

عنوان مقاله:

Evaluation of Load-Bearing Performance of Existing Cast Steel Node

محل انتشار:

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نویسندگان:

.Yusheng Su - *Engineering General Institute, Shanghai Construction Group Co., Ltd, Wuhan, China*

.Xinkui Li - *Engineering General Institute, Shanghai Construction Group Co., Ltd, Wuhan, China*

.Xiaoping Wu - *Engineering General Institute, Shanghai Construction Group Co., Ltd, Wuhan, China*

خلاصه مقاله:

This paper presents a preliminary evaluation of the load-bearing performance of an existing cast steel node in a constructed tennis stadium using numerical simulations and non-destructive field tests. Given the absolute stress values of the existing cast steel node were immeasurable, the accuracy of the numerical simulations were verified by comparing the stress increments derived from numerical simulations and non-destructive field tests. During the experiment, the existing cast steel node was loaded indirectly by moving the retractable roof to three different positions (i.e. closed, semi-opened and fully-opened configurations); thus, only the stress increments were recorded. Three simplified truss models and one solid finite-element model were developed to simulate the stress distributions with the corresponding roof positions. A comparison suggests that the stress increments simulated with the developed finite-element models were in good agreement with experimental results. Therefore, the simulated stress distributions can be used to judge the load-bearing performance of the existing cast steel node

کلمات کلیدی:

Existing Cast Steel Node; Stress Increment; Numerical Simulation; Non-Destructive Field Test

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