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Failure Mechanism in Fixed-Ended Reinforced Concrete Deep Beams under Cyclic Load

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Abstract : Reinforced Concrete (RC) deep beams are a special type of beams due to their geometry, boundary conditions, and behavior compared to ordinary shallow beams. For example, assumption of a linear strain-stress distribution in the cross section is not valid. Little study has been dedicated to fixed-end RC deep beams. Also, most experimental studies are carried out on simply supported deep beams. Regarding recent tendency for application of deep beams, possibility of using fixed-ended deep beams has been widely increased in structures. Therefore, it seems necessary to investigate the aforementioned structural element in more details. In addition to experimental investigation of a concrete deep beam under cyclic load, different failure mechanisms of fixed-ended deep beams under this type of loading have been evaluated in the present study. The results show that failure mechanisms of deep beams under cyclic loads are quite different from monotonic loads.

Keywords : deep beam, cyclic load, reinforced concrete, fixed-ended
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