Postprint: Study on Seismic Damage Model for High-Strength Reinforced Concrete Columns

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Abstract

To investigate the damage behavior of high-strength reinforced concrete columns under seismic action, low-cycle reversed loading tests were conducted on ten specimens. Based on the experimental results, a modified Park-Ang damage model was adopted for analysis. Damage calculations for high-strength reinforced concrete columns were performed using different models, and their applicability was comprehensively evaluated. A theoretical damage model considering the interaction between amplitude and cumulative energy dissipation was established. The research results indicate that the Chai model, Kunnath model, and Fu Jianping model exhibit good accuracy, while the Fu Guo model and Chen Linzhi model produce relatively large results. The calculation results of the model proposed in this study are in good agreement with the experimental results and can be used for damage calculation of high-strength reinforced concrete columns.

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