

Effect of Overdriven Fasteners on Shear Capacity

The following is a suggested guideline for determining if overdriven fasteners will affect the shear capacity of diaphragm or shear wall construction.

1. If any case described below is met, then no reduction in shear capacity needs to be taken.
 - a) If all nails are overdriven into panels by no greater than 1/16 inch during construction under dry conditions (moisture content less than 16 percent).
 - b) If no more than 20 percent of the fasteners around the perimeter of panels are overdriven by no greater than 1/8 inch, no reduction in shear capacity needs to be taken.
 - c) If all fasteners around the perimeter of panels appear to be overdriven by the same amount, and it appears that panels have been wetted during construction, it can be assumed that the fastener embedment is due to panel thickness swelling. This can be verified by measuring the thickness of panels where fasteners appear to be overdriven, and comparing to measurements where panels have been protected from the weather, or to the original nominal panel thickness which is indicated in the APA trademark.
 - d) If actual panels used in construction are thicker than the required minimum nominal panel thickness upon which the design shear capacity is based, and the overdriving is less than or equal to the difference between the two panel thicknesses. For example, if design shear for the construction requires a 15/32 inch minimum nominal panel thickness and the actual sheathing is 19/32 inch with all fasteners overdriven 1/8 inch, the net result is a 15/32 inch panel that meets the design shear requirements.
2. If more than 20 percent of the fasteners around the perimeter of panels are overdriven by over 1/16 inch, or if any are overdriven by more than 1/8 inch, additional fasteners must be driven to maintain the required shear capacity. For every two fasteners overdriven, one additional fastener must be driven. If nails were used in the original installation, and are spaced too close to allow the placement of additional nails, then approved staples should be used for the additional fasteners required to reduce the potential for splitting the framing.

Reference: Andreason, K.R. and J.R. Tissell, 1994, *Effects of Overdriven Nails in Shear Walls*, APA Report No. T94-9
Bao, Zhaozhen, 2002, *Lateral Shear Resistance of Plywood and OSB with Overdriven Nails*, APA Report T2002-7

<p>We have field representatives in many major U.S. cities and in Canada who can help answer questions involving APA trademarked products. For additional assistance in specifying engineered wood products, contact us:</p> <p>APA HEADQUARTERS: 7011 So. 19th St. ■ Tacoma, Washington 98466 ■ (253) 565-6600 ■ Fax: (253) 565-7265</p> <p>APA PRODUCT SUPPORT HELP DESK: (253) 620-7400 ■ E-mail: help@apawood.org</p>	<p>www.apawood.org</p> <p>Form No. TT-012B</p> <p>Revised December 2011</p>
<p>DISCLAIMER: <i>The information contained herein is based on APA – The Engineered Wood Association’s continuing programs of laboratory testing, product research, and comprehensive field experience. Neither APA nor its members make any warranty, expressed or implied, or assume any legal liability or responsibility for the use, application of, and/or reference to opinions, findings, conclusions, or recommendations included in this publication. Consult your local jurisdiction or design professional to assure compliance with code, construction, and performance requirements. Because APA has no control over quality of workmanship or the conditions under which engineered wood products are used, it cannot accept responsibility of product performance or designs as actually constructed.</i></p>	