

Social Infrastructure for the Benefit of Future Generations

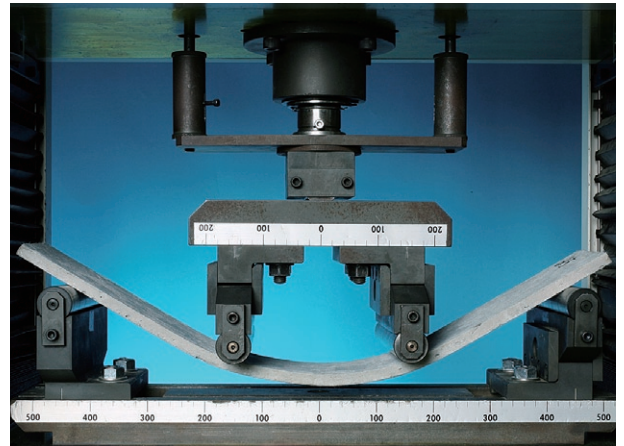
Japanese society has entered a new era as scrap-and-build practices give way to the construction of high-quality infrastructure built for longer life. Kajima welcomes this new trend toward lasting social capital, and has set its sights on employing the finest craftsmanship to create social assets that will benefit not only the people of today but also generations to come.

Construction Methods for Jointless Highways

Today's elevated highways offer a more pleasant experience to drivers crossing the junctures between spans, and make less impact on the surrounding area due to vibration and noise. The joints on road surfaces used to make for a bumpy ride due to the expansion devices between elevated highway spans, but the jointless construction method has become popular as a way to reduce vibration and noise. The Kajima Group and Metropolitan Expressway Co., Ltd., have now developed the new Ultra Joint Method, which is highly durable. The conventional method requires at



Clip installation process



Testing ECC flexibility; the shape can be modified like metal

least 24 hours of traffic stoppage to perform non-stop construction work, but the new method requires only a single night of lane closure.

This technique was made possible by concrete developed by Kajima, Engineered Cementitious Composite (ECC). Comprised of a combination of mortar and high-strength fibers about the width of a strand of hair, this cement composite has flexibility similar to that of metal as well as a high capacity for energy absorption. The effect is achieved by simply embedding a 1.5-square-meter joint made of ECC, three centimeters thick, in the joint section and laying pavement above it. Misalignment in the deck board caused by changes in summer temperatures is also prevented as the ECC joint absorbs the heat to alleviate any impact on the pavement.

This technique has already been used on the Route 3 Shibuya Line expressway in Tokyo. Kajima hopes to use this technique, which is easy on the surrounding environment and makes for a pleasant ride, in constructing other highways and extending their usable life.