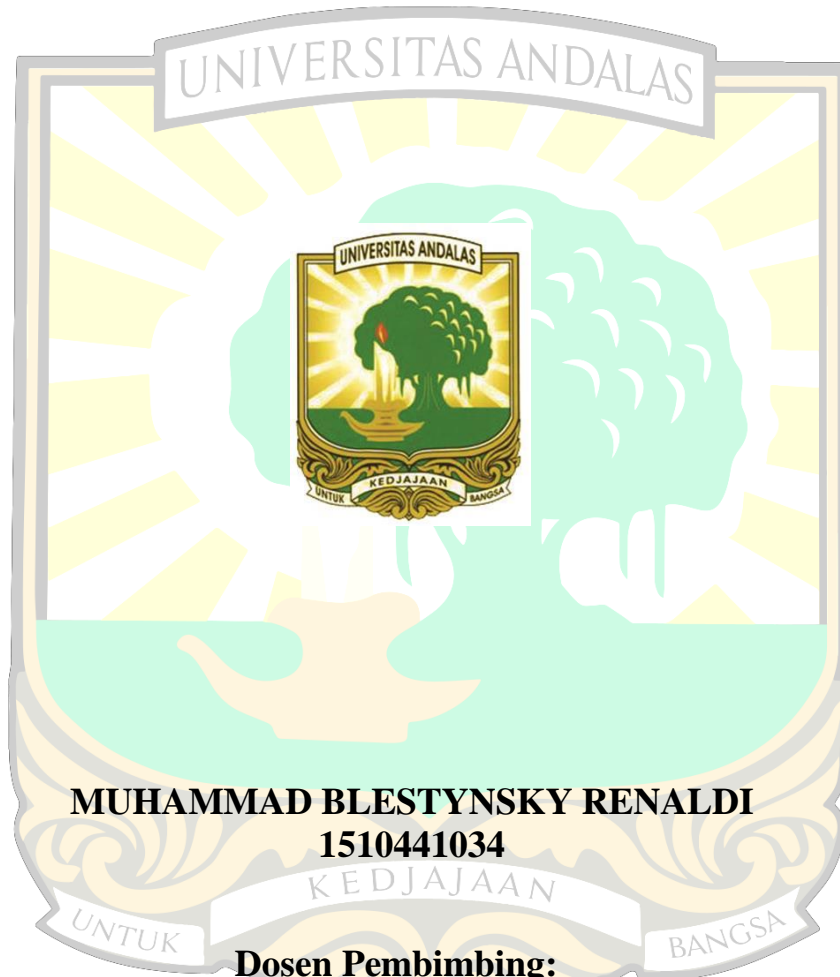


**PENGARUH PENAMBAHAN SERAT PINANG TERHADAP
SIFAT FISIK DAN MEKANIK PAPAN BETON RINGAN
DENGAN *FLY ASH* SEBAGAI FILLER**

SKRIPSI



MUHAMMAD BLESTYNSKY RENALDI

1510441034

Dosen Pembimbing:

Drs. Alimin Mahyudin, M.Si

196106031989011001

**JURUSAN FISIKA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN
ALAM
UNIVERSITAS ANDALAS
PADANG**

2022

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ABSTRAK

Telah dilakukan penelitian mengenai pengaruh penambahan serat pinang terhadap sifat fisik dan mekanik papan beton ringan dengan *fly ash* sebagai *filler*. Variasi serat pinang 0,2%; 0,4%; 0,6%; 0,8%; 1% dengan menggunakan penyusunan serat secara acak. Sifat fisik dan mekanik yang diujikan meliputi densitas, daya serap air, porositas, kuat tekan dan kuat lentur. Berdasarkan hasil pengujian, penambahan massa serat sabut pinang berbanding terbalik dengan densitas dan berbanding lurus dengan porositas dan daya serap air. Nilai densitas terendah pada sampel variasi serat 1% sebesar 2 gr/cm³, nilai porositas terendah yaitu sebesar 19,56% dengan komposisi tanpa serat dan *fly ash*, dan nilai daya serap air terendah sebesar 9,47% pada komposisi tanpa serat dan *fly ash*. *Fly ash* dengan serat pinang mampu menambah nilai kuat tekan serta kuat lentur dari sampel papan beton ringan. Nilai kuat tekan tertinggi pada penambahan serat yaitu sebesar 78,5 kg/cm³ dengan komposisi serat 1%, sedangkan nilai kuat lentur tertinggi sebesar 66 kg/cm³ dengan komposisi serat 1%. Nilai densitas dari sampel papan beton ringan belum memenuhi SNI 03-2105-2006 sedangkan nilai porositas dan daya serap air sampel sudah memenuhi standar tersebut. Nilai kuat tekan yang didapatkan dari pengujian sampel memenuhi standar SNI 03-3449-2002 namun untuk kuat lentur masih belum memenuhi nilai kuat lentur dari SNI.

Kata kunci: *fly ash*, papan beton ringan, serat pinang, daya serap air, densitas, kuat lentur, kuat tekan, porositas

THE EFFECT OF ADDITIONAL FIBER ON PHYSICAL AND MECHANICAL PROPERTIES OF LIGHTWEIGHT CONCRETE BOARDS WITH *FLY ASH* AS FILLER

ABSTRACT

Research has been carried out on the effect of adding betel nut to the physical and mechanical properties of lightweight concrete boards with fly ash as filler. Variation of areca fiber 0.2%; 0.4%; 0.6%; 0.8%;1% by using a random arrangement of fibers. Physical and mechanical properties tested include density, water absorption, porosity, compressive strength and flexural strength. Based on the test results, the addition of areca fiber mass is inversely proportional to density and directly proportional to porosity and water absorption. The lowest density value in the 1% fiber variation sample is 2 gr/cm³, the lowest porosity value is 19.56% with the composition without fiber and fly ash, and the lowest water absorption value is 9.47% in the composition without fiber and fly ash. . *Fly ash* with betel nut is able to increase the value of the compressive strength and flexural strength of the lightweight concrete board sample. The highest compressive strength value in the addition of fiber is 78.5 kg/cm³ with a fiber composition of 1%, while the highest flexural strength value is 66 kg/cm³ with a fiber composition of 1%. The density value of the lightweight concrete board sample did not meet SNI 03-2105-2006 while the porosity and water absorption values of the sample had met the standard. The compressive strength value obtained from the sample test meets the SNI 03-3449-2002 standard but for the flexural strength it still does not meet the flexural strength value of the SNI.

Keywords: *fly ash*, lightweight concrete board, areca fiber, water absorption, density, flexural strength, compressive strength, porosity