سیویلیکا - ناشر تخصصی مقالات کنفرانس ها و ژورنال ها
گواهی ثبت مقاله در سیویلیکا
CIVILICA.com

عنوان مقاله:

OPTIMIZATION CRITERIA FOR DESIGN OF TUNED MASS DAMPERS INCLUDING SOIL–STRUCTURE INTERACTION EFFECT

محل انتشار:

مجله بهینه سازی در مهندسی عمران, دوره 9, شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 20

نویسندگان:

R. Kamgar

M. Khatibinia

M. Khatibinia

خلاصه مقاله:

Many researches have focused on the optimal design of tuned mass damper (TMD) system without the effect of soil–structure interaction (SSI), so that ignoring the effect of SSI may lead to an undesirable and unrealistic design of TMD. Furthermore, many optimization criteria have been proposed for the optinal design of the TMD system. Hence, the main aim of this study is to compare different optimization criteria for the optimal design of the TMD system considering the effects of SSI in a high–rise building. To acheive this purpose, the optimal TMD for a ۴۰–storey shear building is firstly evaluated by expressing the objective functions in terms of the reduction of structural responses (including the displacement and acceleration) and the limitation of the scaled stroke of TMD. Then, the best optimization criterion is selected, which leads to the best performance for the vibration control of the structure. In this study, the whale optimization algorithm (WOA) is employed to optimize the parameters of the TMD system. The numerical results show that the soil type and selected objective function efficiently affect the optimal design of the TMD system.

کلمات کلیدی:

tuned mass damper, soil–structure interaction, optimization criteria, opimal design, whale optimization algorithm, transfer function.

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1831293