

Calculation on the Ultimate Vertical Strength of Steel Tube in CFST Stub Column

Zhi-quan Zhang, Jia-xiang Chi and Yu-fen Zhang

Summary

This paper concentrates on the compressive strength of steel tube in Concrete-filled steel tube (CFST) column. Through an elasto-plastic limit analysis based on Twin Shear Unified Strength Theory (TSUST), the vertical load capacity of the steel tube alone was analyzed by adopting a parameter b , which varies from 0 to 1. And the strength reduction factor has been derived by total theory of plasticity. A new analytical formula, capable of predicting the axial bearing capacity of the CFST stub columns subjected to axial compression, has been developed based on the linear approximation of Mises yield criterion among TSUST. And There are good agreement between the experimental and analytical results.

