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Numerical evaluation of resistance capacity for CFT columns

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CFT column has a lot of structural advantages due to the composite behavior between in-filled concrete and steel tube. This paper deals with the resistance capacity of CFT columns by numerical method with developed bond-slip model between in-filled concrete and steel tube which can simulate the behavior of CFT without changing mechanical properties. Since the applied axial load to in-filled concrete is delivered to steel tube by the confinement effect and the friction, the governing equation related to the slip behavior can be constructed on the basis of the force equilibrium and the compatibility conditions. Developed model is described behavior of CFT to take into account this effect of bond-slip to calculate confinement effect of in-filled concrete by steel tube. Correlation studies between numerical results and experimental data were conducted to verify the efficiency of the introduced numerical model and evaluation of resistance capacity for various types of CFT columns are conducted. This research was supported by a grant(13SCIPA01) from Smart Civil Infrastructure Research Program funded by Ministry of Land, Infrastructure and Transport(MOLIT) of Korea government and Korea Agency for Infrastructure Technology Advancement(KAIA) and financially supported by Korea Ministry of Land, Infrastructure and Transport(MOLIT) as *U-City Master and Doctor Course Grant Program.*

Biography

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