INTERNAL BLAST DAMAGE TO SHIP COMPARTMENTS

RITZEL,D.V.;BURMAN,N.M.;SAUNDERS,D.S:;BUCKLAND,M.E.

Internal blast damage from explosive munitions poses a major threat to warships and commercial vessels in regions of hostilities. A series of parametric tests and preliminary computational analyses are described
which show critical loading and damage processes for severe internal blast in simple cubicles of welded steel construction. Failure of the cubicles occurs early during the compound shock reflection phase and is highly dependent on parameters such as the charge/wall proximity and wall edge restraint. Effects of detonations in near contact with a wall, and behavior of blow-out panels are also shown. Standard simplified methods for damage assessment are seen to be inadequate in predicting results; the data is
being applied to evaluate advanced finite-element and finite-difference codes and to develop improved intermediate methods. Future tests and analyses will consider blast in full-scale ship compartments.