DESIGN AND TESTING OF A BLAST RESISTANT ROLLER SHUTTER

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ABSTRACT

Structural and non-structural openings such as doors, glazing or roller shutters that are subjected to explosive forces will result in flying fragments entering the building and causing unwanted damages to assets or injuries to occupants. Commercially available products that are seen today such as blast doors or fixed cable catcher systems are some of the mitigation measures to resist the blast impact and retain flying debris and fragments. To complement the above mentioned products, a blast resistant roller shutter was designed and tested with the aim of being able to be utilized at ingress/egress areas using a less bulky system without compromising the blast resistant effects. Finite element methodology was used in the design and the roller shutter was blast tested according to ASTM 2927 standards.