

EXPERIMENTAL AND NUMERICAL VALIDATION OF A BLAST MITIGATION TECHNIQUE FOR UNREINFORCED MASONRY

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This technical paper will summarize research currently being conducted for the Department of Homeland Security (DHS) by the U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, MS, and Lawrence Livermore National Laboratory (LLNL), Livermore, CA. This effort is a continuation of a research effort that was presented by the same author at MABS24. The objective of this research was to validate a mitigation technique through field experimentation and computational modeling that is capable of diminishing the effects of near contact detonations on unreinforced masonry targets. The success of the mitigation scheme was measured by its ability to reduce deformation and prevent breach in the test specimen. Computational models were developed to predict the response of the masonry targets to explosive loads, and the experimental data provided information to validate those models. Comparisons between the experimental damage and numerical results will be presented. The resulting mitigation concept will aid government and private agencies in the decision-making process in determining whether to harden structures against potential attacks.

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