

**STUDI EKSPERIMENTAL PERBANDINGAN KUAT GESER
PANEL *CROSS LAMINATED BAMBOO* (CLB) DAN DINDING BATA
SEBAGAI ELEMEN DINDING BANGUNAN
ABSTRAK**

Audi Rachman Haqhim. Studi Eksperimental Perbandingan Kuat Geser Panel *Cross laminated bamboo* (CLB) dan Dinding Bata sebagai Elemen Dinding Bangunan.
Dibimbing oleh Ir. Desi Putri, S.T., M.Eng.

Cross Laminated Bamboo (CLB) merupakan material komposit berbasis bambu yang memiliki potensi sebagai alternatif dinding pengisi pada bangunan tahan gempa karena ringan, memiliki kekuatan tinggi, dan bersifat berkelanjutan. Penelitian ini bertujuan untuk menganalisis perilaku geser diagonal panel CLB melalui pengujian eksperimental serta membandingkan kinerjanya dengan dinding bata konvensional. Pengujian dilakukan menggunakan metode diagonal *compression* sesuai ASTM E519 pada spesimen berukuran 600 × 600 mm. Parameter yang dievaluasi meliputi kuat geser diagonal, *displacement*, pola keruntuhan, dan *strength-to-weight ratio*. Hasil pengujian menunjukkan bahwa panel CLB memiliki kuat geser diagonal rata-rata sebesar 1,958 kN sedangkan dinding bata sebesar 0,736 kN. Nilai *displacement* panel CLB rata-rata sebesar 7,85 mm sedangkan dinding bata sebesar 5,47 mm. Pola keruntuhan panel CLB secara bertahap sedangkan dinding bata runtuh tiba-tiba. Hasil penelitian ini menunjukkan bahwa panel CLB memiliki kapasitas geser, efisiensi struktural, dan perilaku keruntuhan yang lebih baik dibandingkan dinding bata. Panel CLB menunjukkan perilaku yang lebih daktil dibandingkan dinding bata sehingga dapat pertimbangan untuk digunakan sebagai alternatif material dinding dalam menahan gempa

Kata kunci: *Cross laminated bamboo*, uji geser diagonal, *displacement*, daktil, pola retak

EXPERIMENTAL STUDY ON THE COMPARISON OF SHEAR STRENGTH BETWEEN *CROSS LAMINATED BAMBOO* (CLB) PANELS AND BRICK WALLS AS BUILDING WALL ELEMENTS

ABSTRACT

Audi Rachman Haqhim. Experimental Study Comparing the Shear Strength of *Cross laminated bamboo* (CLB) Panels and Brick Walls as Building Wall Elements.

Supervised by Ir. Desi Putri, S.T., M.Eng.

Cross-Laminated Bamboo (CLB) is a bamboo-based composite material with potential as an alternative infill wall material for earthquake-resistant buildings due to its lightweight, high strength, and sustainable characteristics. This study aims to analyze the diagonal shear behavior of CLB panels through experimental testing and compare their performance with conventional brick masonry walls. The tests were conducted using the diagonal compression method in accordance with ASTM E519 on specimens measuring 600×600 mm. The evaluated parameters included diagonal shear strength, *displacement*, failure patterns, and strength-to-weight ratio. The test results showed that the CLB panels achieved an average diagonal shear strength of 1,958 kN, while the brick masonry walls achieved 0,736 kN. The average *displacement* of the CLB panels was 7,85 mm, compared to 5,47 mm for the brick masonry walls. The CLB panels exhibited a progressive failure pattern, whereas the brick masonry walls experienced sudden failure. These results indicate that the CLB panels have better shear capacity, structural efficiency, and failure behavior than conventional brick masonry walls. The CLB panels also exhibited more ductile behavior, suggesting their potential as an alternative wall material for improving the seismic performance of buildings

Keywords: *Cross laminated bamboo*, diagonal shear test, *displacement*, ductile, crack pattern