SUMMARY

The focus of this study is on the effect of addition of polypropylene fiber to portland cement mortars, especially polymer modified cement mortars.

Contractors normally use a conventional cement mortar, which is prepared on site, for wall plastering work. It has been observed that the performance of wall plaster based on conventional cement mortar mix is not consistent throughout the entire building. This is due to the inconsistencies in the quality of sand supplied and in the preparation of the mortar on site. Furthermore conventional cement mortar, as prepared in situ or otherwise, exhibit plastic as well as drying shrinkage cracks. Locally available cement mortar premixes are actually polymer modified cement mortar dry mixes. Although these dry mixes possess superior properties as compared to conventional cement mortar mixes, they have a high tendency of plastic shrinkage cracking.

The prime consideration is the elimination of plastic as well as drying shrinkage cracks. In this investigation, different types of mortar mixes including commercially available pre-packed cement mortar premixes are evaluated and compared to a standard mortar of one part cement to one part slaked lime and three parts silica sand. The experiments are repeated after the addition of very fine discontinuous short polypropylene fibers of monofilament type at 0.75% volume fraction to all the mixes.

The results of this study indicate that the addition of short polypropylene fibers of monofilament type at low volume fraction to cement mortars, both conventional and polymer modified ones, has significantly reduced plastic as well as drying shrinkage cracking. Furthermore, some improvement in flexural, tensile and adhesion strengths is realized as well.