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Identifying the Strength Grade for Finger Jointed Timber Species According to BS 5268-2:2002

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Abstract

Finger joint technique is used in eliminating wood defects which weaken the strength of sawn wood plank. However, issues related with the strength of the joints, are still not fully investigated under Sri Lankan condition. Finger joint is performed with constant geometry (19 mm Finger Length, 1 mm Tip width and 5 mm finger pitch) using Polyvinyl acetate (PVA, P-SWR) adhesive at normal exposure conditions. The strength properties of clear and finger jointed timber are evaluated by according to BS 373:1957 by Universal Testing Machine (UTM 100 PC). The present study was undertaken to assess the strength grade for finger jointed timber with BS 5268-2:2002 according to the grade stresses at allowable limit gives comparison study of finger jointed and un-jointed seven wood species. Seven commonly used timber species in Sri Lanka were studied. Modulus of Rupture (MOR), Modulus of Elasticity (MOE), Compression Parallel to Grain and Compression Perpendicular to Grain strength values were measured without finger joint (clear) and with finger joint specimens. Strength classes relevant to the grade stresses were not changed for finger jointed and clear specimens for Satin, Mahogany, Jack and Grandis. Both clear and finger jointed timber specimens obtained D40 for Satin and Teak, D30 for Jack, Mahogany and Grandis. While they were used as finger jointed timber, Teak shows properties similar to both D35 and D40. Kumbuk has been changed from D40 to D30 while use as finger jointed timber. Finger jointed Pine shows properties of C22, C24 and C27.

Keywords: Finger joint; Grade stress, Universal testing machine