## عنوان مقاله:

RELIABILITY ANALYSIS OF OPTIMALLY DESIGNED DOUBLE LAYER BARREL VAULTS

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## خلاصه مقاله:

The present work deals with optimization and reliability assessment of double layer barrel vaults. In order to achieve the optimization task an improved colliding bodies optimization algorithm is employed. In the first phase of this study, different forms of double layer barrel vaults namely, square-on-square, square-on-diagonal, diagonal-on-diagonal and diagonal-on-square are considered and designed for optimal weight by the improved colliding bodies optimization algorithm. In the second phase, in order to account for the existing uncertainties in action and resistance of the structures, the reliability of the optimally designed double layer barrel vaults is assessed using importance sampling method by taking into account a limit-state function on the maximum deflection of the structures. The results demonstrate that the minimum reliability index of the optimal designs is ۰.۹۲ which means that all the optimally designed double layer barrel vaults are reliable and safe against uncertainties.

## کلمات کلیدی:

Structural optimization, Reliability, Double layer barrel vault, Metaheuristic

## لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1831667