

Study On The Mechanism Of Complex Span Structure Considering Construction Boundary Change

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Complex span structures are characterized by large span of truss, long overhang length, complex stress and difficult unloading of temporary support. Due to the change of boundary conditions, there are multiple complex stiffness systems and stress systems transformation processes during construction. The current research on the construction process of such structures only controlled the stress and deformation of the key parts, which ignored the system transformation process. Consequently, the mechanism of internal force redistribution caused by the change of the overall stiffness is not clear. In order to find a better construction control method, the mechanism of complex span structure considering construction boundary change is studied in this paper. Standard construction simulation methods are used to perform full-process construction simulation analysis, which based on Nanshan Science and Technology Innovation Center. The internal force, deformation and stiffness of the structure which are influenced by the boundary conditions and different construction schemes are studied respectively. On the basis of these rules, the stress control points of the connection trusses and overhangs corresponding to different span height ratios were determined so as to grasp the mechanism of the whole construction process, and to provide theoretical guidance for complex span structure construction process monitoring.