

ABSTRAK

Banyaknya penelitian dan inovasi mengenai perkembangan beton sangatlah pesat di bidang konstruksi, hal ini juga sangat membantu masyarakat mendapatkan beton yang mempunyai kualitas tinggi meliputi kekuatan dan daya tahan tanpa mengabaikan nilai ekonomis, namun dari banyaknya penelitian hanya sedikit penelitian yang diterapkan ke komponen struktur bangunan, maka penelitian ini diharapkan dapat memberikan informasi tentang laju kenaikan pada kuat tekan beton normal dan berbahan tambah serta laju kenaikan pada kuat lentur balok beton bertulang normal dan berbahan tambah.

Penelitian telah dilakukan dengan menggunakan bahan tambah 5 % *fly ash* dan 0,6 % *bestmittel* pada kuat tekan beton dan kuat lentur balok bertulang dengan jumlah benda uji pada kuat tekan sebanyak 54 silinder berukuran 15 cm x 30 cm dan benda uji pada kuat lentur balok beton bertulang sebanyak 6 benda uji balok berukuran 12 cm x 21 cm x 200 cm. Penelitian ini menggunakan 3 variasi mutu yaitu mutu beton 20 MPa, 25 MPa dan 30 MPa, pada pengujian kuat tekan beton dilakukan pengujian saat umur beton 3 hari, 7 hari dan 14 hari dan untuk balok beton bertulang dilakukan pengujian pada umur 28 hari. Sebagai pembanding dari kuat tekan beton dan kuat lentur balok beton bertulang dibuat benda uji normal.

Dengan membandingkan kenaikan kapasitas antara kuat tekan beton dan kuat lentur balok bertulang dapat disimpulkan bahwa bahan tambah yang digunakan memiliki peningkatan terhadap kuat tekan beton dan kuat lentur balok beton bertulang dengan hasil untuk uji tekan silinder nilai kenaikan kuat tekan terbesar adalah 38,7 % sedangkan untuk kuat lentur balok beton bertulang nilai kenaikannya sebesar 3,8 %.

Kata Kunci : *fly ash*, *bestmittel*, kuat tekan, kuat lentur, kenaikan,

ABSTRACT

The amount of research and innovation regarding concrete development is very rapid in the field of construction, this also greatly helps people get concrete that has high quality including strength and endurance without neglecting economic value, but from the large number of studies only a little research has been applied to building structural components, This research is expected to provide information about the rate of increase in normal and added concrete compressive strength and the rate of increase in the flexural strength of normal and reinforced concrete beams.

Research has been carried out using 5% fly ash and 0.6% bestmittel on concrete compressive strength and reinforced beam flexural strength with the number of specimens on 54 cylinders of compressive strength measuring 15 cm x 30 cm and test specimens on concrete beam flexural strength. reinforced as many as 6 beam test objects measuring 12 cm x 21 cm x 200 cm. This study uses 3 quality variations, namely the concrete quality of 20 MPa, 25 MPa and 30 MPa, when testing the concrete compressive strength is tested when the concrete age is 3 days, 7 days and 14 days and for reinforced concrete be tested at 28 days. As a comparison of concrete compressive strength and flexural strength of reinforced concrete beams, normal test objects were made.

By comparing the rate of increase between the compressive strength of the concrete and the flexural strength of reinforced beams it can be concluded that the added material used has an increase in the compressive strength of the concrete and the flexural strength of reinforced concrete beams with the results for cylindrical compressive test the highest increase in compressive strength is 38.7% while for the flexural strength of reinforced concrete beams has an increase of 3.8%.

Keywords: *fly ash, bestmittel, compressive strength, flexural strength, increase*