

STUDY ON COMPRESSIVE STRENGTH OF HIGH STRENGTH CONCRETE WHICH MIXED TWO KINDS OF CRUSHED STONES

A large number of superhigh-rise residential buildings have been constructed in recent years, mostly in urban centers in Japan to effectively utilize the land areas as part of urban redevelopment. High strength concrete used for lower stories of superhigh-rise residential buildings has been increasing, with a design strength of over 100 MPa having been actually used since 2004.

The compressive strength of high strength concrete is greatly influenced by the quality of aggregate used for its production. The influences of the various physical properties of coarse aggregate on the compressive strength of high strength concrete were quantitatively evaluated by some experiments. The results made it clear that coarse aggregate with high compressive strength and comparatively small Young's modulus was suitable for high strength concrete. Based on these data, a quality control system for stabilization of compressive strength of high strength concrete by careful selection of suitable coarse aggregate based on mechanical characteristics of its raw stone was developed. This developed system has been used for the quality control of high strength concrete with a design strength of over 100 MPa applied to four superhigh-rise residential buildings.