

BLAST EXPERIMENTS ON REINFORCED CONCRETE STRUCTURE FOR NUMERICAL VALIDATION

U. Schwarz

*Wehrtechnische Dienststelle für Schutz- und Sondertechnik WTD 52,
Oberjettenberg, 83458 Schneizlreuth, Germany*

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Within the frame of a Franco-German cooperation the WTD 52 performed a series of blast tests on a reinforced concrete structure in its Large Blast Simulator (LBS) in order to validate the French fluid and structural dynamic simulation codes.

The 2 m x 3 m x 4 m scaled mock-up of a two-storied building with four rooms was equipped with 35 pressure gauges, laser distance sensors and accelerometers to cover the blast load and the deflection of the ground floor walls as well as the distortion of the overall structure. This paper firstly analyzes the characteristics of the blast wave interaction with the structure, which are a basic measure for the simulation of the blast propagation. Secondly, it presents the measured structural response for the validation of the structural dynamic code. It also includes the fabrication of the mock-up in detail, which is essential for the proper modeling.