ABSTRACT

One of the critical issues of reinforced concrete flat slabs are punching shear failure. This sudden failure of structures is very serious to safeguarding of human life. So,this paper has studied the behavior and capacity of waste tyre section (WTS) on RC flat slabs punching shear resistance. A total 10 samples of flat slabs were taken and consisting of 1 controlled and 9 with waste tyre section. The effect of tyre section on punching shear cracking behavior and resistance of the slabs has investigated. The reinforced concrete flat slab has been simulated in ABAQUS software.

The results show that the punching shear capacity of reinforced concrete flat slab has a significant increase up to 18.88% as using WTS as additive of the RC flat slab. And also, the load carrying capacity is increased by 3.56 % as the amount of waste tyre section additive increased and considerable improvement of cracking behavior when using waste tyre section on the control area of flat slab.

Keywords: RC flat slabs, punching shear, finite element analysis, waste tyre section