

Tensile Test of Corroded Strand and Maintenance of Corroded Prestressed Concrete Girders

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Abstract : National bridge inventory in Korea shows that the number of old prestressed concrete (PSC) bridge over 30 years of service life is rapidly increasing. Recently tendon corrosion is one of the most critical issues in the maintenance of PSC bridges. In this paper, mechanical properties of corroded strands, which were removed from old bridges, were evaluated using tensile test. In the result, the equations to express the mechanical behavior of corroded strand were derived and compared to existing equation. For the decision of tendon replacement, it is necessary to evaluate the effect of corrosion level on strength and ductility of the structure. Considerations on analysis of PSC girders were introduced, and decision making on tendon replacement was also proposed.

Keywords : prestressed concrete bridge, tendon, corrosion, strength, ductility

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