

ABSTRACT

EFFECT OF OPC AND PCC CEMENT ON COMPRESSIVE STRENGTH AND FLEXURAL STRENGTH IN HIGH STRENGTH CONCRETE WITH CEMENT WATER FACTORS 0,30 AND 0,33

By

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The cement used in the manufacture of portland cement concrete is a type I OPC (Ordinary Portland Cement). However, cement type I OPC (Ordinary Portland Cement) is already being replaced by cement type of PCC by the cement industry in Indonesia. This study was conducted to determine the effect of OPC cement and PCC of compressive strength and flexural strength at high strength concrete cement water factor of 0,30 and 0,33.

The object of this research is a concrete cylinder with a diameter of 15 cm and height 30 cm . And the concrete beam with a length of 60 cm, width 15 cm and height 15 cm. Tests were carried out, namely, compressive strength and flexural strength of high strength concrete after the test specimen was 14 days, 28 days and 56 days. Plant cement factor was 0,30 and 0,33. Additional materials used are superplasticizer and silica fume.

Based on test results compressive strength concrete, the average compressive strength of concrete produced does not reach the target compressive strength of high strength concrete plan. However the flexural strength testing of concrete, concrete flexural strength averages produced meet high strenght concrete flexural strength when compared with the theory. At PCC cement compressive strength value of the highest average found in the test object fas 0,30 with addition of 10% Silica fume is of 29,8184 MPa; 30,2902 MPa and 36,2350 MPa, whereas for OPC cement obtained in the test object without adding Silica fume with cement water factor 0,33, the results are 30,1014 MPa; 34,0646 Mpa and 47,8415 MPa. Flexural strength value of the highest average for PCC cement specimen contained in Cement water factor 0,30 with addition of 10% Silica fume, the result are 6,7556 MPa; 7,0667 MPa and 7,4444 MPa, whereas for OPC cement obtain without adding cement water factor 0,30 with Silica fume gets of 9,0000 MPa; 6,6667 MPa and 8,3556 MPa.

Keywords: OPC cement, PCC cement, compressive strength, flexural strength