

ABSTRAK

Semakin menipisnya jumlah stok material yang tersedia di alam membuat harga satuan material yang semakin tinggi. Saat ini berbagai cara serta penelitian dilakukan dan terus dikembangkan dengan tujuan mengurangi eksploitasi alam dan dapat memanfaatkan beberapa limbah-limbah dari sisa industri, salah satunya terhadap material pembentuk beton itu sendiri. Karena limbah sisa ini begitu banyak ditemukan maka pada penelitian kali ini peneliti melakukan penelitian dengan campuran limbah abu batu dari sisa produksi pemecah batu sebagai pengganti agregat halus dan limbah *fly ash* dari sisa pembakaran batu bara sebagai pengganti semen. Untuk kuat tekan rata-rata 30 MPa yang akan dibuat sebagai dinding panel beton pracetak dengan variasi komposisi meliputi beton normal, beton dengan substitusi abu batu 40%, dan beton dengan substitusi abu batu 40% ditambah mensubstitusi semen sebesar 15%. Pengujian kuat tekan dilakukan umur 7 hari, 14 hari, dan 28 hari sedangkan kuat tarik belah dilakukan umur 28 hari. Hasil pengujian tekan umur 28 hari beton normal memiliki kuat tekan yang paling tinggi sebesar 36,66 MPa sedangkan 2 variasi komposisi mengalami penurunan, kuat tekan komposisi abu batu 40% didapat 33,65 MPa dan kuat tekan komposisi abu batu 40% + *fly ash* 15% didapatkan 33,52 MPa. Untuk kuat tarik belah umur 28 hari beton normal memiliki kuat tarik belah tertinggi sebesar 2,62 MPa sedangkan 2 variasi komposisi mengalami penurunan, kuat tarik belah abu batu 40% didapat 2,43 MPa dan kuat tarik belah abu batu 40% + *fly ash* 15% didapatkan 2,42 MPa.

Kata Kunci: Beton; Limbah Abu Batu; Limbah *Fly Ash*; Kuat Tekan; Kuat Tarik Belah.

ABSTRACT

The decreasing number of material stocks available in nature increases prices higher units of material. Currently, various methods and research are being carried out and continues to be developed with purposed reduce natural exploitation and can utilize some waste from industrial waste, one of which is the forming material concrete itself. Because so much of this residual waste is found, in this study the researchers conducted research using a mixture of stone ash waste from stone crushing production waste as a substitute for fine aggregate and waste.fly ash from coal burning residue as a cement substitute. For an average compressive strength of 30 MPa, it will be made as precast concrete wall panels with composition variations including normal concrete, concrete with 40% stone ash substitution, and concrete with 40% stone ash substitution plus 15% cement substitution. Compressive strength tests were carried out at 7 days, 14 days and 28 days, while split tensile strength was carried out at 28 days. The compressive test results aged 28 days for normal concrete had the highest compressive strength of 36.66 MPa while the 2 composition variations experienced a decrease, the compressive strength of the 40% stone ash composition was found to be 33.65 MPa and the compressive strength of the stone ash composition was 40% + fly ash 15% obtained 33.52 MPa. For the splitting tensile strength aged 28 days, normal concrete had the highest splitting tensile strength of 2.62 MPa, while the 2 composition variations experienced a decrease, the splitting tensile strength of 40% stone ash was found to be 2.43 MPa and the splitting tensile strength of stone ash was 40% +fly ash 15% obtained 2.42 MPa.

Keywords: *Stone Ash Waste; WasteFly Ash; Strong Press; Strong Split Pull.*