

Study on Flexural Behaviour and Cracking of Ferrocement Slabs by Neglecting Very Fine Sand

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This paper presents the experimental results of eight slabs made of Ferrocement. All specimens were (700mm) long, (300mm) wide and (50mm) thick. These specimens were divided into two groups (The first group has four specimens coursed of normal sand gradient and in the other four specimens, the sand that passing from sieve No. 8 was neglected), to investigate behavior of slabs under bending effect and studying the cracks that generated after bending then, comparing the results between these two groups. A thin square welded wire mesh was used as reinforcement. The number of [wire mesh](#) layers was varied between 0 to 3 layers.



[Ultrasonic Pulse Velocity](#) (UPV) Test was used to detect the cracks. The results showed that there was a slight rise in bending for first group slabs compared with second group slabs. Maximum bending strength was achieved for both slab groups with 3 layers of wire mesh. It was shown that there was a significant convergence in the load values required to cause appearing of the first crack and final failure for the two groups. The percentage of ultimate load between slab reinforced with 3 layers and without reinforcement was (25.27%) for the first group, while the increase in ultimate load for a specimen that reinforced with 3 layers was (24.16%) compared to specimen without reinforcement for the same group. On the other hand, the results showed an improvement in the performance of the second group slabs due to its resistance to appearing of cracks resulted from bending. The percentage of increasing cracks after bending for the unreinforced specimen in group 1 was (9%) compared with the unreinforced

slab in group 2. Whereas the numbers of cracks number in slab reinforced with 1 and 2 layers in the second group were less than slabs with 1 and 2 layers in the first group about (8.86 %) and (7.77%), respectively, while this percentage for a specimen with 3 layers in group 2 was about (8.62%) less compared to the specimen with 3 layers in group 1.