

INVESTIGATION OF REINFORCED CONCRETE SLABS BEHAVIOR AGAINST BLAST VARYING SCALED DISTANCE AND STEEL REINFORCEMENT RATIOS

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Abstract: Terrorist attacks and accidental explosions are occurring frequently in the world encompassing both military and civilian assets and life. These events bring hazards to essential and supporting structures and may lead to structural failure or loss of human life. These structures are often made from reinforced or modified concrete. The objective of this study is to analyze the concepts of wave front of blast against reinforced concrete structures, using displacement meters. Reinforced concrete slabs with different values of static compressive strength, steel reinforcement ratio and under different scale distance were the targets. The slabs were subjected to non-confined PBX explosive and the sensors could register the displacement of the slab during the explosion. The collected data were analyzed comparing the displacement results with the literature. A first analysis showed that the slab partially absorbs the blast energy before cracking due to the reinforcement ratio.