

## Wood Structural Panel Size and Spacing

Wood is a biological material and, as such, will expand or contract when subjected to changes in temperature and relative humidity. Since panels typically leave the mill fairly dry (i.e., around 2 to 6 percent moisture content), they can be expected to expand slightly as they become equilibrated to their in-place environment (usually at a moisture content of between 8 and 16 percent). Due to a more humid environment, panels used in the southern United States may expand more than a similar panel used in the northern United States or Canada. Table 12-1 of the USDA's Wood Handbook (1999 edition) lists the average monthly equilibrium moisture content of wood exposed to outdoor atmosphere for various locations throughout the United States. These values can be used as a guide for your particular location.

To account for possible expansion, panels are manufactured a maximum of 1/16 inch short in both length and width for plywood produced to U.S. Department of Commerce Voluntary Product Standard PS 1, *Structural Plywood* and 1/8 inch short for plywood and OSB produced to U.S. Department of Commerce Voluntary Product Standard PS 2, *Performance Standard for Wood-Based Structural-Use Panels*. Therefore a "nominal" 4-by-8 foot panel can actually be as "small" as 47-7/8 inch wide by 95-7/8 inch long. Grade stamps that manufacturers stamp on panels highlight the fact that panels are undersized and often contain the note "Sized For Spacing," meaning that panels are cut to be less than nominal dimensions to account for any expansion that may occur after shipment. Tongue-and-groove panels are also cut to be less than nominal. Be sure to follow the manufacturer's end and edge spacing recommendations to allow for possible expansion of the panels after installation.

### Panel Spacing Recommendations

Spacing of wood-based panels during installation to allow for possible expansion caused by excessive moisture gain has been a recommendation of the panel industry for more than two decades. Minimum panel spacing recommendation help to minimize the chance of buckling and other problems associated with panel expansion. It is traditionally recommended that panels be spaced as shown in the diagram (see Figure 1), unless specific recommendations or requirements are included by the manufacturer.

When minimum spacing recommendations are not followed, any panel expansion may cause buckling, which in turn may result in cosmetic but (usually) not structural problems. For this reason, TECO continues to recommend that builders follow the recommendations of manufacturers, or space panels a minimum of 1/8 inch at ends and edges when manufacturer recommendations are not available. Under in-plant construction conditions, such as manufactured housing, a spacing of 1/16 inch between panel edges and ends may be acceptable if care is taken to protect the panels after installation, thereby preventing direct exposure to the elements.

If panel edge clips are required for certain roof sheathing applications, they may also serve to maintain the recommended spacing.

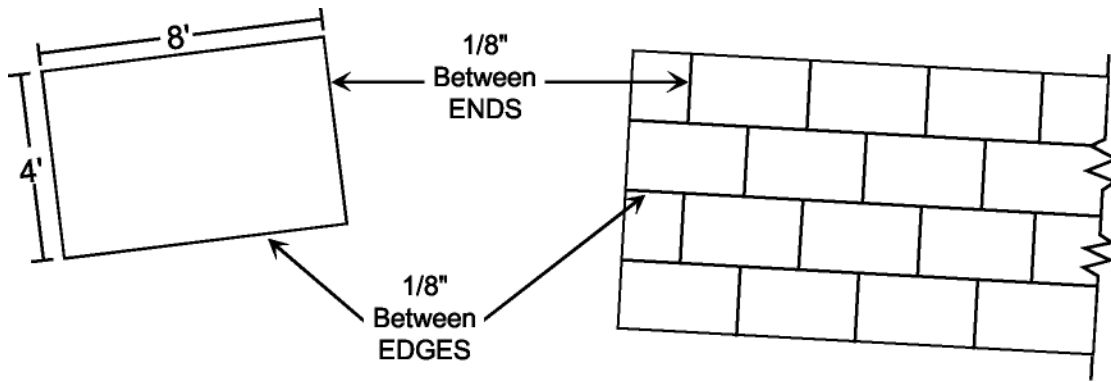


Figure 1