

**Special Inspections Checklist**  
**2012 NC Building Code Section 1704**  
 (check all boxes that apply)

Building Occupancy Category (Table 1604.5):       II     III     IV

If Occupancy Category II:    Building height in feet \_\_\_\_\_      No. Stories \_\_\_\_\_

Periodic    Continuous

**Soils** (Table 1704.7)

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify materials below shallow foundations are adequate to achieve the design bearing capacity.                    |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify excavations are extended to proper depth and have reached proper material.                                  |
| <input type="checkbox"/> | <input type="checkbox"/> | Perform classification and testing of compacted fill materials.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill. |
| <input type="checkbox"/> | <input type="checkbox"/> | Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.            |

**Driven Deep Foundations** (Table 1704.8)

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify element materials, sizes and lengths comply with the requirements.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Determine capacities of test elements and conduct additional load tests, as required.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Observe driving operations and maintain complete and accurate records for each element.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify placement locations and plumbness.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Confirm type and size of hammer.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Record number of blows per foot of penetration.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Determine required penetrations to achieve design capacity.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Record tip and butt elevations.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Document any pile damage.   |
| <input type="checkbox"/> | <input type="checkbox"/> | For steel elements, perform additional inspections in accordance with Section 1704.3.   |
| <input type="checkbox"/> | <input type="checkbox"/> | For concrete elements and concrete-filled elements, perform additional inspections in accordance with Section 1704.4.             |
| <input type="checkbox"/> | <input type="checkbox"/> | For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge. |
| <input type="checkbox"/> | <input type="checkbox"/> | For augered uncased piles and caisson piles, perform inspections in accordance with Section 1704.9.                               |

**Cast-In-Place Deep Foundations** (Table 1704.9)

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Observe drilling operations and maintain complete and accurate records.                   |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify placement locations and plumbness.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Confirm element diameter.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Confirm element bell diameter (if applicable).  |
| <input type="checkbox"/> | <input type="checkbox"/> | Confirm element length.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Confirm element embedment into bedrock (if applicable).                                   |
| <input type="checkbox"/> | <input type="checkbox"/> | Confirm adequate end-bearing strata capacity.   |
| <input type="checkbox"/> | <input type="checkbox"/> | For hollow stem auger cast piles monitor and record rate at which the auger is withdrawn. |
| <input type="checkbox"/> | <input type="checkbox"/> | Record concrete or grout volumes.   |
| <input type="checkbox"/> | <input type="checkbox"/> | For concrete elements, perform additional inspections in accordance with Section 1704.4.  |

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#### **Helical Pile Foundations** (1704.10)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> | Record installation equipment used.<br>Record pile dimensions.<br>Record tip elevations.<br>Record final depths.<br>Record final installation torques.<br>Record other pertinent installation data as specified by the designer. |
|--|--|--|

#### **Steel Construction** (Table 1704.3)

Steel fabricator approved in accordance with Section 1704.2.2

yes       no      (If no, then in-plant special inspection is required.)

#### Material verification of high-strength bolts, nuts and washers:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/> | Identification markings to conform to ASTM standards specified in the approved construction documents.<br>Manufacturer's certificate of compliance required. |
|--|--|--|

#### Inspection of high-strength bolting:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/> | Snug-tight joints.<br>Pretensioned and slip-critical joints using turn-of-nut with matchmarking, twist-off bolt or direct tension indicator methods of installation.<br>Pretensioned and slip-critical joints using turn-of-nut without matchmarking or calibrated wrench methods of installation. |
|--|--|--|

#### Material verification of structural steel and cold-formed steel deck

- |  |  |  |
|--|--|--|
| <input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/> | For structural steel, identification markings to conform to AISC 360.<br>For other steel, identification to conform to ASTM standards specified in the approved construction documents.<br>Review structural steel mill test reports.<br>Review fabricator's certified test reports. |
|--|--|--|

#### Material verification of weld filler materials:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/> | Identification markings to conform to AWS specification in the approved construction documents.<br>Manufacturer's certificate of compliance required. |
|--|--|---|

#### Inspection of welding:

##### *Structural steel and cold-formed steel deck:*

- |  |  |   |
|--|--|---|
| <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/> | Complete and partial penetration groove welds (radiographic or ultrasonic testing).<br>Multipass fillet welds.<br>Single-pass fillet welds >5/16".<br>Plug and slot welds.<br>Single-pass fillet welds ≤5/16"<br>Floor and roof deck welds.<br>Stud welding |
|--|--|---|

##### *Inspection of steel frame joint details for compliance:*

- |  |  |  |
|--|--|--|
| <input type="checkbox"/><br><input type="checkbox"/> | <input type="checkbox"/><br><input type="checkbox"/> | Details such as bracing and stiffening.<br>Member locations. |
|--|--|--|

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(check all boxes that apply)

Periodic    Continuous

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Application of joint details at each connection.   |
| <input type="checkbox"/> | <input type="checkbox"/> | When the structure is designed to Seismic Design Category C, D, E, or F, special inspection shall be provided in accordance with AISC 341. |

### **Concrete Construction** (Table 1704.4)

#### *Concrete materials:*

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verifying use of required design mix.  |
| <input type="checkbox"/> | <input type="checkbox"/> | At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete. |
| <input type="checkbox"/> | <input type="checkbox"/> | Inspection of concrete and shotcrete placement for proper application techniques.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Inspection for maintenance of specified curing temperature and techniques.   |

#### *Reinforcing steel and embedded accessories:*

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify reinforcing steel and prestressing tendons conform to the material, size, and grade specified in the contract documents.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Inspect placement of reinforcing steel, including prestressing tendons.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Inspect reinforcing steel welding in accordance with Table 1704.3, Item 5b, including verification of weldability of reinforcing steel other than ASTM A 706.                              |
| <input type="checkbox"/> | <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | <input type="checkbox"/> | Shear reinforcement.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where strength design is used.                            |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify embedments for structural connections to the concrete members are provided and placed.  |

#### *Inspection of precast prestressed concrete:*

Precast fabricator approved in accordance with Section 1704.2.2

- yes       no    (If no, then in-plant special inspection is required.)

Review mill test reports for prestressing tendons

- yes       no

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Review precast fabricators stressing records and concrete test reports.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify erection of precast concrete members, including welded connections, placement of bearing pads, placement of expansion joint materials, and placement of joint sealants. |
| <input type="checkbox"/> | <input type="checkbox"/> | Grouting of bonded prestressing tendons in the seismic-force-resisting system.   |

#### *Inspection of post-tensioned concrete:*

Review mill test reports for prestressing tendons

- yes       no

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Application of post-tensioning forces. Record jacking forces and tendon elongations for post-tensioned concrete. Check recorded tendon elongations against calculated elongations for the applied prestressing forces. |
| <input type="checkbox"/> | <input type="checkbox"/> | Grouting of bonded prestressing tendons in the seismic-force-resisting system.   |

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- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verification of in-situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs. |
| <input type="checkbox"/> | <input type="checkbox"/> | Inspect formwork for shape, location and dimensions of the concrete member being formed.   |

**Masonry Construction (Level 1)** (Table 1704.5.1)

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified. |
| <input type="checkbox"/> | <input type="checkbox"/> | Verification of $f'_m$ and $f'_{aac}$ prior to construction except where specifically exempted by this code.                |
| <input type="checkbox"/> | <input type="checkbox"/> | Verification of slump flow and VSI as delivered to the site for self-consolidating grout.                                   |

As masonry construction begins, the following shall be verified to ensure compliance:

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Proportions of site-prepared mortar.                                       |
| <input type="checkbox"/> | <input type="checkbox"/> | Construction of mortar joints.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Location of reinforcement, connectors, prestressing tendons and anchorage. |
| <input type="checkbox"/> | <input type="checkbox"/> | Prestressing technique.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Grade and size of prestressing tendons and anchorage.                      |

During construction the inspection program shall verify:

- |  |                          |  |
|--|--------------------------|--|
| <input type="checkbox"/>   | <input type="checkbox"/> | Size and location of structural elements.  |
| <input type="checkbox"/>   | <input type="checkbox"/> | Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction. |
| <input type="checkbox"/>   | <input type="checkbox"/> | Specified size, grade and type or reinforcement, anchor bolts, prestressing tendons and anchorages.                                      |
| <input type="checkbox"/>   | <input type="checkbox"/> | Welding of reinforcing bars.   |
| <input type="checkbox"/>   | <input type="checkbox"/> | Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).                              |
| <input type="checkbox"/>   | <input type="checkbox"/> | Application and measurement of prestressing force.   |
| Prior to grouting, the following shall be verified to ensure compliance: |                          |  |
| <input type="checkbox"/>   | <input type="checkbox"/> | Grout space is clean.  |
| <input type="checkbox"/>   | <input type="checkbox"/> | Placement of reinforcement and connectors and prestressing tendons and anchorage.  |
| <input type="checkbox"/>   | <input type="checkbox"/> | Proportions of site-prepared grout and prestressing grout for bonded tendons.  |
| <input type="checkbox"/>   | <input type="checkbox"/> | Construction of mortar joints.   |
| <input type="checkbox"/>   | <input type="checkbox"/> | Grout placement shall be verified to ensure compliance with code and construction document provisions.                                   |
| <input type="checkbox"/>   | <input type="checkbox"/> | Grouting of prestressing bonded tendons.   |
| <input type="checkbox"/>   | <input type="checkbox"/> | Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.   |

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**Masonry Construction (Level 2)** (Table 1704.5.3)

- |   |                          |  |
|---|--------------------------|--|
| <input type="checkbox"/>                              | <input type="checkbox"/> | Compliance with required inspection provisions of the construction documents and the approved submittals.                                |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Verification of $f'_m$ and $f'_{aac}$ prior to construction and for every 5,000 square feet during construction                          |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Verification of proportions of materials in premixed or preblended mortar and grout as delivered to site..                               |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Verification of slump flow and VSI as delivered to the site for self-consolidating grout.  |
| The following shall be verified to ensure compliance: |                          |  |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Proportions of site-prepared mortar, grout and prestressing grout for bonded tendons.  |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Placement of masonry units and construction of mortar joints.  |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Placement of reinforcement, connectors and prestressing tendons and anchorage.   |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Grout space prior to grouting.   |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Placement of grout.  |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Placement of prestressing grout.   |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Size and location of structural elements.  |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction. |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Specified size, grade and type of reinforcement, anchor bolts, prestressing tendons and anchorages.                                      |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Welding of reinforcement bars.   |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).                              |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Application and measurement of prestressing force.   |
| <input type="checkbox"/>                              | <input type="checkbox"/> | Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.   |

**Wood Construction** (1704.6)

- |                             |                          |  |
|-----------------------------|--------------------------|--|
| <b>High-load diaphragms</b> |                          |  |
| <input type="checkbox"/>    | <input type="checkbox"/> | Inspect wood structural panels for grade and thickness shown in the approved construction documents.   |
| <input type="checkbox"/>    | <input type="checkbox"/> | Verify nominal size of framing members at adjoining panel edges meet the requirements in the approved construction documents.  |
| <input type="checkbox"/>    | <input type="checkbox"/> | Verify nail or staple diameter and length meet the requirements in the approved construction documents.  |
| <input type="checkbox"/>    | <input type="checkbox"/> | Verify fastener lines and fastener spacing meets the requirements in the approved construction documents.  |
| <b>Wood Trusses</b>         |                          |  |
| <input type="checkbox"/>    | <input type="checkbox"/> | For clear truss span is $\geq 60'$ verification that temporary restraint/bracing is installed in accordance with the construction documents.   |
| <input type="checkbox"/>    | <input type="checkbox"/> | For clear truss span is $\geq 60'$ verification that permanent restraint/bracing is installed in accordance with the construction documents.   |
| <input type="checkbox"/>    | <input type="checkbox"/> | Where design wind velocity is $\geq 110$ mph Exposure Category B, $\geq 120$ mph for Exposure Category C, or Seismic Design Category is C, D, E, or F:<br>Verify locations of shear walls. |

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- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify fastening and anchorage of all elements of the lateral load resisting system, including shear walls, diaphragms, drag struts, braces and hold-downs, conforms to the contract documents when nail spacing for sheathing materials is 4" or less. |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify fastening of roof sheathing and roofing material.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify fastening of wall sheathing and siding materials.  |

**Sprayed Fire-Resistant Materials (1704.12)**

## Structural member surface conditions:

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify surface is prepared in accordance with the approved fire-resistance design or the approved manufacturer's written instructions. |
|--------------------------|--------------------------|--|

## Application:

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify the ambient temperature of the substrate before and after application meets the requirements of the manufacturer's written instructions.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Verify that the area for application is ventilated during and after application as required by the approved manufacturer's written instructions. |

## Thickness:

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify the average thickness of the sprayed material is not less than the thickness required by the approved fire-resistance design. |
|--------------------------|--------------------------|--|

## Density:

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify that the density of the sprayed fire-resistant material is not less than that required by the approved fire-resistance design. |
|--------------------------|--------------------------|---|

## Bond Strength:

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify that the cohesive/adhesive bond strength of the sprayed fire-resistant material applied to structural elements is not less than 150psf. |
|--------------------------|--------------------------|--|

**Smoke Control Systems (1704.16)**

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Test leakage and record device location.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Test pressure differences, flow measurements and detection and control verification. |

**Mastic and Intumescent Fire-Resistant Coatings (1704.13)**

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Inspection in accordance with AWCI 12-B and the approved construction documents.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Verification of water-resistive barrier complying with ASTM E 2570 (if applicable) |

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Periodic    Continuous

**Exterior Insulation and Finish Systems (EIFS) (1704.14)**

(Special Inspection required for conventional EIFS. Not required for EIFS drainage systems installed over water resistant barrier.)

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Verify correct installation of reinforcing mesh and application of base coat.                                    |
| <input type="checkbox"/> | <input type="checkbox"/> | Visually inspect all transitions in materials and joint sealants, including window, doors and run-out flashings. |
| <input type="checkbox"/> | <input type="checkbox"/> | Conduct water penetration testing in accordance with Section 1403.2, exception 2.                                |

**Special Cases (1704.15)**

- |                          |                          |       |
|--------------------------|--------------------------|-------|
| <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | _____ |
| <input type="checkbox"/> | <input type="checkbox"/> | _____ |

**Architectural, Mechanical and Electrical Components**

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Provide periodic special inspection on buildings classified as Seismic Design Category D, E, or F for the fastening of interior and exterior wall claddings or veneers over 30 feet in height and weighing more than 5psf and anchorage of interior and exterior walls with the exception of interior nonbearing walls weighing 15 psf or less. |
| <input type="checkbox"/> | <input type="checkbox"/> | Provide periodic special inspection for the anchorage of electrical equipment for emergency or standby power systems in buildings classified as Seismic Design Category C, D, E, or F.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Provide periodic special inspection during the installation of piping systems intended to convey flammable, combustible, or highly toxic contents and their associated mechanical units in buildings classified as Seismic Design Category C, D, E, or F.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Provide periodic special inspection during the installation of HVAC ductwork that will contain hazardous materials in structures assigned to Seismic Design Categories C, D, E, or F.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Provide periodic special inspection during the installation of vibration isolation systems in structures assigned to Seismic Design Categories C, D, E, or F where the construction documents require a nominal clearance of 1/4" or less between the equipment support frame and restraint.  |