

Serviceability of FRP Strengthened Runway Bridge for International Airport since Decade: Case Study

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Abstract: In recent years use of FRP techniques has become more preferable retrofitting and strengthening technique. Use of FRP retrofitting becomes popular in very short span of time due to its unique feature like high strength to weight ratio and minimum service disruption. The addition of FRP materials to upgrade deficiencies or to strengthen structural components can save lives by preventing collapse, reduces the damage to infrastructure and the need for their costly replacement. The retrofit with FRP materials with desirable properties provides an excellent replacement for traditional materials, such as steel jacket, RCC jacketing to strengthen the reinforced concrete structural members. Existing studies have shown that the use of FRP materials restore or improve the original design strength of the structure for possible axial, shear, or flexure and in some cases allow the structure to carry more load than it was designed for. The FRP popularity will also increase in coming days as usage of FRP in retrofitting and strengthening is crossing decades at everywhere and showing its reliability, serviceability and durability. Long term serviceability of any structure itself is a challenge. Long term serviceability of repaired part of structure and repair techniques and material is one of rare and crucial task to achieve. In this paper all the above stated term has discussed with help of case study. Case study is about strengthening work done to the runway bridge of one of the busiest international airport of India about a decade ago. The bridge structure is a reinforced concrete structure, earlier designed for smaller aircrafts. But the bridge wasn't sufficient to carry the loads of the current design of aircrafts. Hence a need for strengthening the bridge arose and considering all the available techniques, strengthening with FRP was suggested. The bridge had strengthened with FRP about decade ago and since it is in service with sound condition.

Keywords: Retrofitting, Strengthening, Runway Bridge, FRP, Serviceability