A study on the long term durability of joint structures for composite materials

FRPs (Fiber Reinforced Plastics) are composite materials with high-corrosion resistance and going to be widely applied to infrastructure. Application of FRP to infrastructure requires joints of FRP and ordinary members. The aim of this study is to obtain the strength properties of FRP applied joints experimentally. Joint types are double-lap adhesive joints, double-lap adhesive bolted joints and single-lap adhesive joints. Experimental results showed the static and fatigue joint strength affected by the joint type and surface condition of attached plate. They also showed the effects of bolt clamping force on the joint strength affected by the surface condition of attached plate. On the other hand, experimental results by accelerated immersion tests showed the effects of water on the strength deterioration affected by immersion temperature.

Key words: FRP, joint, static strength, fatigue strength, environmental deterioration