

BLAST BARRIERER WITH DAYLIGHT OPENINGS

A. Bryntse

*Swedish Defence Research Agency (FOI)
Grindsjön, Tumba, SE-147 25, Sweden*

ABSTRACT

The threat from IED causes a demand for protective structures. Different types of walls and barriers can be built around sensitive structures like military camps, official buildings etc. Such barriers are often large and heavy constructions made of concrete or gravel and sand. The aesthetic aspect of such barriers is commonly neglected but in many cases, like long-term protection of sensitive structures in a city, a design that fits well in this environment could be of great value.

The paper deals with an idea for a fence-like structure made of steel with daylight openings that have almost the same blast reducing effect as a solid wall. This was verified for an example of this type of structure, both experimentally and by hydrocode calculations. For comparison, also a solid barrier of similar size was tested.

For the experiment, a scale model 1:4 of an example of a barrier according to the concept was built. The barrier would measure 4 m by height in full scale. A tests series with slight variations of the geometry of the structure was performed. TNT charges up to 2 kg (that corresponds to 128 kg in full scale) were detonated in front of the barrier. Pressure histories from gauges behind the barrier were captured and evaluated.