

Technical Tip

Allowable Shear Capacity for ZIP System® Wall Panels

ZIP System® wall sheathing is code recognized by the International Building and Residential Codes as a combination wood structural panel and water-resistive barrier. The OSB wood structural panel substrate is available in 7/16" or 1/2" thicknesses with 24/16, 24/0, or 32/16 span ratings, respectively. Also, note that 5/8" thick (40/20 span rated), Structural 1, ZIP System Wall sheathing is also available on a special order basis. ZIP System Wall sheathing complies with the requirements of PS2, *Performance Standard for Wood-Based Structural-Use Panels*. Unlike 5/8" thick ZIP System Wall, 7/16" and 1/2" ZIP System wall sheathing thicknesses are not Structural I graded panels. Please refer to Section 4.3 of American Forest and Paper Association (AF&PA), *Special Design Provisions for Wind and Seismic (SDPWS)* for allowable shear values for wall sheathing when designing shear walls using ZIP System wall sheathing. Please notice that the standard does not make any distinction between plywood and OSB. Allowable design shear values are based on panel thickness and fastener type, size and spacing. Therefore, typical plywood, OSB and ZIP System wall sheathing, assuming they are the same thickness and panel grade, resist the same amount of allowable shear in accordance with Section 4.3 of the SDPWS. Fasteners may be any code-recognized fastener. The spacing may vary upon load requirements of each individual building.

The amount of shear a wood structural panel shear wall can resist can be nominally increased by increasing panel thickness but greatly increased by increasing the fastener spacing on the panel edges (See SDPWS Table 4.3A).

For example: 7/16" ZIP System sheathing fastened using 8d nails with 6" oc edge nailing can resist 240 plf of allowable shear. Shear walls designed using 1/2" wood structural panels can resist 260 plf of allowable shear; a difference of 20 plf. However, if the fastener spacing on the 7/16 ZIP System wall were decreased to 4" oc instead of 6" oc, then the allowable shear would be increased to 350 plf; an increase of 110 plf.

Walls that are designed to resist lateral shear forces and sheathed with wood structural panels typically require solid framing behind all panel edges. It is the responsibility of the contractor to verify fastener and blocking requirements with the governing authority. Blocking requirements are typically the same for all shear walls constructed with structural OSB or plywood and are not specific to ZIP System products.