

方钢管混凝土柱的抗震性能试验研究

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摘要 通过低周反复加载试验研究方钢管混凝土柱的抗震性能, 分析了其在水平地震作用下的承载能力、变形能力、刚度退化、耗能能力以及结构的破坏机制, 为进一步的理论分析提供参考。同时研究了含钢率、长细比和轴压比对方钢管混凝土柱延性的影响。结果表明, 对其影响最大的为长细比, 其次是轴压比, 再次是含钢率。本次试验结果与分析可为方钢管混凝土柱的抗震设计提供参考。

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Anti-seismic test on concrete filled square steel tube column

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Abstract To study the anti seismic performance of the concrete-filled square steel tube columns(CFSSTCs), a quasi static test under the low-frequency cyclic load was designed and carried out. The bearing capacity, the deformability, the rigidity decay, the energy dissipation ability and the failure pattern of the CFSSTCs under the lateral seismic load were investigated. The displacement ductility of the CFSSTC specimens were analyzed, the effects of the steel ratio, the slenderness ratio, and the axial compression ratio on the ductility of the CFSSTCs were studied. The results show that the most remarkable factor is the slenderness ratio, the axial compression ratio takes second place and the steel ratio is third. The test data provide a reference for the anti seismic design of the CFSSTCs.

Key words [civil engineering](#) [anti-seismic performance](#) [displacement ductility](#) [concrete-filled square steel tube column](#) [low-frequency cyclic load](#)

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