

## Simulation of the Effect of Sea Water using Ground Tank to the Flexural Capacity of GFRP Sheet Reinforced Concrete Beams

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**Abstract :** The study conducted a simulation of the effect of sea water to the bonding capacity of GFRP sheet on the concrete beams using a simulation tank. As it well known that, fiber reinforced polymer (FRP) has been applied to many purposes for civil engineering structures not only for new structures but also for strengthening of the deteriorated structures. The FRP has advantages such as its corrosion resistance, as well as high tensile strength, to weight ratio. Glass composed FRP (GFRP) sheet is most commonly used due to its relatively lower cost compared to the other FRP materials. GFRP sheet is applied externally by bonding it on the concrete surface. Many studies have been done to investigate the bonding of GFRP sheet. However, it is still very rarely studies on the effect of sea water to the bonding capacity of GFRP sheet on the strengthened beams due to flexural loadings. This is important to be clarified for the wider application of GFRP sheet especially on the flexural structure that directly contact to the sea environment. To achieve the objective of the study, a series of concrete beams strengthened with GFRP sheet on extreme tension surface were prepared. The beams then were stored on the sea water tank for six months. Results indicated the bonding capacity decreased after six months exposed to the sea water.

**Keywords :** GFRP sheet, sea water, concrete beams, bonding

**Conference Title :** ICCEIE 2015 : International Conference on Civil, Environmental and Infrastructure Engineering

**Conference Location :** Kyoto, Japan

**Conference Dates :** November 12-13, 2015