

6. Expansion of High-Superplasticized Concrete for On-Site Addition - Usage of Portland Blast-Furnace Slag Cement -

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In recent years, the use of Portland blast-furnace slag cement for concrete structural members is being promoted from the viewpoint of reducing environmental impact. The authors have developed "High-Superplasticized Concrete for On-Site Addition" which is a practical process of producing superplasticized concrete by adding segregation-preventing superplasticizer to a normal concrete mix in a truck agitator at the jobsite. However, the applications of this technology are limited to ordinary Portland cement. Therefore, to expand the applicable cement type by adding Portland blast-furnace slag cement, a concrete mix production test and experiment of casting concrete were conducted. In the mix production test using a truck agitator, retention performance of flow, compressive strength, and segregation resistance were confirmed. The experiment of casting concrete assessed the ratio of coarse aggregate and compressive strength of concrete subjected to a nine meter lateral flow. It was verified that "High-Superplasticized Concrete for On-Site Addition using Portland Blast-Furnace Slag Cement" has the performance required for use in the actual concrete structural members.

Key words: Concrete, superplasticized, fluidity, Portland blast-furnace slag cement, segregation resistance, construction experiment