

THE EFFECT OF ADDING SIKA FUME ON THE COMPRESSIVE STRENGTH OF F'C 30 MPa

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ABSTRACT

Concrete is a very important construction and is most dominantly used in building structures. The demand for concrete quality in projects often requires that the concrete can reach its optimal strength according to construction needs. In some cases, the concrete mixture requires additional ingredients to achieve the planned compressive strength. This research aims to analyze the effect of adding sika fume (0%, 3%, 6% and 9%) on the compressive strength of concrete. In this research, sika fume will be added to the f'c 30 MPa concrete mixture. The addition of sika fume is carried out by varying different percentages, namely 3%, 6% and 9% of the cement weight. The test object used was a concrete cylinder with a diameter of 15 cm and a height of 30 cm. Compressive strength tests were carried out when the test objects were 7, 14, 21 and 28 days old. The research results showed that at the age of 14 days, by adding 6% sika fume, a compressive strength value of 30.76 MPa was obtained. This shows that the concrete has reached or even exceeded the design compressive strength f'c of 30 MPa at the age of 14 days just by adding 6% sika fume. The addition of sika fume with percentages of 3%, 6% and 9% shows that the compressive strength of concrete has increased by $\pm 8\%$ - 24% compared to concrete without the addition of sika fume. The highest compressive strength value was obtained from concrete with the addition of 9% sika fume with a compressive strength value of 37.37 MPa at 28 days. In this research, it can be observed that the more sika fume added to the concrete mixture, the greater the compressive strength produced.

Keywords : Concrete, compressive strength, sika fume

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