

Residential Building Framing

September 2018 – per the 2018 NCRC – version 1.0

This Inspection Checklist reflects code requirements of the NC Residential Code.

This is a **general list** and is not intended to address all possible conditions or code sections.

Permits and Plans

- Job address is clearly shown on site.
- Permit and approved plans in permit box.
- Approved plans show what is being built and remove multiple options that are not relevant.
- Floor engineered systems (I-Joists) plans and manufacturer's data sheets in permit box.
- Truss plans and manufacturer's data sheets for floor trusses in permit box.

General

- Exterior moisture resistant barriers are installed and lapped or taped correctly. [NCRC R703.1]
- The penetrations at top and bottom plates, fire blocks, soffits, ceiling lines, etc. are sealed and installed where required for specific locations and approved materials. [NCRC R302.11, R602.8]
- Plumbing, mechanical, electrical rough-in work has not damaged the wall framing, floor joists or roof framing. [NCRC R502.8, R602.6]
- Provide attic access to areas exceeding 400 sq.ft. and vertical height of 60" or greater. The rough framed opening is a minimum 20" x 30" with a minimum 30" of unobstructed headroom above the access. [NCRC R807]
- Sill heights at emergency escape and rescue openings are framed to allow 44" maximum distance from finished floor to the bottom of the clear opening. [NCRC R310]
- Operable windows with openings more than 72" above grade or surface below, where the lowest part of the clear opening is less than 24" above interior finished floor are fixed or have openings through which a 4" sphere cannot pass. See section for exceptions. [NCRC R312.2]

Stairs

- Floor or 36" deep landing at top and bottom of stairways. Landings of shapes other than square or rectangular are permitted provided they meet the Code requirements. [NCRC 311.7.6]
- Stairway headroom clearance is minimum 6' 8" measured vertically from the sloped line adjoining the stairway tread nosing or the floor surface of the landings and platforms. See Code for exceptions. [NCRC 311.7.2]
- All stairways are provided with illumination. [NCRC 311.7.9, R303.7]
- Winder stairs framing should meet Code. [NCRC R311.7.5.2.1]

- Maximum riser height is 8 1/4 inches. [NCRC R311.7.5.1]
- Radius of curvature at the leading edge of the tread is not over 9/16". [NCRC 311.7.5.3]
- Stair riser/tread maximum dimension doesn't exceed smallest by >3/8". [NCRC 311.7.5.1]

Hold-downs and Hardware

- The required special inspections have been completed and reports are available to inspector (epoxy or wedge anchor bolting into concrete, structural welding, moment frames, etc.)
- The proper type and size of fasteners are used for each application. [NCRC R602.3(1)]
- The mechanical connectors, straps, hold-downs, clips, hangers, are installed per plan and per manufacturer's specifications.
- Fasteners and hardware for pressure preservative and fire-retardant-treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper. [NCRC R317.3.1]
- Decks shall be of preservative treated lumber or wood that is naturally resistant to decay. [NCRC R317.1.4]
- Full height studs are installed at all hold-downs, strapping, etc. Nailing into studs at hold-downs and straps per drawings or details.
- 1/2-inch diameter anchor bolts are to be installed per the shear wall schedule when specified and at a minimum of 2 per plate, maximum 6' O.C., maximum 12" from plate ends. Properly sized nut and washer (minimum 3"x 3" x 0.229" tightened on each bolt) unless in the high wind zones. High wind zones anchor bolts shall meet Chapter 45 in the NCRC. [NCRC R403.1.6]

Walls

- The sheathing panel end joints occur over framing and fastener installation is consistent with requirements noted on approved plan and in the Code. [NCRC Chapter 6]
- Nailing patterns for structural wall sheathing is 12 inches on center in the field and 6 inches on center along the edges unless otherwise stated in the NCRC, high wind chapter 45 or Engineered design. Adjust the air pressure to avoid penetrating the skin of the sheathing with nail heads. [NCRC Chapter 6]
- The fastener types and sizes are per approved plans and schedules. [NCRC Chapters 4,5,6]
- Top plate splices < 24", or plates over-notched or over-bored, are strapped with a minimum 16 gage x 1.5 inch-wide metal tie with 8-16d nails per side. Exception: When the entire side of the wall with the notch or cut is covered by wood structural panel sheathing. [NCRC R602.3.2, R602.6.1]

- The plans have been checked for installation and securing of blocking unless in the high wind zones. [NCRRC Chapters 4,5,6]
- All point loads continue to the foundation. [NCRRC R301]
- Girders and headers shall be installed per the tables in the Code. [NCRRC Table 602.7(1), Table R602.7(2)]
- The wall studs are sized per plan & per code unless in the high wind zone. See Chapter 45 in the NCRRC for high wind zone requirements. [NCRRC Table R602.3(5)]
- All vertical and horizontal framing members that have been notched or bored will need to meet NCRRC. Add specially designed metal plates to reinforce the bored-out or notched studs where required. [NCRRC R602.6]
- Install fire blocking in walls, floors, and ceilings to prevent creation of concealed space more than 10 feet long shown in the Code. [NCRRC R302.11]
- Brick lintels are to be installed per Code. [NCRRC R703.8.2, R703.8.2.1]

Floor Joists

- Bearing at floor joists to be 1½" at wood or steel bearing and minimum 3" at masonry or concrete. [NCRRC R502.6]
- Joisting lapped at least 3" where framed from opposite sides of bearing support and nailed together with three 10d face nails or strapped together in an approved manner. [NCRRC R502.6.1]
- I-joists installed per manufacturer's specifications and installation guidelines are on site for use by the inspector. [NCRRC R802.7.2]
- Floor crawl access 18" x 24". [NCRRC R409.11]

Roof

- The ridges, hips, and valleys have shall be designed as beams for roof slopes < 3 ft. in 12 ft. [NCRRC R802.3]
- The rafters at the ridge are framed opposite each other and must align at the ridges. Regularly spaced hip and valley rafters need not align. [NCRRC R802.3]
- Notches on the ends of rafters don't exceed ¼ the nominal joist depth. [NCRRC R502.8.1]
- Notches in the top or bottom of rafters don't exceed 1/6 of the nominal depth and are not located in the middle 1/3 of the span. [NCRRC R802.7.1, R502.8.1]
- For I-joist installation including notching, bored holes, cutting, etc., refer to manufacturer's specifications. [NCRRC R802.7.2]
- Rafter and collar ties are to be spaced no more than 4 feet. [NCRRC R802.3.1]
- Collar ties are to be not less than 1" x 4". [NCRRC R802.3.1]
- Purlins and struts are installed as required. [NCRRC 802.5.1]

Trusses

- The truss specifications have been stamped and signed by an engineer. [NCRRC R106.1, R802.10.2]
- The truss configuration meets the design drawings. [NCRRC R802.10.1 #1]
- The roofing material has not changed since the original design.
- Trusses have bearing as noted on truss specifications. [NCRRC R802.10.1 #3]
- The lumber grade marks and sizes match the design specifications. [NCRRC R802.10.1 #8]
- Required hangers installed per specifications. [NCRRC R802.10]
- The connection plate sizes, gauges and locations are per specifications. [NCRRC R802.10.1 #9]
- The truss bracing has been completed as noted and shown on the truss engineers plans. [NCRRC R106.1, R802.10.3]
- Ganged trusses nailed off per manufacturer's specifications. [NCRRC R802.10.1 #9]

Common Residential Building Framing Violations Checklist

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SECTION 107 – NCACP Building framing inspection

- Not ready.**
- Previous violations not corrected.*
- Jobsite not safe to inspect.*
- Started work without prior approval of past inspections or acceptance of designer's letter on a footing, foundation or slab. [NCACP Section 107.3]*
- No plans on site.**
[NCACP Section 106]
- Changes to the approved plans.*
[NCACP Section 105]
- No manufacturer's truss plans and details on site.**
[NCACP Section 106]
- Engineering fixes not done.**
[NCACP Section 105 – Engineering Design]
- Straps and clips not installed or missing per plans or wrong gage material.**
[NCACP Section 105]
- Layout of I-Joists text too small to read or missing.*
[NCACP Section 105]
- Anchor bolts missing, incorrect and/or without nuts.*
[NCRC R403.1.6 or R4504 for High Wind]
- Studs exceed the O.C. spacing allowed.*
[NCRC Table R602.3(5)]
- Missing nails in LVL.**
[NCRC R602.1.3]
- LVL or headers not installed.**
[NCRC R602.3]
- Missing truss hangers or gussets.**
[NCRC R802.10]
- Trusses and joists not blocked adequately.*
[NCRC 802.10.]
- Missing nails in hangers, plates, clips, straps and gussets.*
[NCRC Chapters 4, 5, 6, 8]
- Exterior wall sheathing needs to extend to top plates.*
[NCRC R602.10.4.5]
- Top plate slicing less than 24" apart or not nailed.*
[NCRC R602.3.2]
- Not full bearing for trusses, LVL, beams, joists or rafters.**
[NCRC Chapters 5,6,7 and R802.6]
- I-Joists flanges cut or bored in the wrong place.*
[NCRC R502.8.2]
- Load path does not continue to foundation.**
[NCRC R301]
- Wall or post not bearing on foundation.*
[NCRC R502.6]
- Not a positive connection on all post and beams.*
[NCRC R602.3]
- Stud columns or walls not nailed per Code.*
[NCRC Table R602.3(1)]
- Over spanned framing members.**
[NCRC Chapters 4,6,8 and tables]
- Portal frame at garage not installed correctly.*
[NCRC Figure R602.10.1 or [NCACP Section 105]
- Over notching, drilling and cutting of framing members.*
[NCRC Figure R602.3(1) and R602.6(1)]
- Missing bracing on trusses.*
[NCRC R802.10.3]
- Cut or damaged truss with no engineering fix.**
[NCRC R802.10]
- Fire blocking and draft stopping not installed or missed.*
[NCRC R302.11, R302.12, R502.12, R602.8]
- Fire blocking at the Chimney or Fireplace not installed.*
[NCRC R1003.19 and R1001.12]
- Air barriers not installed or missing.**
[NCECC R402.4 and Table R402.4.2]
- Sheathing has holes in it, damaged, or not taped or lapped correctly.*
[NCECC R402.4 and R402.4.1]
- Insulation baffles not installed.**
[NCECC R402.2.3]
- Energy caulking missing in crawl space.*
[NCECC R402.4 and Table R402.4.2]
- Missing header or headers covered over.*
[NCRC Table R602.7(1) and R602.7(2)]
- Missing king studs.**
[NCRC Table R602.7.5]
- Rim boards not installed or blocked correctly.*
[NCRC R502.1.7]
- Interior braced walls not nailed or blocked correctly.*
[NCRC Chapter 6]
- Porch columns not installed.*
[Could be inspected later]
- Handrails or safety rails not attached or missing.*
[OSHA Residential Guideline STD 03-11-002]
- Missing flashing around windows, etc.**
[NCRC R703.4]
- Brick lintels not installed correctly.*
[NCRC R703.8.2.1]
- Stair clearance does not include adjacent wall and ceiling finish thicknesses.*
[NCRC R311.7]
- Missing soffit protection when required.*
[NCRC R302]
- No termite treatment documentation.*
[NCRC R318.2]
- Fireplace or chimney clearances not met.*
[NCRC M1803.3.4]