

عنوان مقاله:

Effect of thermal cycles on repairing the edge-cracked aluminum plates by using carbon/epoxy composite patches under tensile load

محل انتشار:

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خلاصه مقاله:

Performance of the repaired metallic structures during their service life under environmental conditions is a serious concern in using the repair technology. In this study, experimental investigations were done on the repaired edge-cracked aluminum plates using carbon/epoxy composite patches. The repairing processes were conducted to characterize the response of the repaired structures to tensile tests and thermal cycling. Quasi static tensile tests have been conducted to study the first mode of damage of the cracked specimens. Cracks in aluminum specimens with two different lengths are generated. The cracks lengths are 15 mm and 7.5 mm. The plates repaired with 4 layers T300 carbon/epoxy composite patches. The repaired and un-repaired specimens are subjected to 15, 25 and 35 heating cycles with the temperature range between room temperature and 100 oC. The results showed 56% enhancement in the failure load for the repaired specimens in comparison with un-repaired aluminum plates

کلمات کلیدی:

Composite patch, Thermal cycles, tensile properties, Aluminum plate

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