

OSB as substrate for engineered wood flooring

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The purpose of this study was to develop a special oriented strand board (OSB) formulation to be used as a substrate for engineered wood flooring (EWF). Three-layered oriented strand boards were manufactured from two types of strands: a mixture of 90% aspen (*Populus tremuloides*) and 10% paper birch (*Betula papyrifera*), and 100% ponderosa pine (*Pinus ponderosa*). The OSB panels were manufactured under a factorial design of three resin contents, two vertical density profiles, and three weight ratios for the face and core layers. Tests to determine bending properties, density, internal bond and thickness swelling were performed. One combination of three factors was chosen for each type of specialty OSB panel. The parallel modulus of elasticity (MOE) for both types of specialty OSB chosen was 8192 MPa (aspen/birch OSB) and 9049 MPa (pine ponderosa OSB), compared to the 11395 MPa minimum requirement of the *Handbook of Finnish Plywood* for birch plywood, a product widely used in EWF. Prototypes of EWF were made using five types of substrates: Baltic plywood, sheathing OSB, web stock OSB and the two prototypes of specialty OSB panels. The tests in conditioning rooms showed that the Baltic birch plywood (BBP) core constructions present the lowest distortion between humid and dry conditions. There were no significant differences in the distortion measured for BBP and aspen/birch OSB substrates. The construction with OSB sheathing, OSB web stock and ponderosa pine OSB substrates showed the greatest distortion. The results of this study demonstrate the possibility of using OSB panels as EWF substrate.