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**PROCEEDINGS**

# Compression Behavior of FRP-Confined Seawater Sea-Sand Coral Aggregates Concrete (SSCAC)

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**ABSTRACT**

Coral aggregates have become a promising alternative to natural coarse aggregates in the offshore construction projects. In this paper, seawater sea-sand coral aggregates concrete (SSCAC) with 4 basic materials: cement, seawater, sea-sands and coral aggregates was produced. By adding various minerals fly ash (FA) and limestone powder (LSP) to partially replace cement, the performance of SSCAC can be improved while reducing the carbon dioxide emission. Due to the higher chloride ion content of SSCAC, fiber-reinforced polymer (FRP) was used to confined SSCAC instead of the traditional steel to solve the corrosion problem. This paper conducted experimental and analytical studies on the stress-strain relationship of FRP-confined SSCAC. A total of 8 concrete column specimens consisting of 3 unconfined concrete and 5 FRP-confined concrete were tested under uni-axial compression. The studied parameters were the thickness of FRP and the replacement ratio of FA or LS. Test results indicated that the stress-strain behavior of FRP-confined SSCAC was different from that of FRP-confined normal concrete.

**KEYWORDS**

Seawater sea-sand coral aggravate concrete; fiber-reinforced polymer; fly ash; limestone; stress-strain model

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