

# Analysis and Design of Multi Story Residential Building using STAAD.Pro

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**Abstract:** STAAD or (STAAD.Pro) is a structural analysis and design computer program originally analysed and a 3-D model is generated using STAAD Pro. The various loads acting on the structure is calculated and the structure is analysed for the various load combinations. Design of the building is done. The obtained results are analysed. Manual calculation and design of slabs, beams, staircase and columns are done. Also the design of the pile foundation and pile cap is done.

**Keywords:** STAAD.

## I. INTRODUCTION

In every aspect of human civilization we needed structures to live in or to get what we need. But it is not only building structures but to build efficient structures so that it can fulfill the main purpose for what it was made for. Here comes the role of civil engineering and more precisely the role of analysis of structure.

There are many classical methods to solve design problem, and with time new software's also coming into play. Here in this project work based on software named staad pro has been used.

Few standard problems also have been solved to show how staad pro can be used in different cases. These typical problems have been solved using basic concept of loading, analysis, condition as per IS code. These basic techniques may be found useful for further analysis of problems.

## II. OBJECTIVE

1. To plan the residential building as per IS codes.
2. Analysis and Design of various structural components of the model building using STAAD. Pro.
3. Understanding of earthquake resistance design concept.
4. Application of various load combinations on the member.
5. Creating model of structure on STAAD.Pro .

## III. LITERATURE REVIEW

Paper name	Author name	Year of publication	Description
Planning Analysis and Design of Multi Storied Building by Staad.Pro.v8i	Anoop. A FousiyaHussian, Neeraja.R, Rahul Chandran, Shabina.S, Varsha.S	April-2016.	In order to compete in the ever-growing competent market, it is very important for a structural engineer to save time.
Analysis and Design of G+19 Storied Building Using Staad-Pro	D.R. Deshmukh, A.K. Yadav, S. N Supekar, A. B. Thakur, H. P Sonawane, I. M. Jain.	July-2016	High-rise structures need much time for its time consuming and cumbersome calculations using conventional manual methods. STAAD-Pro provides us a fast, efficient, easy to use and accurate platform for analyzing and designing structures.

Analysis of a Tall Structure using Staad Pro providing different Wind Intensities as per 875 Part-III	Mahesh Ram Patel, R.C. Singh	May-2017	As a sequel to this an attempt is made to analyze and design a multistoried building by using a software package staad pro.
Analysis and Design of multistory building using composite structure	Mahesh Suresh Kumawat and L.G. Kalurkar	May - 2014	The use of Steel in construction industry is very low in India compared to many developing countries.

#### IV. MAIN FUNCTION

1. Data Collection
  2. Analysis of the data
  3. Model generation
  4. Load calculation
  5. Building analysis
  6. Design of building
  7. Result analysis
  8. Manual calculation and design of slabs, beams, staircase and columns
- Design of pile foundation and pile cap

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