

An Experimental Study on Compression Resistant Performance of Thick Plywood as an Axial Member

Wataru Kambe, Kanto Gakuin University

This paper proposed a new evaluation method of buckling strength with thick plywood of Japanese Cedar.

Because timber member don't have clear yield point, it is said that theoretical distinction of elastic buckling and plastic buckling is difficult. Recently some new timber materials are developed and some new structural types for timber buildings have been built. Then we need to improve structural design methods and set more useful information for those. Then we focused on compressive members.

In this paper we got the yield strength and yield strain from short-column compression tests. Next we conducted compression tests, at that time we changed those slenderness ratio. To evaluate the buckling strength first, Southwell method was applied. And we got yield strength defined with yield strain. We compared those strengths.

When the slenderness ratio is large, the difference is small. There isn't big difference between both methods. On the other side when the slenderness ratio is small the difference is large. Southwell method would evaluate larger value of buckling strength than that of yield strength. Then to evaluate buckling strength, my proposed method is more precise. The former is character for elastic buckling and the latter is for plastic buckling.