

# **P10 Failure Behaviour of an RC Slab Subjected to Ground Shock Pressure**

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## **Abstract:**

In this paper, experiments and numerical simulations are conducted to examine failure behavior of a reinforced concrete (RC) slab subjected to ground shock pressure. In the experiment, Composition 4 (C4) high explosives and a RC slab with double reinforcement were set in the depth of 50cm and 100cm from the surface of the ground. The C4 high explosives (M=125g) were exploded and ground shock pressure acted on the surface of the RC slab. In the tests, three types of soils were employed and the degree of saturation of soils was changed in the range of between 20 percent and 98 percent. The test results revealed that the RC slab showed very different failure behavior according to the test conditions. In particular, the degree of saturation of soils affected the failure level significantly. In the numerical simulations, we proposed a constitutive model of soils and tried to reproduce the failure behavior of the RC slab. The constitutive model of soils is a plasticity based model in which the degree of saturation of soils can be taken into account. C4 high explosives were modeled with JWL model and Concrete and steel are modeled by Von-Mises model. Numerical results showed good agreement with test results in terms of residual deformation and failure pattern.

## **Notes:**