

Fire Resistance Capacity of Reinforced Concrete Member Strengthened by Fiber Reinforced Polymer

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Abstract : Currently, FRP (Fiber Reinforced Polymer) materials have been widely used for reinforcement of building structural members. However, since the FRP and the epoxy material for attaching it have very low resistance to heat, there is a problem in application where high temperature is an issue. In this paper, the resistance performance of FRP member made of carbon fiber at high temperature was investigated through experiment under temperature change. As a result, epoxy encapsulating FRP is damaged at not high temperatures, and the fibers are degraded. Therefore, when reinforcing a structure using FRP, a separate refractory heat treatment is necessary. The use of a 30 mm thick calcium silicate board as a fireproofing method can protect FRP up to 600°C outside temperature.

Keywords : FRP (Fiber Reinforced Polymer), high temperature, experiment under temperature change, calcium silicate board

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