REINFORCED CONCRETE PLATES UNDER STATIC AND DYNAMIC LOADING

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In manuals such as TM 5-1300 it is supposed that the behavior of reinforced concrete structures under blast loading is almost the same as under static loading, exept that the strength of the reinforcement is increased by 20%.
To determine whether this is true identical concrete plates were loaded either statically or at very high loading rates. The plates had a length-width ratio of 1.4 and were simply-supported.
The static loading was applied with the help or an air cushion. In order to obtain a fast rising loading of a very short duration HE were detonated at short distances.
Attention was paid to the dynamic load distribution over the plate.
Since load deflection curves are meaningless in the case of a dynamic loading the relation between the deflection and the deformation energy was used to compare the behavior under static and dynamic loading.
The most striking result was the strong reduction in the deformation ca-pacity under dynamic loading compared to that under static loading-