



**Andhra Pradesh State Skill
Development Corporation**



Extended Three-Dimensional Analysis of Building System

ETABS

Introduction to ETABS



INTRODUCTION TO ETABS COURSE

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ETABS - Extended Three-dimensional Analysis of Building System.

- ETABS is a highly efficient analysis and design program developed especially for building systems, which works on FEM (Finite Element Method) with graphical modeling.
- The design methods used in STAAD.Pro and ETABS analysis are Limit State Design conforming to the Indian Standard Code of Practice.
- It is loaded with an integrated system with an ability to handle the largest and most complex building models and configurations.
- The software has powerful CAD-like drawing tools with a graphical and object-based interface.
- It increases the productivity of structural engineers.
- Modeling can be done with various standard codes with accurate results.
- We can Define materials, Create models, Assign Load, Analyse, and Design Structure.
- The results calculated manually can be analyzed, we can get the same result working with theory and software.

ETABS HISTORY

- Etabs is the product of CSI Company.
- Computers and Structures, Inc. (CSI) was founded in 1975, recognized globally as the pioneering leader in software tools for structural and earthquake engineering.
- Software from CSI is used by thousands of engineering firms in over 160 countries for the design of major projects.
- CSI produces five primary software packages: SAP2000, CSiBridge, ETABS, SAFE, and PERFORM-3D.
- The most useful structural analysis and design software developed by Computers and Structures, Inc., is ETABS which at first utilized to develop the mathematical complete model of the BurjKhalifa.

ETABS FEATURES

- Optimized for modeling of multi-story buildings.
- 3D perspective, plan, elevation, developed elevation, and custom views.
- 3D model generation using plans and elevations.
- CAD drawing/editing for fast, intuitive framing layout.
- Fast generation of models using the concept of similar stories.
- Automated templates for typical structures.
- Easy editing with the move, merge, mirror, and replicate.
- E-Tabs software automatically populates charts, graphs, and reports in PowerPoint, Excel, Word, and HTML.



ADVANTAGES OF ETABS

ETABS is a 3D modeling software for any kind of structural analysis and design. Using this program you can perform both steel structure and RC Structure. Here are some important advantages of ETABS software for 3D modeling.

1. ETABS allows users for Graphic input and modification for the sake of easy and quick model creation for any type of structure.
2. Creation of a 3D model with the utilization of plan views and elevations, 3D model of any kind of complex structure can be created easily.
3. With the help of similar storey concept creation of the 3D model is very easy and quick. If the stories are similar then the model generation time can be reduced multiple times through similar story concepts.
4. Editing the model is very easy. Moving any object from one position to another, combining two or more objects using merge command, making a similar object using Mirror command, and making a copy of any object in the same level of different story level.
5. Drawing of objects with most accuracy using snap command consisting of the end, perpendicular and middle, or some other options.
6. The creation of objects is very quick for any type of object like a beam, column, slab, wall, etc. with one click of a mouse.
7. Easy navigation through multiple viewing of windows. This feature allows you to create or edit your model very easily with a real-time view.
8. Creating your model and editing has been easy through a 3D view with different types of zoom options as well as panning commands for moving the whole model easily without any rotation.
9. Different view options of the 3D model including a plan view, any side elevation view, and also customization view created by the modeler.
10. Graphical insertion of a sectional dimension of any kind of shape and material through section designer. Almost all types of shapes of various members are available in this program.
11. The geometry of model copying and pasting feature from and to spreadsheets
12. The exporting capability of the model geometry to .dxf files can be used in different working aspects.
13. Connection with EC-Praxis 3J which allows analysis and design for the steel structure connections.
14. Automatic consideration of the self-weight of material has made it easy to consider the self-weight of various members even if the size is changed.
15. Automatic creation of Earthquake and Wind load saves lots of time to calculate them manually and assign them in the 3D Model.
16. Load combination as per your defined building code is also automated; you do not need to define them individually which saves lots of time.
17. Very easy importing of model geometry as well as the design of Reinforced Concrete structures as per Greek code with the integration of STEREOSTATIKA.
18. For the design of Reinforced Concrete structures as per Greek and masonry structure as per Euro code 6 also Reinforced Concrete jackets as per Greek Code and pushover analysis has been made easy to perform by automatically creating plastic hinges.
19. For the 3D design of structural components like bridges, dams, tanks, and building structures this program has integration with SAP2000.



20. To analyze and design slab with any shape and mat foundations Etabs is integrated with SAFE allowing you to complete the analysis and design of any type of slab.