



**APPENDIX C  
CODE CHANGE PROPOSAL  
NORTH CAROLINA  
BUILDING CODE COUNCIL**

**B-16**

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Granted by BCC \_\_\_\_\_ Adopted by BCC \_\_\_\_\_ Item Number \_\_\_\_\_  
Denied by BCC \_\_\_\_\_ Disapproved by BCC \_\_\_\_\_ Approved by RRC \_\_\_\_\_  
Objection by RRC \_\_\_\_\_

PROPONENT: Adam Hill PHONE: (919) 602 - 6733  
REPRESENTING: Simpson Strong-Tie  
ADDRESS: 4485 Premier Drive Suite 101  
CITY: High Point STATE: NC ZIP: 27265  
E-MAIL: ahill@strongtie.com FAX: ( ) -

North Carolina State Building Code, Volume 2018 - Section 3605.3.1

CHECK ONE:  Revise section to read as follows:  Delete section and substitute the following:  
 Add new section to read as follows:  Delete section without substitution:

~~LINE THROUGH MATERIAL TO BE DELETED~~ UNDERLINE MATERIAL TO BE ADDED

Please type. Continue proposal or reason on plain paper attached to this form. See reverse side for instructions.  
See attached for proposed change.

Will this proposal change the cost of construction? Decrease  Increase  No   
Will this proposal increase to the cost of a dwelling by \$80 or more? Yes  No   
Will this proposal affect the Local or State funds? Local  State  No   
Will this proposal cause a substantial economic impact ( $\geq$ \$1,000,000)? Yes  No

- Non-Substantial – Provide an economic analysis including benefit/cost estimates.
- Substantial – The economic analysis must also include 2-alternatives, time value of money and risk analysis.
- Pursuant to §143-138(a1)(2) a cost-benefit analysis is required for all proposed amendments to the NC Energy Conservation Code. The Building Code Council shall also require same for the NC Residential Code, Chapter 11.

REASON: See attached.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ BCC CODE CHANGES  
FORM 11/26/19

# INSTRUCTIONS

**Each proposed Code change request shall comply with the following policies:**

**Rule 1:** The Original and twenty-two (22) copies of the proposed Petition for Rule-Making along with supporting documentation shall be filed with the Building Code Council Secretary. Submit one (1) electronic copy via email.

**Rule 2:** The filing shall be received by the first day of the month prior to the quarterly scheduled meeting date. Example: A December meeting date will require filing by November 1 prior to the meeting.

**Rule 3:** Each request shall be typewritten on this form and shall contain the following:

- (1) The proposed rule change must be set forth in full and contain explicit reference to the affected section or sections of the Code.
- (2) The request shall state the reasons for the proposed rule change with supporting documentation.
- (3) The proposed rule change shall comply with the standards set forth in GS 143-138(c) and reference to the particular standards shall be set forth in the request for the amendment.
- (4) The proposed rule change shall contain an economic impact analysis as required by GS 143-138(a).
- (5) A proposed rule change to the NC Energy Conservation Code shall have an accompanying cost-benefit analysis as required by GS 143-138(a1)(2).

**Rule 4:** When a request is improperly filed or not in accordance with all the rules listed above, the BCC Secretary shall reject the submittal and notify the applicant of the proper procedure to follow.

**Rule 5:** Upon the proper filing of a request, the BCC Secretary shall forward one copy of said request to each council member prior to the scheduled meeting date. Persons filing proposed petitions are hereby notified of the place and time of the scheduled hearings. The BCC Secretary shall cause to be published the notice of public hearing as specified in GS 143-138(a).

**Rule 6:** The Council shall either Grant or Deny the proposed Petition for Rulemaking at the meeting following receipt of the proposed rule change. The Council will take no further action on items that are Denied. Granted items may be referred to Committee for review.

**Rule 7:** The Council will hold a public hearing on Granted items at the next quarterly scheduled meeting. The Council will take final action on Granted items at the next quarterly scheduled meeting after the public hearing.

## Timeline Example

<b>Petition received:</b>	<b>February 1</b>
<b>Petition Granted:</b>	<b>March BCC meeting</b>
<b>Notice of Hearing published:</b>	<b>April NC Register</b>
<b>Committee review:</b>	<b>May - June</b>
<b>Hearing held:</b>	<b>June BCC meeting</b>
<b>Final Adoption:</b>	<b>September BCC meeting</b>
<b>Rules Review Meeting:</b>	<b>November RRC meeting</b>
<b>Approved:</b>	<b>December 1</b>

## Proposed Change

### 3605.3.1 Wood Connections.

All wood connections shall be designed to resist the forces specified in Section 3604. Steel ~~steel~~ bolts, rods and other hardware shall be hot-dipped galvanized in accordance with ASTM A153 or protected with an equivalent system. All ~~Where bolts, or rods and other metal materials are used they~~ shall be no smaller than 5/8-inch in diameter. Beams, girders or pile caps shall be attached to the piling with a minimum of two 5/8-inch hot-dip galvanized steel bolts per beam member through bolted at each piling ~~or a connection having equivalent capacity and corrosion resistance. The piling Piling~~ shall not be notched so that the cross-section is reduced below 50 percent. Threaded fasteners shall not be tightened directly against wood surfaces but used only in conjunction with standard ogee or flat washers. Cold formed metal connectors shall not be used in wet applications or applications subject to wetting and drying cycles, unless they are manufactured from Stainless Steel meeting grade 316. Mooring hardware, including cleats, and pile guides shall be through bolted using sizes recommended by the manufacturer.

### Reason:

1. The code language as written reads as a prescriptive design; most, if not all, docks & piers designed in the state are required to have a Design Professional specify the connections. As such, this verbiage is redundant and restricts the options the designer has at their disposal to specify the connections.
2. There have been many advancements in the industry over the last 20 years in regards to new structural fasteners available for construction. These include fasteners that have a smaller diameter than the 5/8 galvanized through bolts called out in the North Carolina Building Code Section 3605.3.1. These smaller diameter fasteners have equal or better corrosion resistant and remove a smaller amount of the substrate, resulting in a stronger connection (see Structure Magazine article submitted with this proposal).
3. Simpson Strong-Tie has been approached by contractors in the state to help expand the number of potential fastener options available for the design and construction of Docks & Piers in North Carolina. These new fastener solutions often provide a lower cost, stronger connection for the structure. This change will result in additional freedom of design for Design Professionals, as the verbiage as written restricts their options.
4. Corrosion resistance for steel fasteners and materials is a concern for docks, piers, bulkheads, and waterway structures. The current requirements do not specify a minimum level of galvanization for bolts, so protection may or may not be provided, since there are many different types of galvanizing, with each providing a differing level of corrosion resistance. Further, the existing language allows an "equivalent system", but equivalence cannot be determined if the minimum level of galvanization is not specified.
5. Currently this code section completely prohibits the use of cold-formed steel connectors. The proponents' assumption is that the reason for that is that is concern about corrosion of the steel. Historically, connectors were only provided with a G60 galvanized finish. For the last 25 years or so, that has increased to a G90 finish, with some available with a G185 finish. But in recognition of the need for extreme corrosion resistance of connectors, many are now available in grade 316 stainless steel. Grade 316 is recommended by the stainless steel industry for marine use, so corrosion should not be a concern.
6. This proposal intends to keep the minimum requirements currently in the North Carolina Building Code, while strengthening them by specifying the minimum level of galvanization, and allowing for the use of alternates that provide the same capacity and corrosion resistance.