



Experimental Testing of Load-Bearing Timber–Glass Composite Shear Walls and Beams

<https://research.thinkwood.com/en/permalink/catalogue860>

Author: Kozłowski, Marcin
Dorn, Michael
Serrano, Erik

Publisher: Taylor&Francis Online

Year of Publication: 2015

Country of Publication: United Kingdom

Format: Journal Article

Material: Timber-Glass Composite

Application: Shear Walls
Beams

Keywords: Shear Loading
Vertical Loading
Adhesives
Four Point Bending Test
Load Carrying Capacity

Language: English

Research Status: Complete

Series: Wood Material Science & Engineering

Summary:

The paper presents results from the experimental testing of load-bearing timber–glass composite shear walls and beams. Shear wall specimens measuring 1200 × 2400 mm² manufactured with three adhesives of varying stiffness were tested. Twelve specimens with a single 10 mm thick glass pane and one specimen with an additional insulating glass unit were produced. The testing procedures involved various loading conditions: pure vertical load and different combinations of shear and vertical loading. The test results showed that the adhesive had only a minor influence on the buckling load which was the main failure mechanism. 240 mm high and 4800 mm long timber–glass beams manufactured with adhesives of different stiffness were tested. For the webs, two types of glass were used: annealed float and heat-strengthened glass, in both cases 8 mm thick panes were used. In total, 12 beams were tested in four-point bending until failure. Despite the considerable difference in adhesive stiffness, beam bending stiffness was similar. Concerning load-bearing capacity, the beams with heat-strengthened glass were approximately 50% stronger than the beams made using annealed float glass.

Online Access: Free

Resource Link

<http://www.diva-portal.org/smash/get/diva2:852756/FULLTEXT02>