

Jakkapat Korneenai 2007: Shear Behavior of High Performance Reinforcee Concrete Beams. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Professor Torkul Kanchanalai, Ph.D. 147 pages.

The Purpose of this reasearch is to study the shear behavior and the shear strength of reinforcement concrete beam with high performance concrete. Twelve samples of 12x20 cm a rectangular section and 100 cm span length were testd. The specimens have high strength concrete having f_c' in the range of 630-905 kg/cm².

Samples B1,B2 have shear reinforcement 0.167% and main tension steel of 1.26% with ratio of shear span:effective depth = 3 and 1.5 . Samples B3,B4 have shear reinforcement of 0.194% and tension steel 1.26%, 2.51% with ratio of shear span:effective depth = 3 and 1.5. Samples B5, B6 have shear reinforcement of 0.292% and tension steel 2.51% with ratio of shear span:effective depth = 3 and 1.5. Samples B7 ,B7*, B8, B8* have shear reinforcement of 0.583% and tension steel 2.51% with ratio of shear span: effective depth = 3 an 1.5; and for samples B1*, B2* no shear reinforcement is provide. The tension steel is 1.26% ratio and the shear span:effective depth = 3 and 1.5.

From the test it was found that the concrete shear strength of the beams with $a/d = 3$ is less than those with $a/d = 1.5$. The shear strength from the test results were compared with the functions of the ACI 318-89 specifications were conservative for the beams with $a/d = 3$ and rather conservative for $a/d = 1.5$ which is due to the arch action effect in the later. The shear reinforcement yields for beams with $a/d = 3$. For those with $a/d = 1.5$ the reinforcement dose not yields making the predicted strength from the ACI provision being too excessive.



Student's signature



Thesis Advisor's signature