

Bonding Capacity of GFRP Sheet on Strengthen Concrete Beams After Influenced the Marine Environment

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Abstract : Structures built in aggressive environments such as in the sea/marine environment need to be carefully designed, due to the possibility of chloride ion penetration into the concrete. One way to reduce the strength degradation in such environment is to use FRP, which is attached to the surface of reinforced concrete using epoxy. A series of the specimen of reinforced concrete beams with dimension 100×120×600 mm were casted. Beams were immersed in the sea for 3 months (BL3), 6 months (BL6), and 12 months (BL12). Three specimens were prepared control beam without immersion to the sea (B0). The study presented is focused on determining the effect of the marine environment to the capacity of GFRP as flexural external reinforcement elements. The result indicated that the bonding capacity of BL3, BL6, and BL12 compared to B0 decreased for 7.91%, 11.99%, and 37.83%, respectively. The decreasing was caused by the weakening of the bonding capacity GFRP due to the influence of the marine environment.

Keywords : flexural, GFRP, marine environment, bonding capacity

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

Conference Location : Kyoto, Japan

Conference Dates : November 12-13, 2015