FINITE-ELEMENT ANALYSIS METHOD OF DEVELOPING SIMPLIFIED MODELS FOR PREDICTING CONVENTIONAL WEAPON DAMAGE TO REINFORCED CONCRETE BEAMS

James T. Baylot, Robert L. Hall, James L. O'Daniel
U.S Army Engineer Research and Development Center Vicksburg, MS 39180 USA

The military community is demanding the development of PC-based tools for predicting the structural damage from an extensive inventory of weaponry. At the same time, structural analysts are requesting the development of procedures for predicting airblast and fragment loads on structures and for first-principle procedures for predicting dynamic nonlinear material response and removal. The experimentalists are collecting valuable data sets of deterministic data for highly probabilistic problems. This paper demonstrates how to combine deterministic experimental data, high-performance computations, and engineering judgment into a validated PC-based engineering model for predicting weapon damage to reinforced concrete (RC) bridge beams.