

## **ABSTRACT**

### **THE INFLUENCE OF GAP GRADED COURSE AGGREGATE TO CONCRETE PRESSURE STRENGTH**

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The development of construction and transportation industrial shows significant increase together with the increases of people and the needs. Part of construction which increases significantly is concrete. In concrete making, aggregate gradation affects concrete strength a lot. Aggregate gradation can be categorized in 3 kinds that is continuous graded, uniform graded, and gap graded. The purpose of this research is to compare concrete pressure strength of gap graded aggregate and continuous graded aggregate.

The research was done by making cylinder samples (d=150 mm, t=300 mm) with concrete pressure strength 17,5 MPa, 27,5 MPa and 37,5 MPa. Course aggregate variations which was used were 2 – 3,75 cm, 1 – 2 cm and 0,5 – 1 cm, 2 – 3,75 cm. The treatment of samples was done by drowning it into water and blowing it for 7 days. The samples were tested in 28 days.

The result of the test was: (1) average concrete pressure strength with gap graded course aggregate was lower than concrete which used continuous graded course aggregate, (2) In concrete mixture with pressure strength 17,5 MPa, maximum load which can be hold by concrete with gap graded course aggregate was not so different from concrete with continuous graded course aggregate, (3) The higher pressure strength which was planned, the lower maximum load which can be hold by concrete with gap graded course aggregate, (4) There are differences between elasticity modulus values from this research and elasticity modulus from empirical formulas prediction in ACI 318-83M and Hognestad.

Keywords : aggregate gradation, pressure strength, elasticity modulus