عنوان مقاله:

Design Construction and Evaluation of a Ring-like Karbandi Structure

محل انتشار:

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خلاصه مقاله:

Due to the gold price increases in the Iranian market, the desired buyers have been attracted to LGJ (Lightweight Gold Jewelry). Meanwhile, because of the strength decreases in structure in LGJ., we investigated a structural solution in this research. The proposed solution was Karbandi as a supporting lattice-ordered structure in Iranian architecture. We used five types of primary Iranian architecture arches and a perfectly logical Karbandi plan to create ring-like structures. Arches and ring-like structures were compared based on maximum mises stress, strain, and weight using FEM analyses. The applied load and approximate area of it in analyses, according to the female mean Tip-pinch and the mean of minimum, thumb, and index finger width were chosen. Based on analyses results, a ring-like Karbandi structure was chosen for construction. The models were constructed in four alloys category based on sterling silver standard with Cu-nanoparticles as an admixture. A practical test was done to investigate the mean deformation time for each alloy's model category. A weight was used to investigate the observable deformation time-based capacity of the models. Results showed that the lowest mises max stress value was observed in the ۱st arch, although the ۳rd arch had the minimum strain among arches. In ring-like Karbandi structures made from ۱st and ۳rd arches, the minimum value of mises max stress and strain was related to the Karbandi. In the physical load applying process, the .category that did not contain cu-nanoparticles had the highest deformation meantime among all categories

کلمات کلیدی:

FEM Analyses, Iranian Architecture, Karbandi, Ring, structure