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## Racking Tests of Plywood Sheathed Frames and Braced Frames

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**Abstract:** Racking tests were conducted to clarify experimentally the structural performance of wooden frames sheathed with 9 mm-thick plywood and frames with braces 45 mm×90 mm in cross section. In the plywood sheathed frames the only failure observed of the frames was by withdrawal of nails used for installation of the plywood. On the other hand, in the braced frames many sorts of failure were observed including brace buckling. The envelopes observed on load and shear deformation angle curves showed that the braced frames had lower values than the plywood sheathed frames for stiffness, maximum load, shear deformation angle at the maximum load, the load at eighty percent of the maximum load and deformation angle corresponding to it. The multipliers calculated from the test results were 2.84 and 1.91 for the plywood sheathed frame and the braced frame, respectively. The reference shear strengths for the plywood sheathed frame and the braced frame were determined by the load at the yield point and the load derived from the structural characteristic factor, respectively. The equivalent viscose damping factors were 0.139 and 0.104 for the plywood sheathed frame and the braced frame, respectively. The ratio of tensile to compressive force in the brace was 0.719.

**Keywords:** Racking test, plywood sheathed frame, braced frame

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