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CONCRETE WITH RECYCLED COURSE AGGREGATE UNDER THERMAL LOADS

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Abstract: *The goal of this study is to see how elevated temperatures affect the compressive strength of concrete made with recycled aggregate. Concrete samples from demolished buildings were obtained in Saudi Arabia from separate locations: Tabuk, Madina, Yanbu, and Riyadh. These concretes were crushed and turned into aggregates, which were then utilized to create new concrete samples. At ages 3 to 28 days, these samples were examined for axial compressive strength at room temperature. The compressive strength of the identical concrete mixtures was tested again after being exposed to a higher temperature. The testing results show that recycled aggregate concrete samples have good quality at both ambient and elevated temperatures, and are comparable to natural aggregate concrete. However, at high temperatures, recycled aggregate concrete showed more strength deterioration than natural aggregate concrete, but the differences were not greater than 5% to 10%. Concrete samples built from recycled coarse aggregates met the design strength requirements as well. Given the wide range of temperature reactivity of concrete found in the literature, it can be regarded acceptable.*