

High Performance Concrete for Pavements and Bridges

Silica fume is a by-product of Silicon or Ferro Silicone Alloys Industries. It is purely reactive silica in nature and size of silica particle is about 1 micron. The ultra fine material when used in concrete improves the long term durability/performance and increases the strength parameters. As per IS: 456 – 2000, it can be added in the dose of 5 – 10 percent by weight of cement as performance improver. This mineral admixture is the basic material used for making high performance concrete (HPC). It is used for making Ultra Thin White Topping suitable as overlay for low to medium traffic roads. Polypropylene/ polyester fibers, if mixed in fresh HPC, further improve the cohesiveness of the concrete mix and minimizes the shrinkage cracking in especially in case of highly workable mixes. IRC has published Specifications on High Performance Concrete for Bridges.

Silica Fume has been used by CRRI in demonstration projects in making concrete roads at Ghaziabad, Dhaula Kuan and CRRI campus. Figure1 show the construction of high performance concrete roads at CRRI Campus and Figure 2 on UTWT at HRD Centre (CSIR), Ghaziabad.



Fig.1: Construction of High Performance Concrete Pavements at CRRI Campus



Fig.2: Laying of Ultra Thin White Topping (50 mm Thick) at HRDC Centre of CSIR at Ghaziabad

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