EVALUATION OF RETROFITTED WINDOW PANES SUBJECTED TO AIR BLAST

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Abstract

The window panes are the most vulnerable part of the structure subjected to air blast. The ordinary window glass when exposed to blast fails in large hazardous dagger like fragments that pose lethal threat to soft skinned targets. The protective design approach is to retrofit the window panes of the existing structure and make it shatter proof against the blast. The retrofitting reduces the hazards by retaining the glass fragments within the film and does not allow the fragments to fly the building interior. The paper presents the experimental methods and technique to evaluate the effectiveness of retrofitted glass window panes under the transient blast loads. Three identical window panes specimens of 6mm thick glass laminated with 175 micron Safety film has been subjected to the blast load of 100kg TNT charge at 31m standoff. Blast pressures loading, throw up distance of glass fragments and response dynamics of laminated glass has been monitored by deploying blast instrumentation. The effectiveness of retrofitting window panes was evaluated as per the US General Services Administration (GSA) Standard Test protocol: GSA-TS01-2003.