ABSTRAK

Ayu Novia : Kajian Kuat Tekan Dan Kuat Lentur Material *Rammed Earth* Dengan Penambahan Serat Tandan Kosong Kelapa Sawit Sebagai Dinding Bangunan. Skripsi. Fakultas Teknik. Universitas Negeri Medan. 2022.

Rammed earth material buatan manusia yang setara dengan batuan sedimen. Proses dalam membangun *rammed earth* melibatkan campuran tanah, air, dan aditif, kemudian dipadatkan di dalam bekesting sampai keadaan yang sangat padat. Sejauh ini serat tandan kosong kelapa sawit hanya digunakan sebagai pupuk dan *bottom ash* dari hasil pembakaran yang ditumpuk sehingga dapat menimbulkan pencemaran lingkungan. Pada penelitian ini digunakan limbah serat tandan kosong kelapa sawit sebagai bahan subtitusi semen pada campuran *rammed earth*. Tujuan penelitian ini adalah untuk mengetahui pengaruh penambahan serat tandan kosong kelapa sawit terhadap nilai kuat tekan dan kuat lentur *rammed earth.* Metode penelitian yang dilakukan menggunakan kajian eksperimen. Variasi persentase penambahan serat tandan kososng kelapa sawit (TKKS) 0%; 0,75%; 1%; dan 1,25% terhadap berat semen. Benda uji dibuat dengan bentuk silinder ukuran diameter 15 cm dan tinggi 30 cm dan balok ukuran 60 cm x 15 cm x 15 cm. Umur perawatan benda uji selama 28 hari. Serat tandan kosong kelapa sawit yang digunakan pada penelitian ini memiliki panjang berkisar antara 1-5 cm. Parameter pengujian yaitu analisa saringan, kuat tekan dan kuat lentur *rammed earth*. Hasil penelitian menunjukkan bahwan kuat tekan optimum terjadi pada variasi TRES0 (0% serat TKKS) yaitu didapat nilai tekan rata-rata sebesar 5,06 MPa. Sedangkan kuat lentur optimum terjadi pada variasi LRES1.25 (1,25% serat TKKS) yaitu didapat nilai lentur rata-rata sebesar 0,98 MPa dimana mampu menahan beban rerata sebesar 7,3 kN.

Kata kunci: Rammed Earth, Serat Tandan Kosong Kelapa Sawit, Kuat Tekan, Kuat Lentur

ABSTRACT

Ayu Novia : ***The Study of Compressive Strength and Flexural Strength of Rammed Earth Materials With the Addition of Palm Empty Fruit Bunch as Building Walls. Essay. Faculty of Engineering. State University of Medan. 2022.***

Rammed earth is a man-made material equivalent to sedimentary rock. The process of constructing rammed earth involves mixing soil, water, and additives, then compacting it in the formwork to a very compact state. o far, the fiber of empty palm oil bunches is only used as fertilizer and bottom ash from the stacked combustion results which can cause environmental pollution. In this study, fiber waste from empty palm oil bunches was used as a substitute for cement in the rammed earth mixture. The purpose of this study was to determine the effect of the addition of empty palm oil fruit bunches on the compressive strength and flexural strength of rammed earth. The research method used was experimental study. Variation of percentage addition Palm Empty Fruit Bunch (EFB) 0%; 0.75%; 1%; and 1.25% by weight of cement. The test object was made in a cylindrical shape with a diameter of 15 cm and a height of 30 cm and beam size 60 cm x 15 cm x 15 cm. Age of treatment of test objects for 28 days. Palm Empty Fruit Bunch (EFB) used in this study has a length ranging from 1-5 cm. The test parameters are sieving, compressive strength and flexural strength of rammed earth. The results showed that the optimum compressive strength occurred in the TRES0 variation (0% EFB) that is obtained the average compressive strength value of 5.06 MPa. While the optimum flexural strength occurs at the LRES1.25 variation (1.25% EFB) that is, obtained an average flexural strength value of 0.98 MPa which is able to withstand an average load of 7.3 kN.

Keywords: *Rammed Earth, Palm Empty Fruit Bunch (EFB), Compressive Strength, Flexural Strength*