

Development of crack prevention technology using ultra-low shrinkage concrete

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In order to prevent cracks in the concrete structure, we selected carefully the materials of the concrete, developed ultra-low-shrinkage concrete combining them optimally, and applied it on a large scale to several building structures.

The following is an outline of the development technology.

The theoretical performance values of concrete required to prevent cracking under severe conditions were first specified. The low shrinkage concrete was realized by using the new shrinkage reducing agent which succeeded in the practical application jointly. Furthermore, by discovering that the agent suppresses the separation of concrete, ultra-low shrinkage concrete of unprecedented level was realized. On the other hand, the expansive additive was effectively utilized for the drying shrinkage which inevitably occurred, and the concrete which satisfied the necessary theoretical performance value was realized.

This concrete was first applied to building structures in 2012. No cracks have been found in the building after over 5 years of application. In addition, there is a high advantage in dry shrinkage compared to the highest class of concrete published by others in 2016.