



PACIFIC LUMBER INSPECTION BUREAU

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Update on the Use of European Lumber in North Carolina

Since 1996 when the first design values for European lumber were published, European lumber has been accepted and used in U.S. construction projects. However, many builders and code officials are not familiar with the properties or labeling of the product. Earlier this year, code authorities in North Carolina raised questions about the use of European lumber in residential construction projects in the state despite its over 20-year history of successful use in the state, highlighting the need for additional educational and technical information.

Initial concerns prompted the North Carolina Department of Insurance (NCDI), to issue a news release on June 11 warning of the use of European lumber in North Carolina. PLIB issued a response to the NCDI notice on June 17 (see [PLIB's Response to North Carolina DOI warning notice | Pacific Lumber Inspection Bureau](#)). On June 18, the American Wood Council (AWC) issued its own response to the NCDI release that provided additional information aimed at clarifying some of the engineering and code related questions that the NCDI notice raised (see [AWC Response to NCDI Press Release](#)). On June 28, after considering this and other technical information, NCDI issued a new interpretation as a follow up to the June 11 notice (see <https://www.ncosfm.gov/media/2366/open>).

Throughout this discovery process, technical and engineering supporting information has been developed to address the concerns that were being raised. PLIB's engineering staff developed allowable stud length tables for European species in wind zones from 90 mph to 195 mph. These tables were published in a Technical Report No. 5 *Maximum Allowable Stud Length Tables for European Species and Countries in High Wind Regions*. [TR-5-Max-Stud-Length-Tables-for-European-Species-1.pdf](#).

Also, important to note is that for buildings built to the International Residential Code (IRC), any lumber above Utility grade can be used for studs regardless of species and there is no species requirement for wall top and bottom plate material or blocking.

R602.2 Grade. Studs shall be a minimum No. 3, standard or stud grade lumber.

Exception: Bearing studs not supporting floors and non-bearing studs shall be permitted to be utility grade lumber, provided that the studs are spaced in accordance with Table R602.3(5).

Other concerns also surfaced, including lack of span tables for girders and headers for European species. In response, PLIB developed span tables for girders and headers for European species and published these in Technical Report No. 7 *Span Tables for Headers and Girders for European Species* [PLIB-Technical-Report-No-7.pdf](#)



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This information was provided to the North Carolina Department of Insurance (NCDOI), code officials and builders providing a pathway for the continued use of European species in residential construction in North Carolina.

A third concern that was raised involved specific gravity, specifically regarding species that have specific gravity values less than 0.42. While there are no specific gravity requirements for the prescriptive connections provided in the International Residential Code (IRC) or the International Building Code (IBC), a few of the connections that are more sensitive to the framing specific gravity have been designed assuming $G=0.42$. These connections include roof sheathing attachment to roof rafters/trusses and toenailed connections of roof rafters/trusses to wall top plates.

The North Carolina Residential Code (NCRC) is based on the 2015 IRC and has the same prescriptive fastener requirements for wind speeds up to 130 mph. In wind speed zones 130 mph and higher, the NCRC references AWC's Wood-Frame Construction Manual (WFCM) as an acceptable design document for these high wind zones. The NCRC also has included a separate Chapter 45 High Wind Zones which contains several pre-engineered provisions for homes built in the 130-150 mph wind zones, but often refers back to the general fastener requirements.

Specific gravity is not required for use of the prescriptive provisions of the IRC or NCRC. Additionally, information was provided to NCDOI confirming that all European species, with one exception, have a specific gravity value greater than 0.42, thereby meeting the pre-engineered high wind connection requirements in the WFCM and NCRC Chapter 45.

Although the technical materials and communications that have been developed have provided important information that was either previously lacking or required additional explanation, many builders, distributors used and code officials may be unaware that it exists. Some continue to believe that European lumber is not acceptable and cannot be used or are rejecting it on jobsites and within the distribution chain. Some European companies have been targeted (see [PLIB notice on mill #703 and #760](#)).

The technical materials and communications that have been developed have provided important information that was either previously lacking or required additional explanation, and they underscore the fact that European lumber is an acceptable building material in North Carolina.

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