

Canadian Vibration Criteria – TJI® Joist Bridging and Resilient Channels

Designers today are faced with many choices when selecting components of a residential floor system. This technical bulletin is intended to provide information and outline Weyerhaeuser's current position on the effect of bridging products and resilient channels as they relate to floor system performance.

Weyerhaeuser's Position

TJI® Joist Bridging

Testing and evaluation of systems built with both proprietary and traditional bridging systems by Weyerhaeuser Trus Joist® engineers indicate that span increases currently associated with bridging/blocking provisions are not warranted and can lead to potential performance problems. **As a result, Weyerhaeuser does not endorse span charts that provide significant increase in allowable span by employing bridging products.** Weyerhaeuser recommends that bridging/blocking systems be used only as a tool to provide minor enhancement to floor performance as opposed to dramatically increasing span. The Canadian Construction Material Centre (CCMC) also provides this cautionary statement in all current I-joist and bridging product evaluation reports:

"In cases where concrete topping is applied or bridging/blocking is used and joists are installed at the maximum spans, the current vibration criteria may not address all occupant performance expectations. The manufacturer should therefore be consulted for span adjustments, if necessary, in these types of installations."

Gypsum Ceiling with Resilient Channels

To reduce sound transmission, some TJI® joist floor systems have gypsum ceilings which are attached using resilient channels. For these systems, Weyerhaeuser recommends modelling this as 1x4 flat strapping without a ceiling when performing Canadian Vibration Criteria checks in [ForteWEB®](#) or [Javelin®](#) software.

Design Options

Several design choices can affect a floor system's vibration performance, each with different levels of cost and effectiveness. These design choices include, but are not limited to, joist spacing, joist depth, floor decking thickness, and ceiling attachment.

Weyerhaeuser Trus Joist® [TJ-Pro™ Ratings](#) are generated by a sophisticated computer model designed to predict floor performance and account for these different design choices. Since floor vibration is a very complex topic that requires correlation of static and dynamic performance with subjective data, laboratory experiments to investigate dynamic response properties of floor systems and subjective data obtained from surveys on approximately 1000 floor systems were used to develop the [TJ-Pro™ Rating](#) Model. As part of Weyerhaeuser Trus Joist® [ForteWEB®](#) and [Javelin®](#) software, [TJ-Pro™ Ratings](#) provide the most comprehensive indication of floor performance of wood-based assemblies available today.

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