

Study on Application of Blast-Furnace Slag Cement Concrete to PC Girders
Based on Evaluation of Shrinkage and Creep

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The high-strength concrete has been used for PC girders because prestress force is needed to be applied at an early age. In that case, the deterioration of PC girder caused by alkali-silica reaction (ASR) has been apprehended, because of a large amount of the alkali contained in the high-strength concrete. The application of blast-furnace slag cement concrete to PC girders is one of the good methods for prevention of ASR; however, its shrinkage and creep have not been evaluated. This paper summarizes the result of the compression creep tests executed, and shows that the shrinkage and creep of blast-furnace slag cement concrete can be evaluated by the conventional equations, usually used for the normal cement concrete. In addition, the analysis results indicate that even if blast-furnace slag cement concrete is applied, the deflection and prestress loss of PC girder differ only a little from that in case of its normal cement.