

A NEW FRENCH LABORATORY FOR SHELTERS

FAU,D.

A new laboratory for shelters has been fitted out on the Centre d'Etudes de Gramat, to improve civil shelters efficiency.

The laboratory facilities allow tests of shelter equipments or structures by subjecting them to blast effects of nuclear weapons.

Available means to perform these assignments are experimental and numerical.

To carry out experiments the laboratory uses this shock tube. The section is 0.34 m² and the length is 54m. This tube can generate shock waves of incident pressure up to 400 kPa. Positive duration is about 1/3 second.

To handle easily the tube, the Laboratoire d'Abris has written the code MYRIAM. It is possible using MYRIAM to know the path of shock and rarefaction waves.

Furthermore to help the private firms on designing shelter equipments (in particular anti-blast valves), the Laboratory has worked out two codes.

The first, named CLOTHILDE (for closing time) lies in a parametric study of the closing time of the valves. The simple mass-spring-dashpot model is considered for this cinemactical analysis. The second, ZOE is concerned with the mechanical behavior of the moving part of the valve. Using ZOE, one can know the weakest points of the disc and also the maximum pressure it is available to withstand.