

PERBANDINGAN KARAKTERISTIK BATU BATA KONVENSIONAL DAN BATU BATA CETAK MEKANIS DI DESA TANJUNG PISANG KABUPATEN KEPULAUAN MERANTI

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ABSTRAK

Batu bata merupakan material utama pasangan dinding yang kualitasnya dipengaruhi oleh proses produksi, di mana penelitian ini bertujuan untuk menganalisis dan membandingkan karakteristik fisik (dimensi geometri, berat jenis, dan daya hisap air) serta mekanis (kuat tekan) antara batu bata konvensional (manual) dan batu bata cetak mekanis asal Desa Tanjung Pisang, Kabupaten Kepulauan Meranti, berdasarkan kriteria SNI 15-2094-2000. Pengujian laboratorium terhadap 30 sampel di Laboratorium Teknik Sipil Politeknik Negeri Bengkalis menunjukkan batu bata cetak mekanis memiliki keunggulan fisik pada kepresisian dimensi (panjang 185,80–191,97 mm; lebar 90,47–94,77 mm; tebal 51,70–55,43 mm) dan bobot rata-rata lebih berat (1.466,8 gram) dibandingkan bata konvensional. Daya hisap air rata-rata bata mekanis mencapai 34,04 g/dm²/menit, sedangkan bata konvensional sebesar 22,07 g/dm²/menit, dengan berat isi yang relatif setara yaitu 1,876 kg/dm³ (mekanis) dan 1,874 kg/dm³ (konvensional). Secara mekanis, batu bata konvensional memiliki rata-rata kuat tekan 46,22 kg/cm² namun dengan fluktuasi data yang sangat tinggi (14,53–89,53 kg/cm²) akibat ketidakmerataan pembakaran, sementara batu bata cetak mekanis menghasilkan rata-rata kuat tekan 32,32 kg/cm² dengan sebaran data yang lebih homogen. Kesimpulannya, batu bata cetak mekanis menawarkan kepresisian dimensi serta konsistensi mutu yang lebih baik, dan kedua jenis bata ini memenuhi kualifikasi aman untuk pasangan dinding pengisi (non-struktural).

Kata Kunci: *Batu Bata Konvensional, Batu Bata Cetak Mekanis, Kuat Tekan, Daya Hisap Air, SNI 15-2094-2000*

***COMPARISON OF THE CHARACTERISTICS OF
CONVENTIONAL BRICKS AND MECHANICAL
MOLDED BRICKS IN TANJUNG PISANG VILLAGE,
KEPULAUAN MERANTI REGENCY***

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ABSTRACT

Bricks are primary wall construction materials whose quality is strongly influenced by the manufacturing process. This study aims to analyze and compare the physical characteristics (geometric dimensions, bulk density, and initial water absorption rate) as well as mechanical properties (compressive strength) of conventional (manual) and mechanical molded bricks produced in Tanjung Pisang Village, Kepulauan Meranti Regency, based on SNI 15-2094-2000 standards. Laboratory testing of 30 samples at the Civil Engineering Laboratory of Politeknik Negeri Bengkalis revealed that mechanical molded bricks possess superior physical dimensional precision (length 185.80–191.97 mm; width 90.47–94.77 mm; thickness 51.70–55.43 mm) and a higher average weight (1,466.8 g) compared to conventional bricks. The average initial water absorption rate for mechanical bricks was 34.04 g/dm²/min, whereas conventional bricks recorded 22.07 g/dm²/min, with both types showing comparable bulk density values of 1.876 kg/dm³ (mechanical) and 1.874 kg/dm³ (conventional). Mechanically, conventional bricks exhibited a higher average compressive strength of 46.22 kg/cm² but suffered extreme data fluctuations (14.53–89.53 kg/cm²) due to uneven traditional firing, whereas mechanical bricks achieved an average compressive strength of 32.32 kg/cm² with a much more homogeneous distribution. In conclusion, mechanical molded bricks offer superior dimensional accuracy and quality consistency, while both brick types meet the necessary reliability requirements for non-structural infill wall construction.

Keywords: *Conventional Bricks, Mechanical Molded Bricks, Compressive Strength, Initial Water Absorption, SNI 15-2094-2000*