

Analysis and Design of G+10 Building using Staad Pro

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Abstract: *The principle objective of this project is to analyze and design a multi-storied building .using STAAD Pro. The design involves load analyzing the whole structure by STAAD Pro. The design methods used in STAAD-Pro analysis are Limit State Design conforming to Indian Standard Code of Practice. STAAD.Pro features a state-of-the-art user interface, visualization tools, powerful analysis and design engines with advanced finite element and dynamic analysis capabilities. From model generation, analysis and design to visualization and result verification, STAAD.Pro is the professional's choice. Initially we started with the analysis of simple 2 dimensional frames accuracy of the software with our results. The results proved to be very accurate. We analyzed and designed G+10 building floor of storey building [2-D Frame] initially for all possible load combinations [dead and live]. STAAD.Pro has a very interactive user interface which allows the users to draw the frame and input the load values and dimensions. Then according to the specified criteria assigned it analyses the structure and designs the members with reinforcement details for RCC frames. Our final work was the proper analysis and design of a 3-D RCC frame under various load combinations. We considered a 3-D RCC frame consisting of 3 bays. The ground floor height was 3.2m and rest of the 10 floors had a height of 3.2m. The structure was subjected to self weight, dead load, live load under the load case details of STAAD.Pro. The materials were specified and cross-sections of the beam and column members were assigned. The supports at the base of the structure were also specified as fixed. The codes of practice to be followed were also specified for design purpose with other important details. Then STAAD.Pro was used to analyze the structure and design the members. The design of the building is dependent upon the minimum requirements as prescribed in the Indian Standard Codes. The minimum requirements pertaining to the structural safety of buildings are being covered by way of laying down minimum design loads which have to be assumed for dead loads, imposed loads, and other external loads, the structure would be required to bear. Strict conformity to loading standards recommended in this code, it is hoped, will ensure the structural safety of the buildings which are being designed. Structure and structure element were normally designed by limit state method. Complicated and high-rise structures need very time taking .STAAD.Pro provides us a fast, efficient, easy to use and accurate platform for analysing and designing structures.*

Keywords: Analysis, STAAD PRO, Building with geometric plan irregularities, Shear Force, Bending Moment

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