Engineer's Seal Requirements for I-Joists, Structural Composite Lumber, and Plated Trusses

I-Joists and Structural Composite Lumber

Pre-fabricated wood I-joists and structural composite lumber (SCL) products do not require an engineer's seal on design calculations. However, plated trusses do require an engineer's seal as specified in model building codes. The primary reason for this difference is that wood I-joists and SCL products have design properties published in their respective code evaluation reports. Weyerhaeuser provides specification literature and software tools based on the information in the code evaluation reports. This is similar to dimension lumber products which have published allowable span tables in the building code for various applications. Conversely, plated trusses are specifically designed for each span and loading condition, as the web and chord members are custom cut and the truss plates are of various sizes – currently there are no published span charts or design properties within a code evaluation report or in the building code.

For simplicity, only the *International Residential Code* (IRC) will be discussed. The same requirements exist in the *International Building Code* (IBC).

TJI® joists are covered under 2015 IRC Section R502.1.2, and 2018/2021 IRC Sections R502.1.2 and R802.1.8, which state, "Structural capacities and design provisions for prefabricated wood I-joists shall be established and monitored in accordance with ASTM D5055." Weyerhaeuser has established, and continues to monitor, structural capacities and design provisions for TJI® joists in accordance with ASTM D5055. ICC-ES ESR-1153 Section 1.0 confirms compliance with the relevant building codes.

SCL products are included under 2015/2018/2021 IRC Sections R502.1.5, R602.1.5, and R802.1.4 which state "Structural Capacities for structural composite lumber shall be established and monitored in accordance with ASTM D5456." Weyerhaeuser has established and continues to monitor structural capacities for SCL products (Microllam® LVL, Parallam® PSL, and TimberStrand® LSL) in accordance with ASTM D5456. ICC-ES ESR-1387 Section 1.0 confirms compliance with the relevant building codes.

Plated Trusses

Because plated trusses require custom design drawings for each application, they must follow different provisions and guidelines per 2015/2018/2021 IRC Section R502.11.1 which states, "The truss design drawings shall be prepared by a registered professional where required by the statutes of the *jurisdiction* in which the project is to be constructed…" In addition, 2015/2018/2021 IRC Section R502.11.4 provides a detailed list of the required information that must be included in the truss design drawings due to the unique configuration of each member designed for a specific job.

Software Specification

Weyerhaeuser products may be specified using literature or proprietary software, including ForteWEB® and Javelin®. ForteWEB® is a single member sizing tool, whereas Javelin® is a CADD software tool that can track and distribute vertical loads through multiple levels of roof and floor. These programs specify Weyerhaeuser products for the exact condition of spans, loads, and dimensions as entered by the user. It is the responsibility of the user to ensure proper product application and verify accurate design loads and dimensions. Inputs and the resulting framing plan typically are not checked by a Weyerhaeuser associate, but the sizing of proprietary products by Weyerhaeuser software will be accomplished in accordance with Weyerhaeuser product design criteria and code-evaluated design values.

In summary, provided an I-joist or SCL manufacturer has a valid ICC-ES code evaluation report, an engineer's seal is not required on calculations, span or load tables, or Weyerhaeuser software output as per the IRC and/or IBC.

If you have any questions, please contact your Weyerhaeuser representative.