

## **Cable Fence as an Effective Vehicle Security Barrier**

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The two current major crash barrier standard tests accepted in UK, European and international jurisdictions are the International Workshop Agreement 14-1 (IWA14-1) and International Organisation for Standardization 22343-1 (ISO 22343-1). Both Standards are essentially similar but there are differences. Subtle differences are reflected in the risk appetite of public officials, building owners and public safety, inherent in different project risk assessment defined by the importance of the building, footfall density, open spaces, location, or response time of emergency services. The two International Standards outline a vehicle crash test that measures the performance of vehicle security barriers.

This paper considers the design of a cable fence system as a vehicle Security barrier (VSB) to resist the impact of a vehicle as outlined in the Standards. However, the cable barrier is hardly discussed in both Standards but it is nonetheless an important configuration that differs from conventional "hard targets". In spite of this absence, the usage of a cable fence system could gain acceptance as an effective VSB in view of increasing demand for sustainable construction, carbon footprint reduction, lowering costs pressures, and in environments where planners/architects may prefer enhancing the "green" agenda for their projects.

The authors will outline a cable fence barrier, designed to sustain a vehicle impact test complying with both IWA14-1 and ISO22343-1 to enable acceptance in jurisdictions where ISO had not gained traction or legislated as the de facto Test Standard of VSBs. The preliminary design was determined by equating the kinetic energy to potential energy to limit the penetration within 1.0 metre of the datum boundary. Acceleration-time history from past tests on hard RC targets were used to size the cables, as well as to determine the number of cables used in the test. By using the appropriate vehicle in the test, both Test Standards are complied with. Details of the design, outline of the cable fence barrier construction and video footage of the vehicle test shows the efficiency of the designed system.