

## Truss Submittal Package – Compliance with the North Carolina Residential Code and the North Carolina Building Code

### SBCA Carolinas Chapter

Created in Collaboration with the North Carolina Department of Insurance Code Services Section

### Review and Coordination of a Residential Truss Submittal Package

Trusses shall comply with ANSI/TPI 1-2007, AISI S100, IRC sections North Carolina Residential Code R502.11 (IRC R502.11) and R802.10 (IRC R802.10) as applicable.

**1. The Residential Truss Submittal Package shall consist of each individual Truss Design Drawing, a truss reaction summary sheet, and, as applicable:**

- a. The Truss Placement Diagram,
- b. Lateral Restraint and Diagonal Bracing details designed in accordance with generally accepted engineering practice or applicable BCSI defined Lateral Restraint and Diagonal Bracing details,
- c. Any other structural details germane to the Trusses, and
- d. The Cover/Truss Index Sheet.

**2. Unless provided on Cover/Truss Index Sheet, the following information shall be contained on each document comprising the Residential Truss Submittal Package:**

- a. Building Code used for Design
- b. Truss manufacture's name, address and phone number
- c. Job number assigned by the truss manufacture
- d. Job location; either street address, city and county or lot number, block number, section or subdivision and county
- e. The Truss Reaction Summary Sheet shall also include the Truss ID and maximum calculated reaction for each bearing location.
- f. The Truss Design Drawing shall also include the Truss Design Engineer's seal, signature and date, where required by the statutes of the jurisdiction in which the project is to be constructed.
- g. The Residential Truss Placement Diagram shall also include the name and signature of person responsible for producing the placement plan.

**3. Bearing reactions that are:**

- a. Less than or equal to 3,000 lbs are deemed to comply with the prescriptive Code requirements.



Prepared with assistance from Structural Building Components Association of the Carolinas, a local chapter of SBCA.  
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- b. Greater than 3,000 lbs but less than 15,000 lbs shall require review and compliance with the following tables:
  - i. [R403.1A Pier & Footing Table](#)
  - ii. [Frame Wall Footing Table](#)
  - iii. [Frame Wall & Brick Veneer Footing Table](#)
  - iv. [Jack Studs](#)
  - v. [Girder & Header Spans Interior & Exterior](#)
  - vi. [Beams & Girders Load Chart](#)
  - vii. [L1 Steel Beams Table](#)
  - viii. [N1 Wood Beams & Girders Table](#)
  - ix. [N2 Flitch Plate Beams Table](#)
  - x. [Wind Zone Map](#)
- c. Greater than 15,000 lbs shall require a registered design professional to provide a signed, sealed and dated design that provides a complete load path that meets all requirements for the transfer of all loads from their point of origin through the load-resisting elements to the foundation.

## Review and Coordination of a Commercial Truss Submittal Package

Trusses shall comply with ANSI/TPI 1-2007, AISI S214, North Carolina Building Code (NCBC) sections 2210.3 and 2303.4 (IBC sections 2210.3 and 2303.4 as modified by NCBC), as applicable.

1. **Review and Coordination of Submittal Packages.** The Owner shall retain a Registered Design Professional (RDP) responsible for review of the Submittal Package and coordination with the Construction Documents.
2. **Construction Documents.** The Construction Documents shall be prepared by a Registered Design Professional (RDP) and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in detail that such documents conform to the Legal Requirements, including the Building Code.
3. **Deferred Submittals.** The RDP shall list the Deferred Submittals on the Construction Documents. The RDP shall review Deferred Submittals in accordance with the section called Review Submittal Packages.
4. **Review Submittal Packages.** The RDP shall review the Truss Submittal Package for compatibility with the Building design. All such submittals shall include a shop drawing stamp or notation, bearing the signature of the RDP, indicating that they have been reviewed and whether or not they have been found to be in general conformance with the design of the Building. Signature of the RDP shall also be construed as acknowledgement that the RDP has coordinated the truss design with the remainder of the structure.

**Note on key definition – Registered Design Professional:** Architect or engineer, who is licensed to practice their respective design profession as defined by the Legal Requirements of the Jurisdiction in which the Building is to be constructed.

5. **Information Provided to the Truss Manufacturer.** The Contractor shall provide to the Truss Manufacturer a copy of all Construction Documents pertinent to the Framing Structural System and the design of the Trusses (i.e., framing plans, specifications, details, and structural notes). The name of the RDP shall be noted on the Construction Documents.
  - a. Amended Construction Documents upon approval through the plan review/permitting process shall be immediately communicated to the Truss Manufacturer.

**6. The Truss Submittal Package shall consist of each individual Truss Design Drawing, a truss reaction summary sheet, and, as applicable:**

- a. Truss Placement Diagram,

**Review by RDP:** The truss placement diagram shall be reviewed to be in general conformance with the design of the Building by the RDP as defined in item 4 above or shall be required to bear the seal and signature of a RDP.

- b. Lateral Restraint and Diagonal Bracing details designed in accordance with generally accepted engineering practice or applicable BCSI defined Lateral Restraint and Diagonal Bracing details,
- c. Any other structural details germane to the Trusses, and
- d. The Cover/Truss Index Sheet.
- e. Unless provided on Cover/Truss Index Sheet, the following information shall be contained on each document comprising the Truss Submittal Package:
- i. Building Code used for Design
  - ii. Truss manufacture's name, address and phone number
  - iii. Job number assigned by the truss manufacture
  - iv. Job location; either street address, city and county or lot number, block number, section or subdivision and county
  - v. The Truss Reaction Summary Sheet shall also include the Truss ID and maximum calculated reaction for each bearing location.
  - vi. The Truss Design Drawing shall also include the Truss Design Engineer's seal, signature and date, where required by the statutes of the jurisdiction in which the project is to be constructed.

**7. Information Provided to the Contractor.** The Contractor shall review and approve the Truss Submittal Package.

**8. Information Provided to the RDP.** The Contractor approved truss submittal package shall be submitted to the RDP in responsible charge for final approval prior to fabrication of trusses.

**9. Shop Drawing Review.** The Contractor shall not proceed with the Truss installation until the Truss Submittal Package has been reviewed and approved by a RDP.

**10. Requirements for the Permanent Member Restraint/Bracing of Truss Systems**

- a. Method of Restraint. The method of Permanent Individual Truss Member Restraint/Bracing and the method of anchoring or restraining to prevent lateral movement of all Truss members acting together as a system shall be accomplished by:

- i. Standard Industry Details. Standard industry Lateral Restraint and Diagonal Bracing details in accordance with *BCSI-B3: Permanent Restraint/Bracing of Chords and Web Members* and/or *BCSI-B7: Temporary & Permanent Restraint/Bracing for Parallel Chord Trusses* of the Building Component Safety Information (*BCSI*).
- ii. Substitution with Reinforcement. Permanent Individual Truss Member Restraint shall be permitted to be replaced with reinforcement designed to prevent buckling (e.g., buckling reinforcement by T-reinforcement or L-reinforcement, proprietary reinforcement, etc.).
- iii. Project Specific Design. A project specific Truss member permanent lateral restraint/bracing design for the roof or floor Framing Structural System shall be permitted to be specified by a RDP, including, through a specific contract to do so, delegation of restraint/bracing design by performance specification to the Truss Manufacturer.

1. When delegated to the Truss Manufacturer, the Construction Documents shall indicate acceptable anchorage points for the bracing.

2. The Truss Manufacturer, when required by performance specification to provide the restraint/bracing design, shall retain a Registered Design Professional to perform the restraint/bracing design, and the restraint/bracing system shall be submitted to the RDP for review as a part of the Truss Submittal Package.
- b. Absence of Truss Restraint/Bracing Method or Details. If a specific Truss member permanent bracing design for the roof or floor Framing Structural System is not provided by the Owner or any RDP, the method of Permanent Individual Truss Member Restraint and Diagonal Bracing for the Truss Top Chord, Bottom Chord, and Web members shall be in accordance with *BCSI-B3* or *BCSI-B7*.

#### 11. Long Span Truss Requirements.

- a. **Restraint/Bracing Design.** In all cases where a Truss clear span is 60 ft (18 m) or greater, the Contractor shall contract with a Registered Design Professional for the design of the Temporary Installation Restraint/Bracing. Permanent Individual Truss Member Restraint and Diagonal Bracing shall be provided by a Registered Design Professional.
- b. **Special Inspection.** In all cases where a Truss clear span is 60 ft (18 m) or greater, the Owner shall contract with a special inspector acceptable to the authority having jurisdiction to provide special inspections to assure that the Temporary Installation Restraint/Bracing and the Permanent Individual Truss Member Restraint and Diagonal Bracing are installed properly.

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