)

Seismic Design Category C, D, E or F, as required by NCSBC-1707.7 (see NCSBC-1621).

SICC-303 STATEMENT OF SPECIAL INSPECTIONS (SSI)

SICC-303.1 Content. The SSI shall identify the scope of the special inspections services applicable to the project and shall include the names of the **RDP**s, including the **SIER** and **GER**, and the inspection and testing agencies providing those services. The **SIER** and the inspection and testing agencies are subject to **CCBSD** approval.

SICC-303.2 Submittal, review and approval. The SSI shall be incorporated into the construction documents (see SICC-301.1 and NCSBC-1704.1.1) and shall be submitted by the permit applicant to the **CCBSD**. **The CCBSD shall review and approve the SSI prior to scheduling the preconstruction meeting (see Chapter 4).**

SICC-303.3 SSI Form. A blank copy of a three page SSI Form is provided in Appendix A. The forms are to be prepared by the **Registered Design Professional in Responsible Charge,** and the **Engineers of Record** for the project.

Page two of the form, identifies the types of work needing special inspection services as well as the Special Inspections Engineer of Record and Testing Labs responsible for the services. Normally these services are provided by one engineering firm or Registered Design Professional however the form can be used by multiple inspection agents.

Page three of the form is the Quality Assurance plan and provides the seismic and wind systems and components requiring special inspections prepared by the **Structural Engineer of Record.** Page three also provides a list of contractors responsible for the construction or fabrication of a systems and components identified in the Quality Assurance Plan. Copies of these forms as well as Daily Field Report and Weekly Engineers Summary Report can be found in Appendix A.

CHAPTER 4
CCBSD PRECONSTRUCTION MEETING

SICC-401 WHEN REQUIRED

A preconstruction meeting with **CCBSD** is required for every project that will be constructed under the Special Inspections Program, to review the special inspections requirements of the construction project. The **CCBSD** preconstruction meeting shall take place after the approval of construction documents is completed by the Catawba County Plan Review Section, and prior to the issuance of a building permit. The following shall be discussed:

- **Construction Project Requirements.** Construction project requirements of the Catawba County Special Inspections Program, including construction methods.
- **Statement of Special Inspections (SSI).** The scope of special inspections for the project, including required and elective special inspections (see Chapter 3).
- **Responsibilities.** The roles and responsibilities of each party.
- **Communication.** Communication channels between the County and the **Owner's** representatives.
- **Phased Construction.** Requirements for phasing or separation of permits, certificates of completion and occupancy requirements.

SICC-402 PARTICIPANTS

The following members of the construction team shall participate in **CCBSD** preconstruction meetings:

- **Owner or designated agent** (required for all projects)
- **Architect of record**
- **Structural engineer of record** (required for building / foundation elements)
- **Geotechnical engineer of record** (required for soils / foundation elements)
- **General contractor** (required for all projects)
- **Special inspections engineer of record** (required for all projects)

SICC-403 PROCEDURAL REQUIREMENTS

SICC-403.1 Scheduling of meeting. Catawba County Permit Center Supervisor shall contact the RDP in responsible charge of the project to schedule the meeting time and location. The **Owner or Owners Agent** shall bring to the preconstruction meeting a copy of the Statement of Special Inspections. Required participants shall be represented during the meeting.

SICC-403.2 Use of SICC-2007. The SICC-2007 will be used in the meeting to review, discuss, clarify and approve elements of the Special Inspections Program that apply to the project. It is recommended that, prior to the meeting, all parties' review this SICC-2007 as it pertains to the specific project.

SICC-403.3 CCBSD approval of Statement of Special Inspections. Upon review and approval of the Statement of Special Inspections by CCBSD a building permit can be issued to the General Contractor and a Third Party Inspector's (TPI) Permit can be issued to the SIER.

CHAPTER 5
SPECIAL INSPECTIONS AND TESTING SERVICES

SICC-501 PROCEDURAL REQUIREMENTS

SICC-501.1 General. The **Owner** shall be responsible for retaining an independent **Special inspections engineer of record** (**SIER**) and an **inspection and testing agency** to provide special inspections, materials testing, and related services, including inspection and testing agency supervision, for review and approval by the **CCBSD**. Under no circumstances shall the **General Contractor** or any of the subcontractors be permitted to provide special inspections and testing services.

The **SIER** shall be an **RDP** retained by the **Owner**, independent of the contractors performing the work subject to special inspections, and approved by **CCBSD** to perform special inspections. The **SIER** is responsible for the work of the inspection and testing agency. The **inspection and testing agency** shall be independent of the contractors performing the work subject to special inspections, and approved by **CCBSD** to perform special inspections and materials testing required by the NCSBC and this SICC-2007. To be approved by **CCBSD**, an inspection and testing agency shall meet the requirements of ASTM E 329 and shall be accredited.

The **GC** shall coordinate the scheduling of special inspections with the **SIER** and maintain copies of all Daily Field Reports as well as Descrepancy Reports on site for Building Official review as needed.

SICC-501.2 Changes in construction team. In the event that the **AR**, **SER, GER, GC**, **SIER,** or the organizations or individuals contracted for special inspections or testing services are changed during the course of the work, the **Owner** shall notify **CCBSD** immediately. The **Owner** shall provide a written explanation for such change; shall identify and obtain County approval for the replacement organization or a replacement individual; and shall schedule a new meeting with **CCBSD** and the replacement organization or the replacement individual. The **Owner** shall ensure that there is a timely transfer of information and responsibility to the replacement party.

Change of **AR, SER, GER** or **SIER** requires approval by **CCBSD**. Change of **GC** requires notification to **CCBSD**, and a new building permit is required.

SICC-502 ROLES AND RESPONSIBILITIES

SICC-502.1 Special Inspection Engineer of Record. The **SIER** shall provide and certify special inspections of building components and testing of construction materials where such inspections and testing are required by the NCSBC, the SSI and this SICC-2007.

SICC-502.2 SIER Responsibilities. Prior to conducting special inspections and materials testing, the **SIER** shall be responsible for verification of the following:

- A set of original County approved construction documents and revisions are available at the job site.
- The **SIER** shall notify the **CCBSD** when commencement and completion of special inspections are being conducted for each building system/component identified on the **SSI or Quality Assurance Plan**. Notification of commencement will be in the form of a request for inspection via the IVR System or by contacting the County Permit Center and scheduling an inspection with appropriate permit number. Upon completion, the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of

completion on the final report of special inspections.

- After County review and approval of the SSI, the **SIER** shall submit to **CCBSD** one copy of resumes of all inspection and testing agency personnel assigned to the project, inspectors' certifications and accreditation certificates for laboratory facilities.

SICC-502.3 Deviations. The **SIER** and the **SIER**'s representatives/field technicians shall not suggest direct or authorize the fabricator, erector or contractor to deviate from the contract documents or County approved construction documents, without the express written approval of the **AR, SER, GER** and **CCBSD,** as appropriate.

SICC-502.4 Special inspection reports. The **SIER** shall report the results of testing and inspections, both approvals and rejections, to **CCBSD** according to the following procedures:

- **Submissions.** Daily field reports (see appendix A) of special inspection identifying inspection type, approvals or discrepancies shall be prepared by the SIER or SIER representatives for submission to the CCBSD and the GC, and to the AR, SER, and GER as appropriate. Deficiencies shall be reported to the GC for correction.

- **Seal and signature.** Daily inspection reports shall be reviewed by the SIER and attached to a Monthly Engineer's report (see appendix A), then submitted to CCBSD no later than the first week of the following month. The SIER shall submit all test report results to the CCBSD within seven working days of receipt.

- **Compliance.** Unless deficiencies are discovered or code violations are revealed during the conduct of special inspection and testing services, special inspection and testing reports shall indicate that the specified work has been inspected and found to be in compliance with County approved documents.

- **Deficiencies.** Deficiency reports shall contain the details describing the nature and specific location of the deficiency and include a description of the action recommended by the **AR, SER** and/or **GER**, as appropriate, to correct it.

- **Correction of deficiencies.** At the completion of a project, all recorded problems or deficiencies shall be documented as having been corrected and approved by the **AR, SER** and/or **GER**, as appropriate.

- **Completion letters.** Upon completion of special inspections and testing for a particular construction discipline, such as "structural steel", the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspection. (See Appendix A).

- **Final report of special inspections.** Upon completion of all special inspections and testing for the scope of special inspections applicable to the construction project, the **SIER** shall, after review and approval by the appropriate **RDP**s, submit a final report of special inspections to **CCBSD** for review and approval. This report shall also indicate the date of completion for each component or construction discipline that required special inspection. **CCBSD** approval is required prior to request for final building inspections by General Contractor (See Appendix A).

SICC-502.5 Code violations. In the event that the **SIER** and/or **SIER** personnel observe a condition during the conduct of special inspection and/or testing services that constitutes a violation of the NCSBC or County approved construction documents the **SIER** shall immediately notify the appropriate **RDP**s of record for resolution, followed with a written report submitted to **CCBSD** within seven working days.

SICC-503 PERSONNEL QUALIFICATIONS

SICC-503.1 Direct supervision. The inspection and testing agency personnel assigned to conduct special inspections in Catawba County shall work under the supervision of the **SIER** or an approved **RDP** in the construction discipline to be evaluated.

SICC-503.2 Certification. Except for individuals who are **RDP**s, inspection and testing agency field inspection personnel shall be certified by examination through WACEL, ACI, AWS, ASNT, NICET or other organizations whose programs are recognized by the County. Inspection and testing agency personnel shall be reviewed and approved by **CCBSD** on a case by case basis. The inspection and testing agency personnel shall perform only those services in which they have demonstrated competency through an approved certification or registration program. Tests or inspections performed by unqualified or non-approved inspection and testing agency personnel shall be automatically rejected, and work shall not proceed until reinspections are performed and approved.

SICC-503.3 Unusual functions. In the event there is no certification program applicable to a specific function, the **SIER** shall submit a signed statement attesting to the competency of inspection and testing agency personnel and identifying the basis upon which such statement is made.

SICC-504 LABORATORY ACCEPTANCE STANDARDS

All laboratory facilities performing special inspection and testing services in the County shall meet the requirements of ASTM E 329, ASTM D 3740, and ASTM C 1077 as applicable and shall be individually accredited by organizations such as WACEL, A2LA, NIST, NVLAP or other organizations whose programs are recognized by the County. The **SIER** shall approve on-site laboratories provided the on-site laboratory demonstrates that it follows a quality systems manual, equipment calibration program and technician certification program of an accredited laboratory.

CHAPTER 6
STRUCTURAL STEEL

SICC-601 GENERAL

SICC-601.1 Scope. The requirements of this chapter and NCSBC-1704.3 shall apply when construction includes structural hot-rolled steel building elements as listed in SICC-302.2. Where required, structural hot-rolled steel building elements shall also comply with NCSBC-1705, NCSBC-1707 and NCSBC -1708. See SICC-2007 Chapter 14 for sprayed fire-resistant materials.

SICC-601.2 Steel fabrication. Structural steel fabricators shall be subject to special inspections as required by SICC-302.1 and SICC-603 and NCSBC -1704.2.

SICC-601.3 Steel erection. Structural steel elements shall be subject to special inspections as required by SICC-604. Construction shall conform to the AISC Code of Standard Practice.

SICC-602 FABRICATION AND ERECTION DOCUMENTS

SICC-602.1 Review and approval. The structural steel fabrication and erection documents shall be submitted for review and approval to the **SER** prior to fabrication and erection of steel elements. The **GC** shall provide **SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-602.2 Preparation of fabrication and erection documents. The structural steel fabrication and erection documents shall include designs and details for welded and bolted connections. Details for welded connections shall clearly indicate the seismic-force-resisting elements of buildings of Seismic Category C,D,E or F. Details for bolted connections shall clearly indicate the type of connection used in the design (bearing or slip-critical), the amount of tensioning required (snug tight or fully tensioned) and the ASTM specifications for the bolts, nuts and washers

SICC-602.3 SER review and approval. The structural steel fabrication and erection documents shall be reviewed and approved by the **SER.** Each fabrication and erection document shall bear the review and approval stamp of the **SER** and be properly signed and dated**.**

a. Secondary structural elements. Secondary structural elements are required to be reviewed and approved by the **SER** only for their effects on the primary structural system.

SICC-603 INSPECTION OF STEEL FABRICATORS

SICC-603.1 Steel fabricators. The **SIER** shall provide special inspection of the steel fabricator and fabrication procedures, and of the fabricated items, as required by IBC-1704.2 (see SICC-302.1).

SICC-603.2 Fabrication procedures.

a. Certification. The fabricator may demonstrate to the **SIER** that the requirements of IBC-1704.2 have been met by furnishing evidence of compliance with the AISC Quality Certification Program in the appropriate category.

b. Procedures implementation. The **SIER** shall verify in writing to **CCBSD** that the fabricator is

properly implementing the fabrication and quality control procedures outlined above. Verification may be on a job basis or by inspection within the previous twelve months.

SICC-604 INSPECTION OF STEEL ELEMENTS

SICC-604.1 Material receiving. The **SIER** shall inspect steel elements, welding material, and high strength bolts for conformance with NCSBC -Table 1704.3.

SICC-604.2 Steel elements. The **SIER** shall inspect steel elements in accordance with NCSBC-1704.3.

NCSBC -1704.3 Steel construction. The special inspections for steel elements of buildings and structures shall be as required by Section 1704.3 and Table 1704.3. Where required, special inspection of steel shall also comply with Section 1715.

Exceptions:
1. Special inspection of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements are capable of being determined.
2. The special inspector need not be continuously present during welding of the following items, provided the materials, welding procedures and qualifications of welders are verified prior to the start of the work; periodic inspections are made of the work in progress; and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding.
   2.1. Single pass fillet welds not exceeding $^{5}/_{16}$ inch (7.9 mm) in size.
   2.2. Floor and roof deck welding.
   2.3. Welded studs when used for structural diaphragm.
   2.4. Welded sheet steel for cold-formed steel framing members such as studs and joists.
   2.5. Welding of stairs and railing systems.

NCSBC-1704.3.1 Welding. Welding inspection shall be in compliance with AWS D1.1. The basis for welding inspector qualification shall be AWS D1.1.

NCSBC -1704.3.2 Details. The special inspector shall perform an inspection of the steel frame to verify compliance with the details shown on the approved construction documents, such as bracing, stiffening, member locations and proper application of joint details at each connection.

NCSBC-1704.3.3 High-strength bolts. Installation of high strength bolts shall be periodically inspected in accordance with AISC specifications.

NCSBC-1704.3.3.1 General. While the work is in progress, the special inspector shall determine that the requirements for bolts, nuts, washers, and paint; bolted parts; and installation and tightening in such standards are met. For bolts requiring pretensioning, the special inspector shall observe the pre-installation testing and calibration procedures when such procedures are required by the installation method or by project plans or specification; determine that all plies of connected materials have been drawn together and properly snugged; and monitor the installation of bolts to verify that the selected procedure for installation is properly used to tighten bolts. For joints required to be tightened only to the snug tight condition, the special inspector need only verify that the connected materials have been drawn together and properly snugged.

NCSBC-1704.3.3.2 Periodic monitoring. Monitoring of bolt installation for pretensioning is permitted to be performed on a periodic basis when using the turn-of-nut method with matchmarking techniques, the direct tension indicator method, or the alternate design fastener (twist-off bolt) method. Joints designated as snug tight need be inspected only on a periodic basis.

NCSBC-1704.3.3.3 Continuous monitoring. Monitoring of bolt installation for pretensioning using the calibrated wrench method or the turn-of-nut method without matchmarking shall be performed on a continuous basis.

SICC-604.3 Special Inspections for Seismic Resistance. The **SIER** shall inspect steel elements in accordance with NCSBC-1707.

NCSBC-1707.1 Special inspections for seismic resistance. Special inspection as specified in this section is required for the following, where required in Section 1704.1. Special inspections itemized in Sections 1707.2 through 1707.8 are required for the following: 1. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F, as determined in Section 1616.

NCSBC-1707.2 Structural steel. Continuous special inspection for structural welding in accordance with AISC 341.
Exceptions:
1. Single-pass fillet welds not exceeding 5/16 inch (7.9 mm) in size.
2. Floor and roof deck welding.

NCSBC-1707.4 Cold-formed steel framing. Periodic special inspections during welding operations of elements of the seismic- force-resisting system. Periodic special inspections for screw attachment, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including struts, braces, and hold-downs.

NCSBC-TABLE 1704.3
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]	NCSBC REFERENCE
1. Material verification of high-strength bolts, nuts, and washers:			Applicable ASTM material specifications;	
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	AISC 335, Section A3.4; AISC LRFD, Section A3.3	—
b. Manufacturer's certificate of compliance required.		X		
2. Inspection of high-strength bolting:			AISC LRFD,	1704.3.3
a. Bearing-type connections.		X	Section M2.5	
b. Slip-critical connections.	X	X		
3. Material verification of structural steel:				1708.4
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	-	ASTM A 6 or ASTM A 568	
b. Manufacturers' certified mill test reports required.	—	—	ASTM A 6 or ASTM A 568	
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.			AISC ASD, Section A3.6; AISC LRFD, Section A3.5	
b. Manufacturer's certificate of compliance required.	—	—		—
5. Inspection of welding:			AWS D1.1	1704.3.1
a. Structural steel:				
1) Complete and partial penetration groove welds	X			
2) Multi-pass fillet welds	X			
3) Single-pass fillet welds > $^5/_{16}$" (7.9 mm)	X			
4) Single-pass fillet welds $\leq$ $^5/_{16}$" (7.9 mm)		X		
5) Floor and deck welds		X	AWS D1.3	
b. Reinforcing steel:			AWS D1.4	1704.3.1
1) Verification of weldability of reinforcing steel other than ASTM A 706.		X	ACI 318: 3.5.2	
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls, and shear reinforcement.	X			
3) Shear reinforcement.		X		
4) Other reinforcing steel.	X			
6. Inspection of steel frame joint details for compliance with approved construction documents:		X		1704.3.2
a. Details such as bracing and stiffening.	—		—	
b. Member locations.				
c. Application of joint details at each connection.				

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1707.1, Special inspection for seismic resistance.

SICC-604.3 Erection. The **SIER** shall perform special inspections of anchor bolts, bolts, welding, connections, and details. Any observed discrepancies between the County approved construction documents and the **SER** approved structural steel fabrication and erection documents shall be brought to the immediate attention of the **SER**. All steel elements shall be inspected before they are covered by sprayed fire-resistant materials, or are otherwise concealed.

a. High strength bolts. Installation shall conform to the County approved construction documents, **SER** approved structural steel fabrication and erection documents, and the RCSC/AISC *Specification for Structural Joints Using A325 or A490 Bolts*.

In the event any bolt, nut, or washer is broken during normal installation (except bolts purposely over-torqued in order to draw the parts together), the **SIER** shall bring such failures to the immediate attention of the **SER** and **CCBSD.** The **SIER** shall observe the on-job-site proof load testing of any suspect bolt(s) per ASTM and AISC standards. Should the bolts fail load testing, they shall be rejected and the **SER** shall make recommendations in writing for remedial actions. All test results and recommendations shall be reported to **CCBSD**.

b. Welding. All welders and weld special inspectors shall be certified in accordance with AWS D1.1. Weld inspection shall be in conformance with NCSBC-1704.3.1 and NCSBC-Table 1704.3 Item 5.

c. Rigid or semi-rigid connections. When field welding of rigid or semi-rigid connections is required, or when bolted connections are required to meet a minimum pretension beyond snug tight, the **SIER** shall conduct special inspections of the connections.

d. Details: The **SIER** shall perform inspections of the steel frame to verify compliance with the details shown on the County approved construction documents and the SER approved fabrication and erection documents, such as bracing, stiffening, member locations, and proper application of joint details at each connection.

SICC-605 COMPLETION OF STRUCTURAL STEEL CONSTRUCTION

Upon completion of structural steel construction, including connections, the **SIER** shall submit a completion letter to **CCBSD. THE SIER** shall also indicate the date of completion on the final report of special inspections for structural steel construction.

Structural Steel (Council of American Structural Engineer's Guide)

Item	Scope
1. Fabricator Certification/ Quality Control Procedures ☐ Fabricator Exempt	*Review shop fabrication and quality control procedures.*
2. Material Certification	*Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes*
3. Open Web Steel Joists	*Inspect installation, field welding and bridging of joists.*
4. Bolting	*Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip-critical connections.*
5. Welding	*Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds.* *Ultrasonic testing of all full-penetration welds.*
6. Shear Connectors	*Inspect size, number, positioning and welding of shear connectors. Inspect suds for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.*
7. Structural Details	*Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.*
8. Metal Deck	*Inspect welding and side-lap fastening of metal roof and floor deck.*
9. Other:	

CHAPTER 7
CAST-IN-PLACE CONCRETE

SICC-701 GENERAL

SICC-701.1 Scope. The requirements of this chapter and NCSBC-1704.4 shall apply when construction includes cast-in-place concrete as listed in SICC-302.3.

SICC-702 FABRICATION AND ERECTION DOCUMENTS

SICC -702.1 Review and approval. The cast-in-place concrete fabrication and erection documents, including concrete mix designs, shall be submitted for review and approval to the **SER** prior to concrete construction and/or formwork erection, as appropriate. The **GC** shall provide **SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-702.2 SER review and approval. Each fabrication and erection document shall bear the review and approval stamp of the **SER** and be properly signed and dated**.** Prior to concrete construction and/or formwork erection, as appropriate, the fabrication and erection documents listed below shall be reviewed and approved by the **SER:**

- Non-prestressed mild steel reinforcement.
- Prestressing steel to be post-tensioned.
- Concrete mix designs, including any accelerators or other admixtures, for each class of concrete to be used.

SICC-703 INSPECTIONS

SICC-703.1 Special inspections. The **SIER** shall perform special inspections in accordance with this chapter, NCSBC-1704.4 and NCSBC-Table 1704.4. NCSBC -Table 1704.4 Item 2, *Reinforcing steel welding* requires continuous or periodic inspection, depending upon the use of the reinforcing steel. (see SICC-604.2 and NCSBC -Table 1704.3 Item 5b).

> **NCSBC-1704.4.1 Materials.** In the absence of sufficient data or documentation providing evidence of conformance to quality standards for materials in Chapter 3 of ACI 318, the building official shall require testing of materials in accordance with the appropriate standards and criteria for the material in Chapter 3 of ACI 318. Weldability of reinforcement, except that which conforms to ASTM A 706, shall be determined in accordance with the requirements of Section 1903.5.2.

NCSBC-TABLE 1704.4
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]	NCSBC REFERENCE
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	—	X	ACI 318: 3.5, 7.1-7.7	1903.5, 1907.1,1907.7 1914.4
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B.	—	—	AWS D1.4 ACI 318: 3.5.2	1903.5.2
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased.	X	—	—	1912.5
4. Verifying use of required design mix.	—	X	ACI 318: Ch. 4, 5.2-5.4	1904, 1905.2-1905.4 1914.2,1914.3
5. Sampling fresh concrete and performing slump, air content and determining the temperature of fresh concrete at the time of making specimens for strength tests.	X	—	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1905.6, 1914.10
6. Inspection of concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 5.9, 5.10	1905.9, 1905.10, 1914.6,1914.7 1914.8
7. Inspection for maintenance of specified curing temperature and techniques.	—	X	ACI 318: 5.11-5.13	1905.11, 1905.13, 1914.9
8. Inspection of prestressed concrete:				
a. Application of prestressing forces.	X		ACI 318: 18.20	—
b. Grouting of bonded prestressing tendons in the seismic-force-resisting system.	X	—	ACI 318: 18.18.4	
9. Erection of precast concrete members.	—	X	ACI 318: Ch. 16	–
10. Verification of in-situ concrete strength, prior to stressing of tendons in post tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 6.2	1906.2

a. Where applicable, see also Section 1707.1, Special inspection for seismic resistance.

SICC-703.2 Particular Elements.

a. Concrete formwork. The **SIER** shall verify that the formwork materials, cleanliness, size, and installation conform to approved formwork fabrication and erection documents, prior to placement of concrete.

b. Reinforcing steel. The **SIER** shall verify that reinforcing steel is in compliance with County approved construction documents and SER approved fabrication and erection documents, including welding of reinforcement of the structural seismic-force-resisting system.

c. Tendons to be post-tensioned. The **SIER** shall verify that tendons to be post-tensioned are in compliance with County approved construction documents and SER approved fabrication and erection documents, including full-time monitoring of grouting, consolidation and reconsolidation of bonded

prestressing tendons. Inspections shall include tendon size and strength, chair height, tendon profile, tendon snaking elimination, horizontal ties between chairs and condition of sheathing.

d. Stressing of tendons. The **SIER** shall verify that tendon stressing operations are in compliance with project specifications. Stressing of tendons shall not start before the specified minimum strength of field-cured test cylinders has been achieved and verified by the **SIER** and approved by the **SER.** Continuous monitoring of stressing of tendons is required. Elongation records shall be made and checked against project specifications. Tendon failures or tendon elongations not in compliance with project specifications shall be rejected and the **SER** shall make recommendations in writing for remedial actions.

e. Concrete. The **SIER** shall verify use of proper concrete design mix, monitor placement of concrete, and perform inspections and testing listed in NCSBC-Table 1704.4. Continuous monitoring shall be required at the point of discharge from trucks / batch plant, and at the point of deposit / consolidation of concrete. Verify that water added at the site does not exceed that allowed by the mix design.

f. Weldability of reinforcement. If steel reinforcement other than ASTM A 706 is to be welded, the **SIER** shall verify that the weldability of the reinforcement has been determined in accordance with NCSBC -1903.5.2.

g. Welding of reinforcement. Special inspection of welding of reinforcement is required in accordance with **both** NCSBC -Table 1704.4 Item 2 **and** NCSBC -Table 1704.3 Item 5B. Continuous monitoring of welding of reinforcing steel shall be provided where required by NCSBC -Table 1704.3 Item 5B.

SICC-704 TESTING

Concrete shall be tested in accordance with NCSBC-1905.6 and this section.

NCSBC-1905.6 Evaluation and acceptance of concrete. The criteria for evaluation and acceptance of concrete shall be as specified in Sections 1905.6.2 through 1905.6.5.5.

NCSBC-1905.6.1 Qualified technicians. Concrete shall be tested in accordance with the requirements in Sections 1905.6.2 through 1905.6.5. Qualified field testing technicians shall perform tests on fresh concrete at the job site, prepare specimens required for curing under field conditions, prepare specimens required for testing in the laboratory, and record the temperature of the fresh concrete when preparing specimens for strength tests. Qualified laboratory technicians shall perform all required laboratory tests.

NCSBC-1905.6.2 Frequency of testing. The frequency of conducting strength tests of concrete shall be as specified in Sections 1905.6.2.1 through 1905.6.2.4.

NCSBC-1905.6.2.1 Minimum frequency. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 150 cubic yards (115 m^3) of concrete, nor less than once for each 5,000 square feet (465 m^2) of surface area for slabs or walls.

NCSBC-1905.6.2.2 Minimum number. On a given project, if the total volume of concrete is such that the frequency of testing required by Section 1905.6.2.1 would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

NCSBC-1905.6.2.3 Small volume. When the total volume of a given class of concrete is less than 50 cubic yards (38 m^3), strength tests are not required when evidence of satisfactory strength is

submitted to and approved by the building official.

NCSBC-1905.6.2.4 Strength test. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days or at the test age designated for the determination of f'_c.

NCSBC-1905.6.3 Laboratory-cured specimens. Laboratory-cured specimens shall comply with the provisions of Sections 1905.6.3.1 through 1905.6.3.4.

NCSBC-1905.6.3.1 Sampling. Samples for strength tests shall be taken in accordance with ASTM C 172.

NCSBC-1905.6.3.2 Cylinders. Cylinders for strength tests shall be molded and laboratory cured in accordance with ASTM C 31 and tested in accordance with ASTM C 39.

NCSBC-1905.6.3.3 Acceptance of results. The strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:
1. Every arithmetic average of any three consecutive strength tests equals or exceeds f'_c.
2. No individual strength test (average of two cylinders) falls below f'_c by more than 500 psi (3.45 MPa).

NCSBC-1905.6.3.4 Correction. If either of the requirements of Section 1905.6.3.3 are not met, steps shall be taken to increase the average of subsequent strength test results. The requirements of Section 1905.6.5 shall be observed if the requirement of Section 1905.6.3.3, Item 2 is not met.

NCSBC-1905.6.4 Field-cured specimens. Field- cured specimens shall comply with the provisions of Sections 1905.6.4.1 through 1905.6.4.4.

NCSBC-1905.6.4.1 When required. Where required by the building official, the results of strength tests of cylinders cured under field conditions shall be provided.

NCSBC-1905.6.4.2 Curing. Field-cured cylinders shall be cured under field conditions in accordance with ASTM C 31.

NCSBC-1905.6.4.3 Sampling. Field-cured test cylinders shall be molded at the same time and from the same samples as laboratory-cured test cylinders.

NCSBC-1905.6.4.4 Correction. Procedures for protecting and curing concrete shall be improved when the strength of field-cured cylinders at the test age designated for determination of f'_c is less than 85 percent of that of companion laboratory-cured cylinders. The 85 percent limitation shall not apply if the field-cured strength exceeds f'_c by more than 500 psi (3.45 MPa).

NCSBC-1905.6.5 Low-strength test results. The investigation of low-strength test results shall be in accordance with the provisions of Sections 1905.6.5.1 through 1905.6.5.5.

NCSBC-1905.6.5.1 Precaution. If any strength test (see Section 1905.6.2.4) of laboratory-cured cylinders falls below the specified value of f'_c by more than 500 psi (3.45 MPa) (see Section 1905.6.3.3, Item 2), or if tests of field-cured cylinders indicate deficiencies in protection and curing (see Section 1905.6.4.4), steps shall be taken to assure that the load-carrying capacity of the structure is not jeopardized.

NCSBC-1905.6.5.2 Core tests. If the likelihood of low-strength concrete is confirmed and calculations indicate that load-carrying capacity is significantly reduced, tests of cores drilled from

the area in question in accordance with ASTM C 42 is permitted. In such cases, three cores shall be taken for each strength test more than 500 psi (3.45 MPa) below the specified value of f'_c.

NCSBC-1905.6.5.3 Condition of cores. If concrete in the structure will be dry under service conditions, cores shall be air dried at temperatures between 60°F (16°C) and 80°F (27°C) and relative humidity less than 60 percent for seven days before testing and shall be tested dry. If concrete in the structure will be more than superficially wet under service conditions, cores shall be immersed in water for at least 40 hours and be tested wet.

NCSBC-1905.6.5.4 Test results. Concrete in an area represented by core test shall be considered structurally adequate if the average of three cores is equal to at least 85 percent of f'_c and if no single core is less than 75 percent of f'_c. Additional testing of cores extracted from locations represented by erratic core strength results is permitted.

NCSBC-1905.6.5.5 Strength evaluation. If the criteria of Section 1905.6.5.4 are not met and if the structural adequacy remains in doubt, the building official is permitted to order a strength evaluation in accordance with ACI 318, Chapter 20, for the questionable portion of the structure, take other appropriate action.

SICC-704.1 Testing required. Material tests for concrete properties and strength, for determining the compressive strength of concrete, prior to removal of concrete formwork and shoring, reshoring, stressing post-tensioning tendons, loading of vertical building elements, erection of structural steel, and for verifying adequacy of concrete protection and curing methods during cold weather, shall comply with the following:

a. Frequency of testing. Samples for strength tests of each class (concrete mix design) shall be taken in accordance with NCSBC-1905.6.2. Concrete samples for test cylinders shall be taken in accordance with ASTM C 172. Additional test cylinders for strength tests shall be cast if required by the **AR**, **SER,** or County approved documents. Additional cylinders to be field-cured shall be required to evaluate strengths of concrete prior to removal of shores and concrete formwork, prior to stressing of post-tensioning tendons, loading of vertical building elements, erection of structural steel, and adequacy of concrete curing and protection methods during cold weather concreting conditions.

b. Laboratory-cured cylinders. Cylinders for strength tests shall comply with this section and NCSBC-1905.6.3. Cylinders for strength tests shall be cast, stored, transported and laboratory-cured in accordance with ASTM C 31. Tests shall be in accordance with ASTM C 39.

c. Field-cured cylinders. Field-cured cylinders, to evaluate strengths of concrete prior to removal of concrete formwork and shoring, reshoring, prior to stressing post-tensioning tendons, and to determine adequacy of curing and protection of concrete during cold weather, shall comply with this section and NCSBC-1905.6.4. Field-cured cylinders shall be cured as closely as possible to the location of placement of the concrete pour they represent, and be exposed as nearly as possible to the same temperature and moisture environment, in accordance with ACI 318 and ASTM C 31. Tests shall be in accordance with ASTM C 39.

Cylinders may be fabricated on the ground or on the slab, and moved to the curing location no more than 30 minutes after fabrication. If fabricated on the ground, cylinders shall be placed in a temporary open storage location, protected by no more than insulated blankets, remain undisturbed for a minimum of 16 hours but no more than 24 hours after molding, and then be relocated into or on the structure as closely as is practicable to the concrete they represent. If molded on the slab, cylinders shall be placed into or on the structure as closely as is practicable to the concrete they represent immediately after molding.

Equivalency may be achieved by storing uncapped cylinders on or immediately adjacent to the structural concrete placement as soon as practical after casting (and until six hours or less prior to testing), and

subjecting them to the same temperature and moisture loss controls as the structure itself. Test cylinders shall be protected from cold weather and cured in the same manner as the concrete they represent. Under no circumstances shall field-cured cylinders be subjected to a curing environment that is better than the concrete they represent, such as placement within a temperature and/or humidity controlled container.

SICC-704.2 Low-strength concrete test results. Investigation of low-strength concrete shall be in accordance with NCSBC-1905.6.5 and this section. The following procedures shall apply when test results do not comply with the acceptance criteria of ACI 318 for concrete strength.

a. Submittal of data and recommendations to CCBSD. The **SIER** shall submit to **CCBSD** a copy of any records pertaining to under-strength concrete, with written recommendations of the **SER.**

SICC-705 COMPLETION OF CAST-IN-PLACE CONCRETE CONSTRUCTION

Upon completion of cast-in-place concrete construction, the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for all cast in place concrete.

Cast-in-Place Concrete (CASE Guidelines)

Item	Scope
1. Mix Design	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*
2. Material Certification	
3. Reinforcement Installation	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters*
4. Post-Tensioning Operations	*Inspect placement, stressing, grouting and protection of post-tensioning tendons. Verify that tendons are correctly positioned, supported, tied and wrapped. Record tendon elongations.*
5. Welding of Reinforcing	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required.*
6. Anchor Rods	*Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.*
7. Concrete Placement	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
8. Sampling and Testing of Concrete	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
9. Curing and Protection	*Inspect curing, cold weather protection and hot weather protection procedures.*
10. Other:	

COLD WEATHER CONCRETE SLAB TEMPERATURE LOG

PLACEMENT DATE:		PROJECT _____ PERMIT # _____ DESCRIPTION OF POUR _____						
FINISH TIME:		Station #1	Station #2	Station #3	Station #4	Air Temp Und Slab	Ambient Air Temp	Remarks
DAY 1	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							
DAY 2	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							
DAY 3	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							
DAY 4	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							

1) Maintain data for 72 hours after finish of placement.
2) Number of temperature monitoring stations may be increased as needed.
3) Stations shall be located near the outer edges.

CHAPTER 8
PRECAST CONCRETE

SICC-801 GENERAL

SICC-801.1 Scope. The requirements of this chapter, NCSBC-1704.4, and NCSBC-Table 1704.4 Item 9 shall apply when construction includes precast concrete building elements as listed in SICC-302.4.

SICC-801.2 Precast concrete fabrication. Fabricators for off-site precast concrete elements shall be subject to special inspections as required by SICC-302.1 and SICC-803 and NCSBC-1704.2. Site-cast precast concrete elements shall be subject to special inspections during fabrication as required by SICC-2007 Chapter 7 and SICC-804.1, and NCSBC-1704.4.

SICC-801.3 Precast concrete erection. Precast concrete elements shall be subject to special inspections during erection as required by SICC-804.2 and NCSBC-Table 1704.4 Item 9.

SICC-802 FABRICATION AND ERECTION DOCUMENTS

SICC-802.1 Review and approval. The concrete mix designs shall be submitted to the **RDP** responsible for preparation of precast concrete designs and the **AR**, **SER** for review and approval. The fabrication and erection documents shall be submitted for review and approval to the **SER** prior to precast concrete elements' fabrication and/or erection, as appropriate. The **GC** shall provide **SER-**approved fabrication and erection documents, including the concrete mix designs for use by the **SIER** to conduct special inspections during construction.

SICC-802.2 Preparation of fabrication and erection documents. A **RDP** with experience in the design of precast concrete structures shall prepare sign and seal fabrication and erection documents for precast concrete building elements, including but not limited to: design drawings and calculations, connection details, design of lifting inserts, rigging requirements, and erection bracing. Documents for site-cast precast concrete shall also include, but are not limited to: element fabrication, form removal, storage and transportation.

SICC-802.3 AR and SER review and approval. The **AR** and the **SER** shall review the fabrication and erection documents and the concrete mix designs for compliance with the architectural and structural design of the building.

SICC-803 INSPECTION OF PRECAST CONCRETE FABRICATORS

Where fabrication of precast concrete elements is being performed off-site on the premises of a fabricator's shop, special inspection of the fabricator is required (see SICC-302.1 and NCSBC-1704.2). The **SIER** shall verify that the precast plant has a documented and implemented Quality Control Program and shall notify **CCBSD** in writing of his/her findings. The minimum quality control program shall be in accordance with the Precast/Prestressed Concrete Institute (PCI) Plant Certification Program. Alternatively, the **SIER** may inspect the precast plant at appropriate intervals to verify that materials, methods, products, and quality control comply with project specifications, RDP approved fabrication and erection documents. PCI MNL-116, "Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products," and/or PCI MNL-117, "Manual for Quality Control for Plants and Production of Architectural Precast Products" are resources available to the SIER for plant inspections.

SICC-804 INSPECTION OF PRECAST CONCRETE ELEMENTS

The **SIER** shall perform special inspections of precast concrete building elements as required by the NCSBC, NCSBC-1704.4, and NCSBC-Table 1704.4 Item 9 during erection for conformance with SER approved documents.

SICC-804.1 Site-cast precast concrete. During fabrication of site-cast precast concrete elements, the **SIER** shall verify the following:

- **Concrete.** Concrete complies with the approved concrete mix designs and the applicable provisions of SICC-2007 Chapter 7 for cast-in-place concrete.
- **Compressive strength of field-cured cylinders.** The compressive strength of field-cured cylinders satisfies minimum strength requirements of the approved construction documents and the lifting requirements and lifting insert specifications of the approved fabrication and erection documents.
- **Reinforcing steel.** Reinforcing steel, including lifting inserts, is installed in accordance with approved documents.

SICC-804.2 Erection: During erection of precast concrete elements, the **SIER** shall verify the following:

- **Assembly.** Precast concrete elements are lifted, assembled and braced in accordance with approved fabrication and erection documents.
- **Welders.** Welders and weld inspectors are certified in accordance with AWS D1.1, Chapter 5, Part C.
- **Connections.** All welded connections in the structural frame are in accordance with approved documents and applicable sections of the AWS D1.1 Welding Code, SJI Specifications, AISC, and NCSBC. All connections of architectural precast concrete elements in buildings exceeding 30 feet in height and assigned to Seismic Design Category D, E or F in accordance with NCSBC-1707.6.

SICC-805 COMPLETION OF PRECAST CONCRETE CONSTRUCTION

Upon completion of architectural and structural precast concrete construction, the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for all precast concrete construction.

Precast Concrete (CASE Guidelines)

Item	Scope
1. Plant Certification / Quality Control Procedures ☐ Fabricator Exempt	*Review plant operations and quality control procedures.*
2. Mix Design	*Inspect concrete batching operations and verify compliance with approved mix design*
3. Material Certification	
4. Reinforcement Installation	*Inspect size, spacing, position and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials.*
5. Prestress Operations	*Inspect placement, stressing, grouting and protection of prestressing tendons*
6. Connections / Embedded Items	
8. Concrete Placement	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated .*
9. Sampling and Testing of Concrete	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
10. Curing and Protection	*Inspect curing, cold weather protection and hot weather protection procedures.*
11. Erected Precast Elements	*Inspect erection of precast concrete including member configuration, connections, welding and grouting.*
12. Other:	

CHAPTER 9
MASONRY

SICC-901 GENERAL

SICC-901.1 Scope. The requirements of this chapter and NCSBC-1704.5 shall apply when construction includes masonry building elements as listed in SICC-302.5. All masonry construction shall comply with NCSBC-2104 (see SICC-1004 for construction in cold or hot weather).

SICC-902 FABRICATION AND ERECTION DOCUMENTS

The masonry fabrication and erection documents, including construction bracing designs and mortar and grout mix designs, shall be submitted for review and approval to the **AR**, **SER** prior to masonry construction. The **GC** shall provide **AR/SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-903 SPECIAL INSPECTIONS

The **SIER** shall perform special inspections of masonry construction, for conformance with County approved documents and in accordance with NCSBC-1704.5, NCSBC-Table 1704.5.1, and NCSBC-Table 1704.5.3, depending upon the classification of the building or structure as an “essential” or “nonessential” facility and the type of masonry design as “empirical” or “engineered” masonry. (An “essential” facility usually means occupancy for disaster prevention or response, and “engineered” masonry usually means structural loadbearing masonry.)

NCSBC-1704.5 Masonry construction. Masonry construction shall be inspected and evaluated in accordance with the requirements of this section, depending on the classification of the building or structure or nature of occupancy, as defined by this code (see Tables 1604.5 and 1616.2).

Exception: Special inspections shall not be required for:
1. Empirically designed masonry, glass unit masonry, or masonry veneer designed by Section 2109, 2110, or ACI 530/ASCE 5/TMS 402 Chapters 5, 6 or 7 when they are part of nonessential buildings (see Tables 1604.5 and 1616.2).
2. Masonry foundation walls constructed in accordance with Table 1805.5(1), 1805.5(2), 1805.5(3) or 1805.5(4).

NCSBC-1704.5.1 Empirically designed masonry, glass unit masonry and masonry veneer in essential facilities. The minimum inspection program for masonry designed by Chapter 14, Section 2109 or 2110, or by Chapter 5, 6 or 7 of ACI 530/ASCE 5/TMS 402, in essential facilities (see Table 1604.5 and Section 1616.2) shall comply with Table 1704.5.1.

NCSBC-1704.5.2 Engineered masonry in nonessential facilities. The minimum special inspection program for masonry designed by Section 2106, 2107 or 2108, or by chapters other than Chapters 5, 6, or 7 of ACI 530/ASCE5/TMS 402, in nonessential facilities (see Table 1604.5 and Section 1616.2) shall comply with Table 1704.5.1.

NCSBC-1704.5.3 Engineered masonry in essential facilities. The minimum special inspection program for masonry designed by Section 2106, 2107 or 2108, or by chapters other than Chapters 5, 6 or 7 of ACI 530/ASCE5/TMS 402, in essential facilities (see Tables 1604.5 and 1616.2) shall comply with Table 1704.5.3.

NCSBC-TABLE 1704.5.1
LEVEL 1 SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCE FOR CRITERIA		
	Continuous during task listed	Periodically during task listed	NCSBC section	ACI 530 / ASCE 5 / TMS 402[a]	ACI 530.1 / ASCE 6 / TMS 602[a]
1. As masonry construction begins, the following shall be verified to ensure compliance:					
a. Proportions of site prepared mortar.	—	X	—	—	Art. 2.6A
b. Construction of mortar joints.		X			Art. 3.3B
c. Location of reinforcement and connectors.		X			Art. 3.4, 3.6A
d. Prestressing Technique.		X			Art. 3.6B
e. Grade & size of prestressing tendons and anchorage.		X			Art. 2.4B, 2.4H
2. The inspection program shall verify					
a. Size and location of structural elements.		X			3.3G
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.		X		Sec. 1.2.2(e), 2.1.4, 3.1.6	
c. Specified size, grade and type of reinforcement.		X		Sec. 1.12	Art. 2.4, 3.4
d. Welding of reinforcing bars.	X		Sec. 2108.9.2.11 Item 2	Sec. 2.1.10.6.2, 3.2.3.4.(b)	
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature over 90°F).		X	Sec. 2104.3, 2104.4		Art. 1.8C, 1.8D
f.Application & measurement of prestressing force.		X			Art. 3.6B
3. Prior to grouting, the following shall be verified to ensure compliance:					
a. Grout space is clean.		X			Art. 3.2D
b. Placement of reinforcement and connectors.	—	X	—	Sec. 1.12	Art. 3.4
c. Proportions of site-prepared grout.		X			Art. 2.6B
d. Construction of mortar joints.		X			Art. 3.3B
4. Grout placement shall be verified to ensure compliance with code and construction document provisions.	X	—	—	—	Art. 3.5
a. Grouting of prestressing bonded tendons.	X				Art. 3.6C
5. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	X	—	Sec. 2105.2.2, 2105.3	—	Art. 1.4
6. Compliance w/ required inspection provisions of construction documents & the approved submittals are verified.	—	X	—	—	Art. 1.5

For SI: °C = (°F - 32)/1.8.

a. The specific standards referenced are those listed in Chapter 35.

NCSBC-TABLE 1704.5.3
LEVEL 2 SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCE FOR CRITERIA		
	Continuous during task listed	Periodically during task listed	NCSBC section	ACI 530/ ASCE 5/ TMS 402[a]	ACI 530.1/ ASCE 6/ TMS 602[a]
1. From the beginning of masonry construction, the following shall be verified to ensure compliance:					
a. Proportions of site-mixed mortar and grout.		X			Art. 2.6A
b. Placement of masonry units and construction of mortar joints.		X	—		Art. 3.3B
c. Placement of reinforcement and connectors.		X		Sec. 1.12	Art. 3.4, 3.6
d. Grout space prior to grouting.	X				Art. 3.2D
e. Placement of grout.	X				Art. 3.5
f. Placing of Prestressing grout.	X				Art. 3.6C
2. Inspection program shall verify:					
a. Size and location of structural elements.		X			3.3G
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	X			Sec. .2.2(e), 2.1.4, 3.1.6	
c. Specified size, grade and type of reinforcement.		X		Sec. 1.12	Art. 2.4, 3.4
d. Welding of reinforcing bars.	X			Sec. 2.1.10.6.2, 3.2.3.4(b)	
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).		X	Sec. 2104.3, 2104.4		Art. 1.8C, 1.8D
f. Application & measurement of prestressing force.	X				Art. 3.6B
3. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	X	—	Sec. 2105.2.2, 2105.3	—	Art. 1.4
4. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.	—	X	—	—	Art. 1.5

For SI: °C = (°F - 32)/1.8.

a. The specific standards referenced are those listed in Chapter 35.

SICC-904 COLD-WEATHER AND HOT-WEATHER CONSTRUCTION

SICC-904.1 Cold weather. When either the ambient temperature falls below 40°F (4°C), or the temperature of masonry units is below 40°F (4°C), cold weather construction requirements as specified in NCSBC-Table 1704.5.1 or NCSBC-Table 1704.5.3 and NCSBC-2104.3 shall be implemented.

NCSBC-2104.3 Cold-weather construction. The cold-weather construction provisions of ACI 530.1/ASCE6/TMS 602, Article 1.8C, or the following procedures shall be implemented when either the ambient temperature falls below 40°F (4°C) or the temperature of masonry units is below 40°F (4°C).

NCSBC-2104.3.1 Preparation.

1. Temperatures of masonry units shall not be less than 20°F (-7°C) when laid in the masonry. Masonry units containing frozen moisture, visible ice or snow on their surface shall not be laid.
2. Visible ice and snow shall be removed from the top surface of existing foundations and masonry to receive new construction. These surfaces shall be heated to above freezing, using methods that do not result in damage.

NCSBC-2104.3.2 Construction. The following requirements shall apply to work in progress and shall be based on ambient temperature.

NCSBC-2104.3.2.1 Construction requirements for temperatures between 40 °F and 32 °F. The following construction requirements shall be met when the ambient temperature is between 40 °F and 32 °F:

1. Glass unit masonry shall not be laid.
2. Water and aggregates, used in mortar and grout shall not be heated above 140 °F.
3. Mortar sand or mixing water shall be heated to produce mortar temperatures between 40 °F and 120°F at time of mixing. When water and aggregates for grout are below 32 °F, they shall be heated.

NCSBC-2104.3.2.2 Construction requirements for temperatures between 32 °F and 25 °F. The requirements of Sections 2104.3.2.1 and the following construction requirements shall be met when the ambient temperature is between 32 °F and 25 °F:

1. The mortar temperature shall be maintained above freezing until used in masonry.
2. Aggregates and mixing water for grout shall be heated to produce grout temperature between 70 °F and 120 °F at the time of mixing. Grout temperature shall be maintained above 70 °F at the time of grout placement.

NCSBC-2104.3.2.3Construction requirements for temperaturesbetween 25°F (-4°C) and 20°F (-7°C). The requirements of Sections 2104.3.2.1 and 2104.3.2.2 and the following construction requirements shall be met when the ambient temperature is between 25°F (-4°C) and 20°F (-7°C):

1. Masonry surfaces under construction shall be heated to 40°F (4°C).
2. Wind breaks or enclosures shall be provided when the wind velocity exceeds 15 miles per hour (mph) (24 km/h).
3. Prior to grouting, masonry shall be heated to a minimum of 40°F (4°C).

NCSBC-2104.3.2.4. Construction requirements for temperatures below 20°F (-7°C). The requirements of Sections 2104.3.2.1, 2104.3.2.2 and 2104.3.2.3 and the following construction requirement shall be met when the ambient temperature is below 20°F (-7°C): Enclosures and auxiliary heat shall be provided to maintain air temperature within the enclosure to above 32°F (0°C).

NCSBC-2104.3.3 Protection. The requirements of this section and Sections 2104.3.3.1 through 2104.3.3.4 apply after the masonry is placed and shall be based on anticipated minimum daily temperature for grouted masonry and anticipated mean daily temperature for ungrouted masonry.

NCSBC-2104.3.3.1 Glass unit masonry. The temperature of glass unit masonry shall be maintained above 40°F (4°C) for 48 hours after construction.

NCSBC-2104.3.3.2 Protection requirements for temperatures between 40°F (4°C) and 25°F (-4°C). When the temperature is between 40°F (4°C) and 25°F (-4°C), newly constructed masonry shall be covered with a weather-resistive membrane for 24 hours after being completed.

NCSBC-2104.3.3.3 Protection requirements for temperatures between 25°F(-4°C) and 20°F(-7°C). When the temperature is between 25°F (-4°C) and 20°F (-7°C), newly constructed masonry shall be completely covered with weather-resistive insulating blankets, or equal protection,

for 24 hours after being completed. The time period shall be extended to 48 hours for grouted masonry, unless the only cement in the grout is Type III portland cement.

NCSBC-2104.3.3.4 Protection requirements for temperatures below 20°F (-7°C). When the temperature is below20°F (-7°C), newly constructed masonry shall be maintained at a temperature above 32°F (0°C) for at least 24 hours after being completed by using heated enclosures, electric heating blankets, infrared lamps or other acceptable methods. The time period shall be extended to 48

hours for grouted masonry, unless the only cement in the grout is Type III portland cement.

SICC-904.2 Hot weather. When either the ambient temperature equals or exceeds 100 °F (38°C), or the ambient temperature equals or exceeds 90°F (32°C) with a wind velocity greater than 8 mph (13 km/h), hot weather construction requirements as specified in NCSBC-Table 1704.5.1 or NCSBC-Table 1704.5.3 and NCSBC-2104.4 shall be implemented.

NCSBC-2104.4 Hot weather construction. The hot weather construction provisions of ACI 530.1/ ASCE6/TMS 602, Article 1.8D, or the following hot-weather procedures shall be implemented when the temperature or the temperature and wind-velocity limits of this section are exceeded.

NCSBC-2104.4.1 Preparation. The following requirements shall be met prior to conducting masonry work.

NCSBC-2104.4.1.1. Temperature. When the ambient temperature exceeds 100 °F (38°C), or exceeds 90°F (32°C) with a wind velocity greater than 8 mph (13 km/h):

1. Necessary conditions and equipment shall be provided to produce mortar having a temperature below 120°F (49°C).
2. Sand piles shall be maintained in a damp, loose condition.

NCSBC-2104.4.1.2. Special conditions. When the ambient temperature exceeds 115°F (46°C), or 105°F with a wind velocity greater than 8 mph, the requirements of Section 2104.4.1.1 shall be implemented and materials and mixing equipment shall be shaded from direct sunlight.

NCSBC-2104.4.2 Construction. The following requirements shall be met while masonry work is in progress.

NCSBC-2104.4.2.1. Temperature. When the ambient temperature exceeds 100°F (38°C), or exceeds 90°F (32°C) with a wind velocity greater than 8 mph (13 km/h):

1. The temperature of mortar and grout shall be maintained below 120°F (49°C).
2. Mixers, mortar transport containers and mortar boards shall be flushed with cool water before they come into contact with mortar ingredients or mortar.
3. Mortar consistency shall be maintained by retempering with cool water.
4. Mortar shall be used within 2 hours of initial mixing.

NCSBC-2104.4.2.2. Special conditions. When the ambient temperature exceeds 115°F (46°C), or exceeds 105°F (40°C) with a wind velocity greater than 8 mph (13 km/h), the requirements of Section 2104.4.2.1 shall be implemented and cool mixing water shall be used for mortar and grout. The use of ice shall be permitted in the mixing water prior to use. Ice shall not be permitted in the mixing water when added to the other mortar or grout materials.

NCSBC-2104.4.3 Protection. When the mean daily temperature exceeds 100°F (38°C), or exceeds 90°F (32°C) with a wind velocity greater than 8 mph (13 km/h), newly constructed masonry shall be fog sprayed until damp at least three times a day until the masonry is three days old.

SICC-904.3 Temperature records. The **SIER** shall maintain and submit temperature records with daily inspection reports.

SICC-905 STRUCTURAL TESTING FOR SEISMIC RESISTANCE OF MASONRY CONSTRUCTION

SECTION 1708

1708.1 Masonry. Testing and verification of masonry materials and assemblies prior to construction shall

comply with the requirements of this section, depending on the classification of building or structure or nature of occupancy, as defined in this code (see Table 1604.5 or Section 1616.2).

1708.1.1 Empirically designed masonry and glass unit masonry in nonessential facilities.
For masonry designed by Section 2109 or 2110, or by Chapter 5 or 7 of ACI 530/ASCE 5/TMS 402, in nonessential facilities (see Table 1604.5 or Section 1616.2), certificates of compliance used in masonry construction shall be verified prior to construction.

1708.1.2 Empirically designed masonry and glass unit masonry in essential facilities.
The minimum testing and verification prior to construction for masonry designed by Section 2109 or 2110, or by Chapter 5 or 7 of ACI 530/ASCE 5/TMS 402, in essential facilities (see Table 1604.5 or Section 1616.2) shall comply with the requirements of Table 1708.1.2, Level 1 Quality Assurance.

1708.1.3 Engineered masonry in nonessential facilities.
The minimum testing and verification prior to construction for masonry designed by Section 2107 or 2108, or by chapters other than Chapter 5, 6 or 7 of ACI 530/ASCE 5/TMS 402, in nonessential facilities (see Table 1604.5 or Section 1616.2) shall comply with Table 1708.1.2. Level 1 Quality Assurance.

1708.1.4 Engineered masonry in essential facilities.
The minimum testing and verification prior to construction for masonry designed by Section 2107 or 2108, or by chapters other than Chapter 5, 6 or 7 of ACI 530/ASCE 5/TMS 402, in essential facilities (see Table 1604.5 or Section 1616.2) shall comply with Table 1708.1.4, Level 2 Quality Assurance.

TABLE 1708.1.2
LEVEL 1 QUALITY ASSURANCE

MINIMUM TESTS AND SUBMITTALS
Certificates of compliance used in masonry construction. Verifications of f'_m prior to construction, except where specifically exempted by the NC building code.

TABLE 1708.1.4 LEVEL 2
QUALITY ASSURANCE

MINIMUM TESTS AND SUBMITTALS
Certificates of compliance used in masonry construction. Verifications of f'_m prior to construction and every 5000 square feet during construction. Verification of proportions of materials in mortar and grout as delivered to the site.

SICC-906 COMPLETION OF MASONRY CONSTRUCTION

Upon completion of masonry special inspections, the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for all masonry construction.

Masonry (CASE Guidelines)

Item	Scope
1. Material Certification	
2. Mixing of Mortar and Grout	*Inspect proportioning, mixing and retempering of mortar and grout.*
3. Installation of Masonry	*Inspect size, layout, bonding and placement of masonry units.*
4. Mortar Joints	*Inspect construction of mortar joints including tooling and filling of head joints.*
5. Reinforcement Installation	*Inspect placement, positioning and lapping of reinforcing steel.* *Inspect welding of reinforcing steel.*
6. Prestressed Masonry	*Inspect placement, anchorage and stressing of prestressing bars.*
7. Grouting Operations	*Inspect placement and consolidation of grout. Inspect masonry clean-outs for high-lift grouting.*
7. Weather Protection	*Inspect cold weather protection and hot weather protection procedures. Verify that wall cavities are protected against precipitation.*
9. Evaluation of Masonry Strength	*Test compressive strength of mortar and grout cube samples (ASTM C780).* *Test compressive strength of masonry prisms (ASTM C1314).*
10. Anchors and Ties	*Inspect size, location, spacing and embedment of dowels, anchors and ties.*
11. Other:	

CHAPTER 10
WOOD

SICC-1001 GENERAL

SICC-1001.1 Scope. The requirements of this chapter and NCSBC-1704.6 shall apply when construction includes wood building elements as listed in SICC-302.6.

> **NCSBC-1704.6 Wood construction.** Special inspections of the fabrication process of wood structural elements and assemblies shall be in accordance with Section 1704.2.

SICC-1001.2 Wood erection. Wood prefabricated structural elements shall be subject to special inspections during erection as required by SICC-1004.

SICC-1002 FABRICATION AND ERECTION DOCUMENTS

SICC-1002.1 Preparation of fabrication and erection documents A **RDP** with experience in the design of prefabricated wood elements and assemblies shall prepare, sign and seal fabrication and erection documents for prefabricated wood elements. The fabrication and erection documents shall include, but are not limited to: design drawings and calculations, connection details, supports, rigging requirements and lifting procedures, and erection bracing and details. Permanent bracing systems for lateral stability shall be detailed and included in the fabrication and erection documents. Details for welded or bolted connections shall clearly indicate the seismic-resisting elements of buildings of Seismic Design Category C, D, E or F. Details for bolted connections shall clearly indicate the amount of tensioning required and the ASTM specifications for the nuts, bolts and washers.

SICC-1002.2 Review and approval. The wood prefabricated elements' fabrication and erection documents shall be submitted to the **AR**, **SER** for review and approval prior to wood prefabricated elements' fabrication and/or erection, as appropriate. The **GC** shall provide **SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1002.2.1 AR and SER review and approval. The **AR** and the **SER** shall review the fabrication and erection documents for compliance with the architectural and structural design of the building and the County approved construction documents. For prefabricated wood trusses, the **AR**/**SER** shall also submit a certification of compliance to the **CCBSD**.

a. Structural glue-laminated members and sandwich panels. The **GC** shall provide **AR/SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

b. Prefabricated trusses. The **GC** shall provide **AR/SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections of the trusses. This set shall bear the original seal and signature of the **RDP** responsible for truss design.

c. Prefabricated wood I-joists. The **GC** shall provide **AR/SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1003 INSPECTION OF WOOD FABRICATORS

SICC-1003.1 Wood fabricators. The **SIER** shall provide special inspection of the wood fabricator and fabrication procedures, and of the fabricated items, as required by NCSBC-1704.2. Glue-laminated members and sandwich panels shall bear the mark of an approved agency.

a. Certification. The fabricator may demonstrate to the **SIER** that the requirements of NCSBC-1704.2 have been met by furnishing evidence of compliance with the Wood Truss Council of America's Quality Control Program, or its equivalent.

b. Fabricator approval. The **SIER** shall verify in writing to **CCBSD** that the fabricator is properly implementing the fabrication and quality control procedures outlined above. Verification may be on a job basis or by inspection within the previous twelve months.

SICC-1004 INSPECTION OF WOOD ELEMENTS

SICC-1004.1 Erection. The **SIER** shall perform special inspections of wood building elements during erection as required by the NCSBC for conformance with **AR/SER** approved documents. The **SIER** shall verify the following:

SICC-1004.2 Connections. All connections of the seismic-resisting elements of buildings assigned to Seismic Category C, D, E, or F are in accordance with **AR/SER** approved documents and applicable sections of the NCSBC. Special inspections shall include nailing, bolting, structural gluing or other fastening of the wood elements of the structural seismic-resisting system of all buildings, regardless of height, assigned to Seismic Design Category C, D, E or F, as required by **NCSBC-1707.3**.

> **NCSBC 1707.3 Structural wood.** Continuous special inspection during field gluing operations of elements of the seismic-force-resisting system. Periodic special inspections for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including drag struts, braces and hold-downs.

SICC-1005 COMPLETION OF WOOD CONSTRUCTION

Upon completion of wood construction, including connections, the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for wood construction.

Wood Construction (Council of American Structural Engineer's Guide)

Item	Scope
1. Fabricator Certification/ Quality Control Procedures	*Inspect shop fabrication and quality control procedures for wood truss plant.*
2. Material Grading	*Verify species, moisture content, structural grade.*
3. Connections	*To include structural connections such as truss hangers, plates, joists, girders etc.*
4. Framing and Details	*Per plans and fabrication drawings.*
5. Diaphragms and Shearwalls	*Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.*
6. Prefabricated Wood Trusses	*Inspect the fabrication of wood trusses.*
7. Permanent Truss Bracing	*Inspect bracing per designer approved fabrication documents, truss component sheets.*
8. Other:	

CHAPTER 11
SOILS AND FOUNDATIONS

SICC-1101 GENERAL

SICC-1101.1 Scope. The requirements of this chapter and NCSBC-1704.7, NCSBC-1704.8, and NCSBC-1704.9 shall apply when construction includes soil-related conditions or foundation systems as listed in SICC-302.7.

SICC-1101.2 Soils report. The soils report as required by NCSBC-1802.2 and NCSBC-1802.6 shall be prepared, signed and sealed by the **GER** and shall be submitted to the **CCBSD** for review and approval with the construction documents. The **GER** approved soils report shall be used by the **SIER** to conduct special inspections during construction.

SICC-1102 FABRICATION AND ERECTION DOCUMENTS

SICC-1102.1 Review and approval. The soils and foundations fabrication and erection documents shall be submitted to the **GER**, **SER** for review and approval prior to construction, as appropriate. The **GC** shall provide **GER/SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1102.2 Preparation of fabrication and erection documents. A **RDP** with experience in the design of deep foundation elements shall prepare, sign and seal fabrication and erection documents for pile and pier foundations. The fabrication and erection documents for cast-in-place concrete shallow foundations shall be prepared as required in SICC-2007 Chapter 7.

SICC-1103 SOILS-RELATED DEVIATIONS AND REVISIONS

SICC-1103.1 Review and approval. Three sets of revisions to the County approved soils report and/or the County approved construction documents that bear the seal and signature of the appropriate **RDP**s and shall be submitted to the **CCBSD**, as appropriate, for review and approval prior. The **CCBSD** shall determine if the construction can proceed pending approvals.

SICC-1103.2 Preparation of revisions. The **GER** shall prepare, sign and seal revisions to the County approved soils report if on-site soil and/or ground water conditions vary materially from those presumed to exist based on the initial subsurface exploration and as indicated in the approved soils report. The **GER** shall coordinate revisions to the County approved construction documents with the **SER** responsible for structural design of foundations and the **RDP** responsible for deep foundations, if applicable. The **SER** and/or the **RDP** responsible for deep foundations, if applicable, shall prepare, sign and seal revisions to the County approved construction documents. The **GC** shall provide **GER/SER-**approved revisions to the fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1104 SPECIAL INSPECTIONS

SICC-1104.1 Soils. Special inspections as specified in the County approved Statement of Special Inspections shall be conducted to determine compliance with the **GER** approved soils report and the approved construction documents. The **SIER or GER** shall perform special inspections of soils in accordance with NCSBC-1704.7 and NCSBC-1803. Special inspections shall include:

a. **Subgrade.** Subgrade for compatibility of bearing material and ground water conditions with the County approved soils report, prior to construction of footings and slabs.

b. **Fill material.** Fill material for compliance with County approved structural fill specifications, prior to, during, and following its placement in each lift, for structural fill 12 inches (3658 mm) or greater in total depth.

c. **Compaction.** Compaction process to determine that materials' quality and in-place density tests comply with the County approved specifications and geotechnical notes.

NCSBC-1704.7 Soils. The special inspections for existing site soil conditions, fill placement and load-bearing requirements shall follow Sections 1704.7.1 through 1704.7.3. The approved soils report, required by Section 1802.2, shall be used to determine compliance.

Exception: Special inspections not required during placement of fill less than 12 inches (305 mm) deep.

NCSBC-1704.7.1 Site preparation. Prior to placement of the prepared fill, the special inspector shall determine that the site has been prepared in accordance with the approved soils report.

NCSBC-1704.7.2 During fill placement. During placement and compaction of the fill material, the special inspector shall determine that the material being used and the maximum lift thickness comply with the approved report, as specified in Section 1803.4.

NCSBC-1704.7.3 Evaluation of in-place density. The special inspector shall determine, at the approved frequency, that the in-place dry density of the compacted fill complies with the approved report.

SICC-1104.2 Deep foundations. The **SIER or GER** shall perform special inspections of deep foundations to determine their in-place loadbearing capacity.

NCSBC-1704.8 Pile foundations. A special inspector shall be present when pile foundations are being installed and during tests. The special inspector shall make and submit to the building official records of the installation of each pile and results of load tests. Records shall include the cutoff and tip elevation of each pile relative to a permanent reference.

NCSBC-1704.9 Pier foundations. Special inspection is required for pier foundations for buildings assigned to Seismic Design Category C, D, E or F in accordance with Section 1616.3.

Special inspections shall include:

a. **Piling.** Special inspections as required by NCSBC-1704.8 and NCSBC-1808, NCSBC-1809, NCSBC-1810, or NCSBC-1811 as appropriate, and shall include inspection of piles before, during, and after driving. Inspection reports shall contain an evaluation of the pile capacity based on driving resistance, and dynamic or static pile testing. Pile driving records shall be submitted to **CCBSD** prior to placement of pile caps.

b. **Piers.** Special inspections as required by NCSBC-1704.9 and NCSBC-1808 or NCSBC-1812 as appropriate, and shall include concrete strength, steel reinforcement, orientation and shape of caissons, and bearing capacity at the base of the caisson. Inspection reports shall be submitted to **CCBSD** prior to the placement of grade beams.

SICC-1104.3 Shallow footings and foundations. The **SIER** or **GER** shall perform structural inspections of footings and foundation systems, including shallow foundations, foundation walls, mats, slabs, etc., as specified in the County approved Statement of Special Inspections. Special inspections of cast-in-place concrete shall be performed in accordance with SICC-2007 Chapter 7, to include monitoring the placement of concrete, concrete reinforcement, and the dimensions, shapes and locations of footings, slabs, and foundation walls.

SICC-1104.4 Revisions and deviations. In the event that field conditions vary materially from the County approved soils report and the County approved construction documents, the **SIER** or **GER** shall notify the **GC** and the requirements of SICC-1103 shall apply.

SICC-1105 COMPLETION OF SOILS AND FOUNDATIONS CONSTRUCTION

SICC-1105.1 Soils. Upon completion of soil-related special inspections, the **SIER or GER** as applicable shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections of soils.

SICC-1105.2 Deep foundations. Upon completion of all piling and caisson deep foundations, the **SIER or GER** as applicable shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for deep foundations.

SICC-1105.3 Shallow footings and foundations. Upon completion of structural special inspections of footings and foundations, the **SIER or GER** as applicable shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for footings & foundations.

CHAPTER 12

EARTH RETENTION SYSTEMS

SICC-1201 GENERAL

The requirements of this chapter shall apply when construction includes earth retention systems elements as listed in SICC-302.8.

SICC-1202 CONSTRUCTION DOCUMENTS

SICC-1202.1 Review and approval. The earth retention system construction documents shall be submitted for review and approval to the **CCBSD** prior to permit issuance. Construction documents for earth retention systems which are to become a permanent part of the final structure shall be reviewed and approved by the **SER**, including field inspection requirements, prior to submission to the **CCBSD**.

SICC-1202.2 Preparation of construction documents. Earth retention system construction documents, including the related design calculations, shall be prepared, signed and sealed by a **RDP** experienced in the design of earth retention systems. In addition to structural design, the construction documents shall include the following:

- **Adjoining properties.** Recommendations for protecting adjoining properties, including existing public and private streets.
- **Installation.** System installation criteria, including allowable inward movement, pile installation and tie-back criteria, and requirements for inspection and monitoring of the earth retention system construction and adjacent properties.

SICC-1203 FABRICATION AND ERECTION DOCUMENTS

SICC-1203.1 Review and approval. The earth retention system fabrication and erection documents shall be submitted to the **SER** for review and approval prior to construction. The **GC** shall provide **SER-**approved fabrication and erection documents for use by the **SIER** to conduct special inspections during construction.

SICC-1203.2 Preparation of fabrication and erection documents. The **RDP** responsible for the construction documents shall also prepare, sign and seal the fabrication and erection documents.

SICC-1204 INSPECTIONS

SICC-1204.1 Special inspections required. The **SIER** shall perform the special inspections. Earth retention systems shall have special inspections performed to determine compliance with County approved construction documents and this SICC-2007, including the following:

- **Compaction.** Compaction process to determine that materials' quality and in-place density tests comply with the County approved specifications and geotechnical notes and the requirements of NCSBC-1704.7.
- **Backfill, drainage and waterproofing.** Backfill, foundation drainage systems, and waterproofing during and following their placement for compliance with approved backfill, foundation drainage systems, and waterproofing specifications.

SICC-1204.2 Inspection reports. Inspection reports shall be submitted to the appropriate **RDP**s of record and **CCBSD.**

SICC-1204.3 Deviations. Deviations from the County approved earth retention system construction documents shall be subject to approval by the appropriate **RDP** of record and the **CCBSD** prior to work continuing in the affected area. When the earth retention system is to become a permanent part of the final structure, deviations shall also be subject to approval by the **SER.**

SICC-1205 COMPLETION OF EARTH RETENTION SYSTEM CONSTRUCTION

At the completion of the earth retention system construction, the **SIER** shall, after review and approval by the appropriate **RDP**s, the **SIER** shall submit a completion letter to **CCBSD.**

When the earth retention system is to become a permanent part of the final structure, the **SER** shall review and approve the completion letter prior to submission to **CCBSD**, with approval indicating that the system is acceptable as a structural element of the final structure.

The **SIER** shall also indicate the date of completion on the final report of special inspections for earth retention system construction.

CHAPTER 13
SPRAYED FIRE-RESISTANT MATERIALS

SICC-1301 GENERAL

SICC-1301.1 Scope. The requirements of this chapter and NCSBC-1704.11 shall apply for all sprayed fire-resistant materials used to provide required fire resistance ratings for structural elements and decks. Sprayed fire-resistant materials shall not be applied to building elements until required inspections of the building elements and connections have been conducted and approved. Sprayed fire-resistant materials shall be applied, inspected and approved before attachment of or concealment by, other elements of the building.

The **SIER** shall inspect and test sprayed fire-resistant materials, including preparation of structural member surfaces, verification of substrate ambient temperatures and ventilation requirements, and testing samples for thickness, density and adhesion.

SICC-1302 DESIGN DOCUMENTS

SICC-1302.1 Construction documents. Designs for sprayed fire-resistant materials shall be listed by UL or other nationally recognized third party testing agencies to provide the required fire-resistance rating for structural elements and decks. The fire-resistance designs shall be designated on the County approved construction documents. The GC shall provide copies of the UL listings in the field for use by the **SIER**.

SICC-1303 INSPECTION AND TESTING

SICC-1303.1 Inspections and tests. The **SIER** shall inspect and test sprayed fire-resistant materials to verify compliance with NCSBC-1704.11 and the following:

SICC-1303.1.1 Building elements and connections. In addition to other required inspections of the building elements and connections, inspections shall include any non-standard design features or devices as shown on the County approved fabrication and erection documents for sprayed fire-resistant materials (see SICC-1402.2). Other building elements such as pre-cast concrete spandrel panels, electrical conduits, mechanical ductwork or metal studs shall not be installed that interfere with the application of sprayed fire-resistant materials.

SICC-1303.1.2 Application. Sprayed fire-resistant materials shall not be applied to building elements until the **SIER** required inspections of the building elements and connections have been conducted and approved. The sprayed fire-resistant materials shall be applied to all surfaces and lengths of members such that the continuity of fire-resistance required by the County approved fire-resistive designs is obtained.

SICC-1303.1.3 Sampling and testing.

SICC-1303.1.3.1 Thickness and density. Sampling and testing shall be in accordance with NCSBC-1704.11.3 and NCSBC-1704.11.4 and ASTM E 605, at least once for each 1,000 square feet (93 m^2) of sprayed area for floors, roofs and walls and 25 per cent of the structural members on each floor.

SICC-1303.1.3.2 Adhesion. Sampling and testing shall be in accordance with NCSBC-1704.11.5 and ASTM E 736, at least once for each 10,000 square feet (929 m^2) of sprayed area for floors, roofs and walls and one of each type of structural member per 10,000 square feet (929 m^2) on each floor.

SICC-1303.1.4 Attachment of other elements. Sprayed fire-resistant materials shall be inspected and

approved before attachment of other elements of the building. Sprayed fire-resistant materials shall not be scraped off or removed to attach other building elements. Prior to concealment, sprayed fire-resistant materials shall be inspected and approved after attachment of other elements of the building. Any sprayed fire-resistant material damaged, scraped off, or removed shall be repaired.

NCSBC-1704.11 Sprayed fire-resistant materials. Special inspections for sprayed fire-resistant materials applied to structural elements and decks shall be in accordance with Sections 1704.11.1 through 1704.11.5. Special inspections shall be based on the fire-resistance design as designated in the approved construction documents.

NCSBC-1704.11.1 Structural member surface conditions. The surfaces shall be prepared in accordance with the approved fire-resistance design and the approved manufacturer's written instructions. The prepared surface of structural members to be sprayed shall be inspected before the application of the sprayed fire-resistant material.

NCSBC-1704.11.2 Application. The substrate shall have a minimum ambient temperature before and after application as specified in the approved manufacturer's written instructions. The area for application shall be ventilated during and after application as required by the approved manufacturer's written instructions.

NCSBC-1704.11.3 Thickness. The average thickness of the sprayed fire-resistant materials applied to structural elements shall not be less than the thickness required by the approved fire-resistance design. Individual measured thickness, which exceeds the thickness specified in a design by $^1/_4$ inch (6.4 mm) or more shall be recorded as the thickness specified in the design plus $^1/_4$ inch (6.4 mm). For design thicknesses 1 inch (25 mm) or greater, the minimum allowable individual thickness shall be the design thickness minus $^1/_4$ inch (6.4 mm). For design thicknesses less than 1 inch (25 mm), the minimum allowable individual thickness shall be the design thickness minus 25 percent. Thickness shall be determined in accordance with ASTM E 605. Samples of the sprayed fire-resistant materials shall be selected in accordance with Sections 1704.11.3.1 and 1704.11.3.2.

NCSBC-1704.11.3.1 Floor, roof and wall assemblies. The thickness of the sprayed fire-resistant material applied to floor, roof and wall assemblies shall be determined in accordance with ASTM E 605, taking the average of not less than four measurements for each 1,000 square feet (93 m^2) of the sprayed area on each floor or part thereof.

NCSBC-1704.11.3.2 Structural framing members. The thickness of the sprayed fire-resistant material applied to structural members shall be determined in accordance with ASTM E 605. Thickness testing shall be performed on not less than 25 percent of the structural members on each floor.

NCSBC-1704.11.4 Density. The density of the sprayed fire-resistant material shall not be less than the density specified in the approved fire-resistant design. Density of the sprayed fire-resistant material shall be determined in accordance with ASTM E 605.

NCSBC-1704.11.5 Bond strength. The cohesive/adhesive bond strength of the cured sprayed fire-resistant material applied to structural elements shall not be less than 150 pounds per square foot (7.18 kN/m^2). The cohesive/adhesive bond strength shall be determined in accordance with the field test specified in ASTM E 736 by testing in-place samples of the sprayed fire-resistant material selected in accordance with Sections 1704.11.5.1 and 1704.11.5.2.

NCSBC-1704.11.5.1 Floor, roof and wall assemblies. The test samples for determining the cohesive/adhesive bond strength of the sprayed fire-resistant materials shall be selected from each floor, roof and wall assembly at the rate of not less than one sample for every 10,000 square feet

(929 m^2) or part thereof of the sprayed area in each story.

NCSBC-1704.11.5.2 Structural framing members. The test samples for determining the cohesive/adhesive bond strength of the sprayed fire-resistant materials shall be selected from beams, girders, joists, trusses and columns at the rate of not less than one sample for each type of structural framing member for each 10,000 square feet (929 m^2) of floor area or part thereof in each story.

SICC-1304 COMPLETION OF SPRAYED FIRE-RESISTANT MATERIALS

Upon completion of sprayed fire-resistant material construction, the **SIER** shall, after review and approval by the **AR** and **SER**, submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for sprayed fire resistance materials.

Spray-Applied Fire Resistant Material (Council of American Structural Engineer's Guide)

Item	Scope
1. Material Specifications	
2. Laboratory Tested Fire Resistance Design	*Review UL fire resistive design for each rated beam, column, or assembly.*
3. Schedule of Thickness	*Review approved thickness schedule.*
4. Surface Preparation	*Inspect surface preparation of steel prior to application of fireproofing*
5. Application	*Inspect application of fireproofing.*
6. Curing and Ambient Condition	*Verify ambient air temperature and ventilation is suitable for application and curing of fireproofing.*
7. Thickness	*Test thickness of fireproofing (ASTM E605). Perform a set of thickness measurements for every 1,000 SF of floor and roof assemblies and on not less than 25% of rated beams and columns.*
8. Density	*Test the density of fireproofing material (ASTM E605).*
9. Bond Strength	*Test the cohesive/adhesive bond strength of fireproofing ASTM E736). Perform not less than one test for each 10,000 SF.*
10. Other:	

CHAPTER 14
EXTERIOR INSULATION AND FINISH SYSTEMS

SICC-1401 GENERAL

SICC-1401.1 Scope. The requirements of this chapter and NCSBC-1704.12 shall apply when construction includes exterior insulation and finish systems (EIFS) elements as listed in SICC-302.9.

> **NCSBC-1704.12 Exterior insulation and finish systems (EIFS)**. Special inspections shall be required for all EIFS applications.
>
> **Exceptions:**
> 1. Special inspections shall not be required for EIFS applications installed over a water-resistive barrier with a means of draining moisture to the exterior.
> 2. Special inspections shall not be required for EIFS applications installed over masonry or concrete walls.

SICC-1402 FABRICATION AND ERECTION DOCUMENTS

SICC-1402.1 Review and approval. The **GC** shall submit two sets of EIFS fabrication and erection documents to **AR and SER** for review and approval prior to EIFS elements' fabrication, erection or application, as appropriate. The **AR** and the **SER** shall review and approve the fabrication and erection documents for compliance with the architectural and structural design of the building and the County approved construction documents.

SICC-1402.2 Preparation of fabrication and erection documents. The RDP responsible for preparation of the EIFS construction documents shall also prepare, sign and seal the EIFS fabrication and erection documents. Information shall include, but not be limited to:

- Copy of EIFS research report and identification of EIFS manufacturer.
- EIFS manufacturer installation and application instructions.
- Layout and details for application of insulation boards.
- Location, configuration & details for control joints, flashing, weepholes, sealants and caulking.
- System installation criteria, including ambient temperature limitations.
- Criteria and timing for special inspections during construction.
- Design wind pressure on the EIFS and related calculations.
- Waterproofing and drainage provisions including weepholes and any limitations on EIFS or building materials, especially substrate and building framing, for prevention of moisture infiltration to building sheathing or framing.
- EIFS material types and thicknesses, including flame spread and smoke development ratings.
- Details consistent with intent of the research report and manufacturer’s instructions for method of installation at all openings, corners and panel terminations.
- Typical cross-sectional configuration showing all components of the wall. All building sheathing and framing materials in contact with the EIFS shall be dampproofed in accordance with NCSBC-1806. Wood shall also be naturally durable or preservative-treated in accordance with NCSBC-2303.1.8.
- Typical wall configuration showing details of system penetrations.
- For prefabricated panels or elements, complete fabrication and erection details, including element fabrication, storage and transportation instructions, rigging requirements, and erection bracing.

SICC-1403 INSPECTION OF EIFS FABRICATORS

Where fabrication of EIFS panels or elements is being performed off-site on the premises of a fabricator's shop, the **SIER** shall verify that the EIFS plant has a documented and implemented Quality Control Program and shall notify **CCBSD** in writing of his/her findings. The **SIER** may inspect the EIFS plant at appropriate intervals to verify that materials, methods, products, and quality control comply with project specifications and County approved documents. Prefabricated EIFS panels and elements shall be subject to special inspections during fabrication.

SICC-1404 INSPECTION OF EIFS ELEMENTS

SIER verifies applicator is trained and possesses a current certificate by the EIFS material manufacturer and is on the jobsite during all stages of EIFS installation. All EIFS elements shall be subject to special inspections during erection and application. The **SIER** shall perform special inspections of EIFS building elements as required by the NCSBC-1704.12 during erection for conformance with County approved documents, manufacturer’s installation instructions and compliance report including the information required by SICC-1302.2.
Materials to be verified include substrate, insulation board, reinforcing mesh (back wrap), adhesives, corrosion resistant mechanical fasteners, expansion joints, weep screeds, corner reinforcement, trim, base coat, finish coat, primer, corrosion resistant flashing, sealants, caulk etc.

SICC-1405 COMPLETION OF EIFS CONSTRUCTION

Upon completion of EIFS construction, the **SIER** shall, after review and approval by the **AR** and **SER,** submit a completion letter to **CCBSD** and shall indicate the date of completion on the final report of special inspections. The **SIER** shall also indicate the date of completion on the final report of special inspections for EIFS construction.
The **SIER** shall submit a copy of the Contractor’s EIFS and Sealant Certification Form along with the final report of special inspection.

Exterior Insulation & Finish Systems (Council of American Engineer's Guide)

Item	Scope
1. Material Submittals	
2. Condition of Substrate	
3. Application of Foam Plastic Board	
4. Application of Coatings	
5. Application of Mesh	
6. Ambient Condition and Curing	
7. Flashing and Joint Details	
8. Sealants/Caulks	
9. Other:	

CHAPTER 15
SMOKE CONTROL SYSTEMS

SICC-1501 GENERAL

SICC-1501.1 Scope. The requirements of this chapter and NCSBC-1704.14 shall apply for all smoke control systems.

> **NCSBC-1704.14 Special inspection for smoke control.** Smoke control systems shall be tested by a special inspector.
>
> > **NCSBC-1704.14.1 Testing scope.** The test scope shall be as follows:
> > 1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.
> > 2. Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements, and detection and control verification.

SICC-1501.2 Special inspectors. Special inspections and tests for smoke control systems shall be conducted by qualified individuals, agencies or firms approved by the **CCBSD.** The **SIER** for smoke control systems might be different from the **SIER** for other special inspections.

> **NCSBC-1704.14.2 Qualifications.** Special inspection agencies for smoke control shall have expertise in fire-protection engineering, mechanical engineering and certification as air balancers.

SICC-1501.3 Inspections. Special inspections for smoke control systems shall assess, document and verify the following systems/elements:

- automatic dampers
- control air tubing/DDC wiring
- control diagrams and sequences
- fan belts
- exhaust fan components
- power: normal and standby

SICC-1501.4 Tests. Tests shall document and verify the adequate performance of:

- control elements and sequences
- control air tubing/ DDC wiring
- control devices
- dampers
- detection devices and their tolerances
- doors
- ducts and shafts
- fans
- inlets and outlets, including sizes and positions
- pressurized stair enclosures
- smoke zone or area boundary elements/ barriers
- response times
- leakage of boundary or barrier elements, including doors and partitions.
- power: normal and standby

All tests, including failed tests and subsequent follow-up re-tests and corrective actions, shall be recorded and form part of the final report.

SICC-1502 COMPLETION OF SMOKE CONTROL SYSTEMS

Final reports shall verify compliance with all portions of NCSBC-909.18, NCSBC-909.19 and NCSBC-909.20, as applicable. Upon completion of smoke control systems, the **SIER** for smoke control systems shall, after review and approval by the **AR,** submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion of the Smoke Control System on the final report of special inspections.

CHAPTER 16
ARCHITECTURAL, MECHANICAL, ELECTRICAL COMPONENTS

SICC-1601 GENERAL

For buildings assigned to Seismic Design Category C, D, E, or F, architectural, mechanical, electrical and plumbing components shall have a quality assurance plan, and be specially inspected and tested, in accordance with NCSBC-1705.1, NCSBC-1707.1, 1707.6, 1707.7, NCSBC-1708.2, and 1708.5.

NCSBC-1705.1 Scope. A quality assurance plan for seismic requirements shall be provided in accordance with Section 1705.2 for the following:

2. Designated seismic systems in structures assigned to Seismic Design Category D, E, or F.
3. The following additional systems in structures assigned to Seismic Design Category C:
   3.1. HVAC ductwork containing hazardous materials, and anchorage of such ductwork
   3.2. Piping systems and mechanical units containing flammable, combustible or highly toxic materials
   3.3. Anchorage of electrical equipment used for emergency or standby power systems.
4. The following additional systems in structures assigned to Seismic Design Category D:
   4.1 Systems required for Seismic Design Category C.
   4.2 Exterior Wall panels and their anchorage.
   4.3 Suspended Ceiling systems and their anchorage.
   4.4 Access Floors and their anchorage.
   4.5 Steel storage racks & anchorage, where the factor I_p, determined in Section 9.6.1.5 of ASCE 7, is equal to 1.5.

Exceptions:

1. A QA plan is not required for structures designed and constructed in accordance with the conventional construction provisions of Section 2308.
2. A QA plan is not required for structures constructed of light wood framing or light framed cold-formed steel; the S_{DS} as determined in Section 1615.1 does not exceed 0.5g, and the height of the structure does not exceed 35 feet above grade plane.
3. A QA plan is not required if the structure is constructed using a reinforced masonry structural system or reinforced concrete structural system; the S_{DS} as determined in Section 1615.1 does not exceed 0.5g, and the height of the structure does not exceed 25 feet above grade plane.

SICC-1602 INSPECTIONS AND TESTS

NCSBC-1707.1 Special inspections for seismic resistance. Special inspection as specified in this section is required for the following, where required in Section 1704.1. Special inspections itemized in Sections 1707.2 through 1707.8 are required for the following:

3. Architectural, mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F that are required in Sections 1707.5, 1707.6 and 1707.7.

NCSBC-1707.5 Storage racks and access floors. Periodic special inspection during the anchorage of access floors & storage racks 8 feet or greater in height in structures assigned to Seismic Design Category D, E, or F.

NCSBC-1707.6 Architectural components. Periodic Special insepction during the erection and fastening of exterior cladding, interior and exterior nonbearing walls and interior and exterior veneer in structures assigned to Seismic Design Catergory D, E, or F.

Exceptions:

1. Special inspection is not required for architectural components in structures 30 feet or less in height.
2. Special inspection is not required for cladding and veneer weighing 5 psf or less.
3. Special inspection is not required for interior nonbearing walls weighing 15 psf or less.

NCSBC-1707.7 Mechanical and electrical components. Periodic special inspection during the anchorage of

electrical equipment for emergency or standby power systems in structures assigned to Seismic Design Category C, D, E or F. Periodic special inspection during the installation of anchorage of other electrical equipment in structures assigned to Seismic Design Category E or F. Periodic special inspection during installation of piping systems intended to carry flammable, combustible, or highly toxic contents and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F. Periodic special inspection during the installation of HVAC ductwork that will contain hazardous materials in structures assigned to Seismic Design Category C, D, E or F.

NCSBC-1707.7.1 Component inspection. Special inspection is required for the installation of the following components where the component has a Component Importance Factor of 1.0 or 1.5 in accordance with Section 9.6.1.5 of ASCE 7.

1. Equipment using combustible energy sources.
2. Electrical motors, transformers, switchgear unit substations and motor control centers.
3. Reciprocating and rotating-type machinery.
4. Piping distribution systems 3 inches (76 mm) and larger.
5. Tanks, heat exchangers and pressure vessels.

NCSBC-1707.7.2 Component and attachment testing. The component manufacturer shall test or analyze the component and the component mounting system or anchorage for the design forces in Chapter 16 for those components having a Component Importance Factor of 1.0 or 1.5 in accordance with Chapter 16. The manufacturer shall submit a certificate of compliance for review and acceptance by the registered design professional responsible for the design, and for approval by the building official. The basis of certification shall be by test on a shaking table, by three-dimensional shock tests, by an analytical method using dynamic characteristics and forces from Chapter 16 or by more rigorous analysis. The special inspector shall inspect the component and verify that the label, anchorage or mounting conforms to the certificate of compliance.

NCSBC-1707.7.3 Component manufacturer certification. Each manufacturer of equipment to be placed in a building assigned to Seismic Design Categories E and F, in accordance with Chapter 16, where the equipment has a Component Importance Factor of 1.0 or 1.5 in accordance with Chapter 16, shall maintain an approved quality control program. Evidence of the quality control program shall be permanently identified on each piece of equipment by a label.

NCSBC-1708.2 Testing for seismic resistance. The tests specified in Sections 1708.3 through 1708.6 are required for the following:

3. Architectural, mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F that are required in Section 1708.5.

NCSBC-1708.5 Mechanical and electrical equipment. Each manufacturer of designated seismic system components shall test or analyze the component and its mounting system or anchorage and shall submit a certificate of compliance for review and acceptance by the registered design professional in responsible charge of the design of the designated seismic system and for approval by the building official. The evidence of compliance shall be by actual test on a shake table, by three-dimensional shock tests, by an analytical method using dynamic characteristics and forces, by the use of experience data (i.e., historical data demonstrating acceptable seismic performance), or by more rigorous analysis providing for equivalent safety. The special inspector shall examine the designated seismic system and shall determine whether the anchorages and label conform with the evidence of compliance.

SICC-1603 COMPLETION OF ARCHITECTURAL, MECHANICAL AND ELECTRICAL COMPONENTS

Upon completion, the **SIER** shall submit a completion letter to **CCBSD.** The **SIER** shall also indicate the date of completion on the final report of special inspections for architectural, mechanical, and electrical components.

CATAWBA COUNTY, NORTH CAROLINA
SPECIAL INSPECTIONS PROGRAM
Statement of Special Inspections

TPI Permit #1: _____ **TPI Permit #2:** _____ **TPI Permit #3**_____
(TPI Permit Numbers to be furnished by CCBSD)

PROJECT: _____ **NCSBC Edition:**_____

Address: _____ **Occupancy:**_____

_____ **Construction Type:**_____

Building Owner:_____
Name *Company*

Owner's Address:_____

Architect of Record:_____
Name & License *Company*

Structural Engineer of Record:_____
Name & License *Company*

Geotechnical Engineer of Record:_____
Name & License *Company*

Special Inspections Engineer of Record 1 :_____
Name & License *Company*

Special Inspections Engineer of Record 2:_____
Name & License *Company*

Special Inspections Engineer of Record 3:_____
Name & License *Company*

General Contractor:_____
Name & License *Company*

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the North Carolina Statewide Building Code. It includes a schedule of special inspections applicable to this project.

The Special Inspections Engineer of Record shall keep records of specified special inspections and testing and shall furnish copies of inspection and testing reports to the Catawba County Building Services Division and to the appropriate registered design professionals of record. Discrepancies from the approved plans and specifications and code violations observed during the conduct of special inspections services shall be brought to the immediate attention of the contractor for correction, to the attention of the Catawba County Building Services Division, and to the appropriate registered design professionals of record. A final report of special inspections documenting completion of specified special inspections and correction of any discrepancies and observed code violations noted in the inspection and testing reports shall be submitted to the Catawba County Building Services Division prior to the request for final building inspection and building inspection approval by County staff.

Prepared by Registered Design Professional in Responsible Charge:

_____ _____
(Type or print) Name *Signature & Date*

Building Owner's Authorization: _____
Signature & Date

Building Official's Acceptance: _____
Catawba County Building Services *Signature & Date*

Page 2 of 3 **SCHEDULE OF SPECIAL INSPECTIONS** Date:
PROJECT: Prepared By:

ACTIVITY/SYSTEMS	Y/N	AGENT *	REFERENCES
Steel Construction, Fabrication & Seismic Resistance			NC State Building Code 1704.2, 1704.3, 1707, 1708.4 & SICC Chapter 6
Concrete Construction, Fabrication & Seismic Resistance			NC State Building Code 1704.2, 1704.4, 1708.3 SICC Chapter 7 & 8
Masonry Construction, Fabrication & Seismic Resistance			NC State Building Code 1704.2, 1704.5, 1708.1 & SICC Chapter 9
Wood Construction, Fabrication & Seismic Resistance			NC State Building Code 1704.2, 1704.6, 1707.3 & SICC Chapter 10
Soils			NC State Building Code 1704.7 & SICC Chapter 11
Pile Foundations & Fabricators			NC State Building Code 1704.2, 1704.8, 1808, 1809, 1810, 1811 & SICC Chapter 1104.2
Pier Foundations			NC State Building Code 1704.9, 1808, 1812 & SICC 1104.2
Earth Retention Systems			NC State Building Code 1806.2 & SICC Chapter 12
Sprayed Fire Resistance Materials			NC State Building Code 1704.11 & SICC Chapter 13
EIFS			NC State Building Code 1704.12 & SICC Chapter 14
Smoke Control			NC State Building Code 1704.14 & SICC Chapter 15
Seismic Resistance, Architectural, Mechanical & Electrical Components			NC State Building Code 1621, 1707.5, 1707.6, 1707.7 & 1708.5
Structural Observations required in Seismic Use Group II or III		*SER*	NC State Building Code 1702 & 1709 To be conducted by the Structural Engineer of Record
Special Cases			NC State Building Code 1704.13

* INSPECTION AGENTS Name, Company, Address

1. Special Inspections Engineer of Record 1:

_____

2. Inspection and Testing Agency 1 A:

_____

3. Special Inspections Engineer of Record 2:

_____

4. Inspection and Testing Agency 2 A:

_____

5. Special Inspections Engineer of Record 3:

_____

6. Inspection and Testing Agency 3 A:

_____

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

CATAWBA COUNTY, NORTH CAROLINA
SPECIAL INSPECTIONS PROGRAM
Quality Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category

Quality Assurance Plan Required (Y/N)

Description of seismic force resisting system and designated seismic systems requiring special inspections (Review Section 1705, 1707 and 1708 of the NCSBC to prepare this section):

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust)

Wind Exposure Category

Quality Assurance Plan Required (Y/N)

Description of wind force resisting system and designated wind resisting components requiring special inspections (Review Section 1706 of the NCSBC to prepare this section):

Statement of Responsibility

List each contractor responsible for the construction or fabrication of a system or component designated above. Each contractor listed must submit a Statement of Responsibility.

Name	*Company*	*System or Component*

Contractor's Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated in the Quality Assurance Plan must submit a Statement of Responsibility.

Project:

Contractor's Name:

Address:

License No.:

Description of designated building systems and components included in the Statement of Responsibility:

Contractor's Acknowledgment of Special Requirements

I hereby acknowledge that I have received, read, and understand the Quality Assurance Plan and Special Inspection program.

I hereby acknowledge that control will be exercised to obtain conformance with the construction documents approved by the Building Official.

_____ _____

Signature Date

Contractor's Provisions for Quality Control

Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of reports is attached to this Statement.

Identification and qualifications of the person(s) exercising such control and their position(s) in the organization are attached to this Statement.

Special Inspections Program

Special Inspectors Certification Report

Project Name	
Address	
Engineer of Record	

The following Inspectors must have all required certifications attached to this document or the certification must be on file with the Catawba County Building Services Department.

Certification Type(s)										
Special Inspector	**Steel**		**Concrete**					**Masonry**		**Soil**
Print Name	Welding & Steel Frame	Bolting & Steel Frame	Concrete Testing **ONLY**	Reinforced Concrete	Prestressed Concrete	Precast Concrete	Post Tension Concrete	Structural Masonry	Structural Masonry (Welding)	Excavation, Filling and Verification
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐
	☐ PE/EI ☐ AWS-CWI ☐ ICC-SWSI ☐ EI	☐ PE/EI ☐ ICC-SWSI ☐ EI ☐	☐ ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ ICC-RCSI	☐ ICC-RCSI & ACI-CFTT ☐ ACI-CCI ☐ NICET-CT LEVEL III ☐ EI	☐ ICC-PCSI ☐ CPTIC ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ EI ☐	☐ CPTIC ☐ EI ☐ ☐	☐ ACI-CCI ☐ ICC-SMSI ☐ EI ☐	☐ AWS-CWI ☐ ICC-SWSI ☐ ☐	☐ NICET-GET (II) ☐ EI ☐ GIT ☐

Complete other certifications on next page.

Special Inspector	Certification Type(s)					
	Pile & Pier Found.	Sprayed fire resistance	Exterior Insulation and Finish System	Special Cases	Smoke Control System	Seismic Resist.
Print Name (carried over from previous sheet)	Piling & Drilled Piers	Sprayed Fire Resistance Material	EIFS			
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐
	☐ NICET-GET II ☐ EI ☐ GIT ☐	☐ ICC-SFSI ☐ EI ☐ ☐	☐ AWCI ☐ EI ☐ EDI-EIFS ☐	☐ SER ☐ ☐ ☐	☐ MECH ENG. ☐ FP ENG. ☐ ☐	☐ PE ☐ ☐ ☐

Note: All certifications must be current.

Catawba County Office use only!

Certification reviewed by:		Date:
Approved: ☐		Disapproved: ☐
TPI Permit # ____________________		Building Permit #: ____________________

Definitions for Certification types

Engineering License

PE/SE	Structural Engineer - a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer - a licensed PE specializing in soil mechanics and foundations
EI	Engineer Intern - a graduated engineer who has passed the Foundation of Engineering examination

These classifications will not require additional Certification verification

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician - (Grade 1)
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician - (Grade 1 & 2)
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS - CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector
ASNT	Non-Destructive Testing Technician (Level II & III

International Code Council (ICC) Certification

ICC - SMSI	Structural Masonry Special Inspector
ICC - SWSI	Structural Steel and Welding Special Inspector
ICC - SFSI	Spray-Applied Fireproofing Special Inspector
ICC - PCSI	Pre-stressed Concrete Special Inspector
ICC - RCSI	Reinforced Concrete Special Inspector

Post-Tensioning Institute

CPTIC	Current Post-tensioning Institute Certification

National Institute for Certification in Engineering Technologies

NICET - CT	Concrete Technician - Levels I, II, III & IV
NICET - ST	Soils Technician - Levels I, II, III, & IV
NICET - GET	Geotechnical Engineering Technician Levels I, II, III, & IV

Exterior Design Institute (EDI) Certification

EDI - EIFS	EIFS Third Party Inspector

Daily Field Report
Catawba County, North Carolina

Date _____ Report # _____ TPI Permit # _____

General Inspection Type: ☐ Steel ☐ Concrete ☐ Masonry ☐ Wood ☐ Soils ☐ Pile ☐ Pier
(Check **one** box only.) ☐ Earth Retention Systems ☐ Sprayed Fire Resistance ☐ EIFS
☐ Smoke Control ☐ Architectural Components ☐ Mechanical Components
☐ Electrical Components ☐ Structural Observations ☐ Special Cases

Seismic Inspection Type: ☐ Steel ☐ Concrete ☐ Masonry ☐ Wood ☐ Architectural Components
(Check **one** box only.) ☐ Mechanical Components ☐ Electrical Components

Fabrication Inspection Type: (Check **one** box only.) ☐ Steel ☐ Concrete ☐ Masonry ☐ Wood

( ) Continuous ( ) Periodic Inspection Time: Beginning: _____ Ending: _____

Describe inspections made, including locations: _____

_____

_____

_____

List tests made: _____

_____

Discrepancy, list items requiring correction, corrections of previous listed items and previously listed uncorrected items: _____

_____

_____

_____

List changes to approved plans authorize by architect or engineer: _____

_____

_____

Comments: _____

_____

_____

To the best of my knowledge, work inspected was in accordance with the building services division approved design drawing, specifications and applicable workmanship provisions of the NC State Building Code except as noted above.

Printed Name: _____ Signature: _____ Date: _____

(This report to be submitted with the Monthly Engineers Summary Report or furnished to the code enforcement official at time of TPI scheduled site visit.)

DISCREPANCY NOTICE
Catawba County, North Carolina

Date _____ TPI Permit # _____

General Inspection Type: ☐ Steel ☐ Concrete ☐ Masonry ☐ Wood ☐ Soils ☐ Pile ☐ Pier
(Check **one** box only.) ☐ Earth Retention Systems ☐ Sprayed Fire Resistance ☐ EIFS
☐ Smoke Control ☐ Architectural Components ☐ Mechanical Components
☐ Electrical Components ☐ Structural Observations ☐ Special Cases

Seismic Inspection Type: ☐ Steel ☐ Concrete ☐ Masonry ☐ Wood ☐ Architectural Components
(Check **one** box only.) ☐ Mechanical Components ☐ Electrical Components

Fabrication Inspection Type: (Check **one** box only.) ☐ Steel ☐ Concrete ☐ Masonry ☐ Wood

Describe discrepancy, including locations: _____

_____

_____

_____

_____

☐ Make the following corrections and request special inspection approval prior to proceeding with the next phase of work: _____

_____

_____

_____

_____

☐ List or attach a description of the action recommended by the AR,SER as appropriate to correct the condition: _____

_____

_____

_____

_____

Notice delivered to: ☐ Engineer/Architect Date _____ Time_____

☐ Contractor Date _____ Time_____

☐ CC Building Services Date _____ Time_____

Printed Name: _____ Signature: _____ Date: _____

(This report to be submitted with the Monthly Engineers Summary Report or furnished to the code enforcement official at time of TPI scheduled site visit.)

Monthly Engineers Summary Report
Catawba County, North Carolina

Date _____ TPI Permit # _____ Report # _____

☐ Monthly Summary Report Covering Daily Reports dated: From_____ To_____

☐ Summary Report Covering Laboratory Test Results dated _____

Describe inspections made: _____

_____

_____

Describe tests made (attach copy of test results) : _____

_____

_____

Discrepancy, list items requiring correction, corrections of previous listed items and previously listed uncorrected items: _____

_____

_____

_____

_____

List changes to approved plans authorized by architect or engineer: _____

_____

_____

Comments: _____

_____

_____

To the best of my knowledge, work inspected and tests reviewed are in accordance with the building services division approved design drawing, specifications and applicable workmanship provisions of the NC State Building Code except as noted above.
Prepared By:

Printed Name: _____

Date: _____

Design Professional Seal

(This report to be furnished to the code enforcement official at time of TPI scheduled site inspections.)

CATAWBA COUNTY, NORTH CAROLINA
SPECIAL INSPECTIONS PROGRAM
Final Report of Special Inspections

TPI Permit #: _____ **Building Permit #:** _____

PROJECT: _____

Address: _____

Special Inspections Engineer of Record: _____

The following is a list of completion dates for all special inspection activities conducted for the types of work listed on the Statement of Special Inspections.

Types of Work listed on Statement of Special Inspections	Completion Date

Engineer summary reports numbered _____ to _____, and test reports numbered _____ to _____, all submitted prior to this final report, form a basis for, and are to be considered an integral part of, this final report.
The special inspections specified for this project and itemized in the County approved Statement of Special Inspections have been completed pursuant to the Catawba County Special Inspection Program requirements. The building elements subject to special inspections have been found to be in compliance with County approved documents and in conformance with project specifications. Violations of the North Carolina Statewide Building Code observed in the conduct of special inspections services were brought to the attention of the appropriate registered design professional of record, the County, and the owner for resolution and the resolution was approved by the County.

Submitted by Special Inspections Engineer of Record:

_____
Signature & Date

_____
(Type or print) Name

SIER Design Professional Seal

Reviewed by Registered Design Professional of Record:

_____
Signature & Date

_____
(Type or print) Name

Accepted by Building Official:

_____
Signature & Date Catawba County Building Services

_____
(Type or print) Name

APPENDIX B
Qualifications of Inspectors

The designated Special Inspections Engineer of Record (SIER) shall be a North Carolina Professional Engineer or a North Carolina Registered Architect for the following inspections. Individuals other than the registered engineer or architect performing daily inspections shall meet the following minimum criteria of certification and /or documented experience. Work experience must be related to the field of which the individual is being utilized. The designated (SIER) shall be responsible for collecting and submitting the documentation of qualifications for these individuals to the CCBSD prior to commencement of special inspections.

Section 1704.2 Inspection of Fabricators

- Precast: Current ICC Reinforced Concrete Special Inspector or ACI Concrete Construction Special Inspector or NICET Concrete Level III with two years experience or EI with one year related experience
- Bar Joists: Current AWS Certified Welding Inspector or Current ICC Structural Welding Special Inspector
- Metal Buildings: Current AWS Certified Welding Inspector or ICC Structural Welding Special Inspector
- Structural Steel: Current AWS Certified Welding Inspector or ICC Structural Welding Special Inspector
- Wood Construction: EI with one year of related experience

Section 1704.2.2 Registered and Approved Fabricators (Special Inspections exempt)
Metal Buildings Fabrication
Current American Institute of Steel Construction- Metal Building Systems Certification
International Code Council Evaluation Service
Precast Concrete Fabrication
Current National Precast Concrete Association Plant Certification
Prefabricated Trusses
Current Truss Plate Institute Certification
Steel Bar Joist Fabrication
Current Steel Joist Institute Certification
Structural Steel Fabrication
Current American Institute of Steel Construction – Conventional Steel Building Structures
Current American Institute of Steel Construction – Complex Steel Building Structures
Current American Institute of Steel Construction – Simple Steel Bridges (Non DOT Projects)
Current American Institute of Steel Construction – Major Steel Bridges (Non DOT Projects)

NCSBC Section 1704.3 Steel Construction
Welding & Steel Frame Table 1704.3 Section 3, 4, 5, 6; Table 1704.4 Item 2; 1707.2

- Current AWS Certified Welding Inspector or
- Current ICC Structural Welding Special Inspector
- EI with one year of related experience

High Strength Bolting & Steel Frame Table 1704.3 Items 1, 2, 3, 6

- Current ICC Structural Steel and Bolting Special Inspector Certificate, or
- EI with one year of related experience

Section 1704.4 Concrete Construction
Reinforced Concrete: NCSBC 1704.4, 1805, Table 1704.4 Items 1, 2, 3, 4, 5, 6, 7

- Current ICC Reinforced Concrete Special Inspector and ACI Concrete Field Testing Technician, Grade 1 or
- ACI Certification, Concrete Construction Special Inspector or
- NICET Concrete Level III with two years experience or
- EI with one year related experience

Pre-stressed Concrete NCSBC Table 1704.4 Items 8 and 10

- Pretension Tendons: Requirements for Reinforced Concrete plus current ICC Pre-stressed Concrete Special Inspector Certificate, or EI with one year of related experience.
- Post-tension Tendons: Current Post-Tensioning Institute Certification or EI with one year related experience.

Pre-Cast Concrete NCSBC Table 1704.4 Item 9

- Connections: Current AWS Certified Welding Inspector or Current ICC Structural Welding Special Inspector
- Size and location of Members: EI with one year of related experience, or ICC Reinforced Concrete Inspector

Post Tension Slabs-on-Grade and NCSBC 1805.8.2

- Current Post-Tensioning Institute Certification or EI with one year related experience.

Section 1704.5 Masonry Construction

Structural Masonry NCSBC 1704.5, Table 1704.5.1 all items except 2.d, Table 1704.5.3 all items except 2.d

- Current ACI Certification, Concrete Construction Special Inspector or
- Current ICC Structural Masonry certificate or
- EI with one year related experience

Structural Masonry NCSBC 1704.5, Table 1704.5.1 Item 2.d, Table 1704.5.3 Item 2.d

- Current AWS Certified Welding Inspector certification
- Current ICC Structural Welding Special Inspector

Section 1704.7 Soils

Excavation and Filling NCSBC 1704.7, 1803.4

- Current NICET certification in geotechnical engineering technology (Construction Materials- Soils), Level II, or
- EI with one year related experience, or
- GIT with one year of related experience

Verification of Soils NCSBC 1804, 1805

- Current NICET certification in geotechnical engineering technology, Level II or
- EI with one year related experience or
- GIT with one year of related experience

Section 1704.8 Pile Foundations and Section 1704.9 Pier Foundations

Piling and Drilled Piers NCSBC 1704.8, 1704.9, 1804.2.4, 1807-11

- Current NICET certification in geotechnical engineering technology, Level II, or
- EI with one year related experience, or
- GIT with one year of related experience

Section 1704.11 Sprayed Fire Resistant Materials

Sprayed Fire Resistant Materials NCSBC 1704.11

- Current ICC Spray-Applied Fire Proofing certificate, or
- EI with one year related experience

Section 1704.12 Exterior Insulation and Finish System

Exterior Insulation and Finish System NCSBC Section 1704.12

- EI with one year related experience, or
- Association of the Wall and Ceiling Industry (AWCI) EIFS Inspector
- Exterior Design Institute (EDI) Certification as EIFS Third Party Inspector

Section 1704.13 Special Cases

Special Cases NCSBC 1704.13

- As identified by the SER, on a case by case, in the Statement of Special Inspections.

Section 1704.04 Special Inspection for Smoke Control

Shall be a NC Registered Mechanical Engineer or Fire Protection Engineer with a certification as air balancers.

- Certification as required in Section 1704.14.2

Section 1707, 1708, 1709 Special Inspections for Seismic Resistance

- Professional Engineer registered in the State of North Carolina as recognized above for specific type of component (steel, concrete, masonry, etc.)

APPENDIX C
General Contractors Guide

The **GC** shall coordinate the scheduling of special inspections with the **SIER** and maintain copies of all Daily Field Reports as well as Descrepancy Reports on site for Building Officials review as needed. **CCBSD** will provide clipboards and blank forms for this purpose.

Footing Inspection. The following information shall be provided to the building official prior to requesting a footing inspection or monolithic slab pour:

- Completion of Soil-Related Special Inspections SICC 1105.1.
- Completion of Earth Retention Systems SICC 1205 (if system provides a bearing plane for the building).
- Completion of Deep Foundation Inspections SICC 1105.2 (Piles & Cassions).
- Cast in place Concrete - Daily Field Report or Monthly Engineer's Summary addressing Material Certification, Reinforcement Installation, Welding of Reinforcement, Anchor Rods and Bolts, Concrete Form Work.

Footing inspections shall be made after the trenches are excavated, all grade stakes are installed, all reinforcing steel and supports are in place and appropriately tied, all necessary forms are in place and braced and before any concrete is placed.

Under Slab Inspection. Under slab inspections, as appropriate, shall be made after all materials and equipment to be concealed by the concrete slab are completed with appropriate verification tests if applicable.

Foundation Inspection, Crawl Space. The following information shall be provided to the building official prior to requesting a foundation inspection for a crawlspace installation:

- Completion of Shallow Footings and Foundations SICC-1105.3.
- Completion of Precast Concrete Construction Section 805.
- Completion of Cast in Place Concrete Construction SICC-705 (If foundation walls are poured concrete).
- Completion of Masonry Construction Section 1005.

Foundation and crawl space inspections shall be made after all foundation supports are installed. This inspection is to check foundation supports, crawl space leveling, ground clearances, and positive drainage, waterproofing and dampproofing as required.

Rough-In Inspection. The following information shall be provided to the building official prior to requesting a rough-in inspection for parts of the electrical, plumbing, fire protection, or heating-ventilation or cooling system:

- Completion of Sprayed Fire Resistant Materials SICC 1404.

Rough-in inspections shall be made when all building framing and parts of the electrical, plumbing, fire protection, or heating-ventilation or cooling system that will be hidden from view in the finished building have been placed but before any wall, ceiling finish or building insulation is installed.

Building Framing Inspection. The following information shall be provided to the building official prior to requesting a rough building inspection:

- Completion of Shallow Footings and Foundations SICC-1105.3.
- Completion of Cast in Place Concrete Construction SICC-705.

- Completion of Structural Steel Construction Section 605 SICC.
- Completion of Precast Concrete Construction Section 805.
- Completion of Wood Construction Section 905.
- Completion of Masonry Construction Section 1005.

Framing/rough building inspections shall be made after the roof, excluding permanent roof covering, wall ceiling and floor framing is complete with appropriate blocking, bracing and fire stopping in place. The following items shall be in place and visible for inspection:
1. Pipes;
2. Chimneys and vents;
3. Flashing for roofs, chimneys and wall openings;
4. Insulation baffles;
5. All lintels that are required to be bolted to the framing for support shall not be covered by any exterior or interior wall or ceiling finish material before approval. Work may continue without approval for lintels supported on masonry or concrete.
(This inspection to be conducted after P, M & E roughs or all roughs may be scheduled at the same time.)

Request for Insulation Inspection. Insulation inspections shall be made after an approved building framing and rough-in inspection and after the permanent roof covering is installed, with all insulation and vapor retarders in place, but before any wall or ceiling covering is applied.

Request for Above Ceiling Inspections, for Plumbing, Mechanical and Electrical subs.

- Completion of Sprayed Fire Resistant Materials SICC 1404.

Request for Above Ceiling Inspections by GC.

- Completion of Architectural, Mechanical and Electrical Components SICC-1603 for items above ceiling.

Request for Final Inspection. The following information shall be provided to the building official prior to requesting a final building inspection:

- Completion of Earth Retention Systems Isolated from Building SICC 1205
- Completion of EIFS Construction SICC 1305
- Completion of Smoke Control Systems SICC1502
- Completion of Architectural, Mechanical and Electrical Components SICC 1603

Final inspections shall be made for each trade after completion of the work authorized under the technical codes.

Inspection Requests. It shall be the permit holder's duty or their agent to notify the code enforcement official when work is ready for inspection and to provide access to and means for inspection of the work for any inspections that are required by this code.