

Heavily Loaded Drywall Carts

In commercial construction it is common practice to use drywall carts for moving gypsum wallboard from one location to another. Occasionally, complaints occur when the wheels of heavily loaded drywall carts punch through floor panels, especially where the sheathing or combination subfloor-underlayment panels have been exposed to substantial wetting and have not yet fully dried.

Although APA does not publish design loading information for panels subjected to this type of concentrated load, it may be useful to look at the concentrated static and impact test criteria listed in Table 2 of *Voluntary Product Standard PS 2, Performance Standard for Wood-Based Structural-Use Panels*, APA Form S350. It shows the minimum concentrated static loads that the panels must meet to receive a Span Rating, both before and after impact tests. While these minimum load standards are not intended as construction-site performance standards, they provide a guide for evaluating the potential for failure when the panels are subjected to heavy concentrated loads.

The most commonly used floor panels are Performance Category 23/32 Rated Sturd-I-Floor® 24 oc, which is a combination subfloor-underlayment panel that meets minimum building code requirements in most situations when installed with the long axis perpendicular to three or more supports spaced 24 inches on center. The concentrated static and impact test criteria listed in Table 2 of PS 2 require a minimum ultimate load of 400 pounds, after an impact test, applied with a 1-inch-diameter disc for Subfloor - 24 panels. Based on the *APA Panel Design Specification*, Form D510, wet conditions require a 25 percent reduction in design bending strength which means the 400 pounds should be reduced to 300 pounds to account for wet service conditions.

A typical drywall cart has 2-inch wide by 8-inch diameter wheels which probably provide about 1/2 square inch of effective contact area per wheel. Some of these carts have allowable capacities of over 3,000 pounds, or 750 pounds per wheel – more if the load isn't well balanced. It is easy to see how heavily loaded drywall carts can exceed the PS 2 concentrated-load test standard capacity, even when dry. In areas subject to drywall cart traffic, the temporary addition of a second layer of minimum 24 oc (23/32 Category) dry wood structural panels may help avoid punching failures of the floor panels. This second layer of wood structural panels does not need to be nailed down.

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:

APA HEADQUARTERS: 7011 So. 19th St. ■ Tacoma, Washington 98466 ■ (253) 565-6600 ■ Fax: (253) 565-7265

APA PRODUCT SUPPORT HELP DESK: (253) 620-7400 ■ E-mail: help@apawood.org

www.apawood.org

Form No. TT-024A

Revised January 2013

DISCLAIMER: 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.

