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STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(1232K\)\]](#) [\[References\]](#)**PARAMETRIC STUDY ON STEEL TOWER SEISMIC RESPONSE OF CABLE-STAYED BRIDGES UNDER GREAT EARTHQUAKE GROUND MOTION**Shehata E. ABDEL RAHEEM¹⁾ and Toshiro HAYASHIKAWA²⁾

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Analytical parametric study on dynamic characteristics of steel tower of cable-stayed bridges is performed to investigate the individual influence of different design aspects, such as damping mechanism, input ground motion, allowable initial construction imperfections, energy dissipation and tower modal shapes. The results show that the horizontal beam height and length and the low yield energy dissipation system significantly affect tower structural behavior. The initial imperfections within design range have slight detrimental effects on the tower seismic response but these effects grow rapidly beyond the design range. Mass proportional damping leads to overestimate tower axial forces and acceleration response.

Key Words: steel tower, cable-stayed bridge, energy dissipation, seismic design, imperfections

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