

Introduction

The author is planning to work for one year at the University of Roorkee, Roorkee, U.P., India, testing structures of earth or of brick laid in mud mortar, on the railway wagon shock test facility there. This facility, illustrated in Figures 1, 2, and 3, consists of a table 6m x 7m, mounted on a railway carriage which is pulsed by impacts, through springs, from other wagons which roll down inclines. An example of acceleration pulses is shown in Figure 4, and examples of damage to test structures are shown in Figures 5 through 8. The facility is capable of imparting rough half-sine uniaxial acceleration pulses of 0.15 sec. duration, up to 2g amplitude, to the base of 20-ton test structures. The pulses are widely separated in time, therefore resonance of the test structures cannot be developed. Table 1 shows a record of table and building performance experienced in the first use of the facility, in 1977, (1).

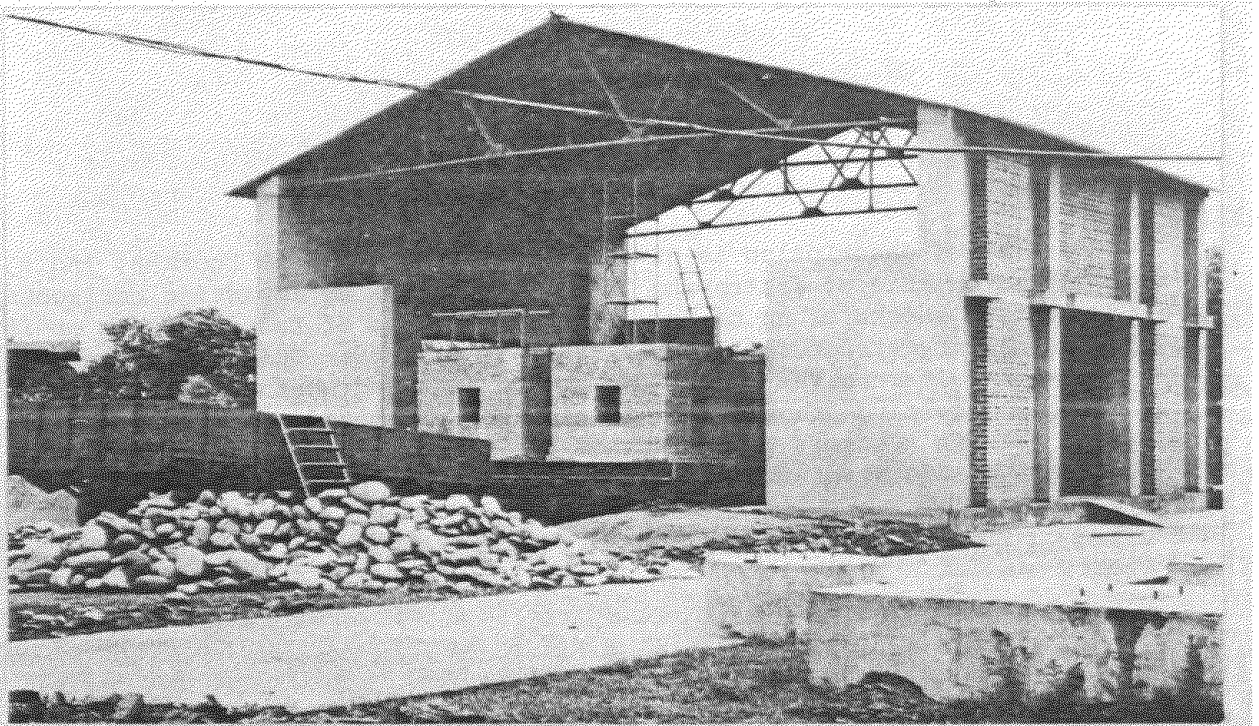


FIG. 1

The railway wagon shock test facility at the University of Roorkee, showing half scale one room structures on the table.

For best use of time, money, and equipment, researchers should be aware of what the others are doing, and to some degree should coordinate their efforts. This paper is to inform readers about a planned testing program, and to seek their advice as to certain aspects of the actual testing. It is hoped that the questions raised here and the suggestions offered by readers will stimulate thought and discussion among earth structure specialists, and result in optimum choices for this particular testing program, as well as influence plans for testing programs elsewhere. Of course, plans for this program must be discussed with and be approved by the host, the Department of Earthquake Engineering at the University of Roorkee.