CODE

27.5.1.2 Uniform T_t shall be applied in a manner that ensures uniform distribution of the load transmitted to the structure or portion of the structure being tested. Arching action in the test load apparatus shall be avoided.

27.5.1.3 After the final load increment is applied, T_t shall remain on the structure for at least 24 hours unless signs of distress, as noted in 27.5.3, are observed.

27.5.1.4 After all response measurements are recorded, the test load shall be removed as soon as practical.

27.5.2 *Response measurements*

27.5.2.1 Response measurements, such as deflection, strain, slip, and crack width, shall be made at locations where maximum response is expected. Additional measurements shall be made if required.

27.5.2.2 The initial value for all applicable response measurements shall be obtained not more than 1 hour before applying the first load increment.

27.5.2.3 A set of response measurements shall be recorded after each load increment is applied and after T_t has been applied on the structure for at least 24 hours.

27.5.2.4 A set of final response measurements shall be made 24 hours after T_t is removed.

27.5.3 *Acceptance criteria*

27.5.3.1 The portion of the structure tested shall show no spalling or crushing of concrete, or other evidence of failure.

COMMENTARY

R27.5.1.2 Arching refers to the tendency for the load to be transmitted nonuniformly to the flexural member being tested. For example, if a slab is loaded by a uniform arrangement of bricks, arching of bricks in contact would result in reduction of the load on the slab near the midspan of the slab.

R27.5.3 *Acceptance criteria*

R27.5.3.1 Evidence of failure includes distress (cracking, spalling, or deflection) of such magnitude and extent that the observed result is obviously excessive and incompatible with the safety requirements of the structure. No simple rules have been developed for application to all types of structures and conditions. If sufficient damage has occurred so that the structure is considered to have failed that test, retesting is not permitted because it is considered that damaged members should not be put into service even at a lower load rating.

Local spalling or flaking of the compressed concrete in flexural members related to casting imperfections need not indicate overall structural distress. Crack widths are good indicators of the state of the structure and should be observed to help determine whether the structural strength and behavior are satisfactory. However, accurate prediction or measurement of crack widths in structural concrete members is not likely to be achieved under field conditions. It is advisable to establish criteria before the test relative to the types of cracks anticipated; where the cracks will be measured; how they will be measured; and approximate limits or criteria to evaluate new cracks or limits for the changes in crack width.