

STUDIES ON THE RESISTANCE OF HIGH STRENGTH CONCRETE PANELS AGAINST BLAST LOAD

M. Keuser¹, Ch. Bludau², M. Fuchs³

¹ *Univ.-Prof. Dr.-Ing. Manfred Keuser, University of the German Armed Forces Munich, Institute for Structural Engineering, Neubiberg, Germany*

² *Dipl.-Ing. Christian Bludau, University of the German Armed Forces Munich, Institute for Structural Engineering, Neubiberg, Germany*

³ *Dipl.-Ing. Maximilian Fuchs, University of the German Armed Forces Munich, Institute for Structural Engineering, Neubiberg, Germany*

The German Ministry of Defense has supported a research project at the University of the German Armed Forces in Munich. The aim of this project is the development of concrete panels considered to be installed for dugouts or to be attached to enforce existing buildings – like embassies and containers – for protection against terrorists, snipers as well as car bombs and similar attacks.

Blast tests on concrete panels with two different thicknesses have been carried out. Panels with a size of 300 x 100 cm and a thickness of 8 cm and 10 cm have been used for the investigations as targets. All panels were made of high strength fiber reinforced concrete with quartzite as aggregate. The panels have been loaded by blast with a side-on pressure of 24 kPa. The blast tests have been carried out in the Large Blast Simulator (LBS) of the Bundeswehr Technical Center for Protective and Special Technology. After the blast tests the panels have been also tested by projectile impact. The paper discusses the effects of the blast load on the concrete panels and the usability of the panels for protection against blast and impact.