NUMERICAL SIMULATION AND EXPERIMENTAL EVALUATION OF MITIGATIONS TO DEFEAT CLOSE-IN DETONATIONS AGAINST SCALED REINFORCED CONCRETE BOX STRUCTURES

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A series of analyses and experiments helped identify and verify specific failure modes of reinforced concrete walls subjected to near-contact detonations. As a result, several mitigation concepts were developed and evaluated in a preliminary phase of analysis and experimentation. A further study used these results to develop hardened retrofit designs to protect reinforced concrete (RC) box-like structures against the blast-load effects from near-contact detonations. This paper presents a summary of the numerical analyses conducted to predict the behavior of the scaled RC box test specimens without and with proposed mitigation designs and the comparable experimental results.

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