Auto CAD Lab

Lab In charge: Mr. N. Lingeshwaran

For any Civil Engineering design & analysis like construction, execution, building a house, constructing a dam, water tank design, chimney, transmission towers, steel structures, industry etc. The first requirement is to draft an AUTOCAD plan. The principles of planning, planning regulations, building byelaws, factors affecting site selection, functional planning of residential, public, various structural design aspects, recommendations of NBC, drawing of Plan, elevation and sectional elevation including electrical, plumbing and sanitary services using CAD software.

AUTOCAD Diagram (Lift well with raft reinforcement details)

To execute the drawings on the field, one must be able to read the drawings. AutoCAD makes it easier to draw and interpret the drawings. AutoCAD is a tool in which we can draw and modify any type of drawings using different commands such as line, rectangle, construction line etc. In AutoCAD we can do two dimensional as well as three dimensional drawings.

STAAD or (Staad Pro) is a structural analysis and design computer program originally. The commercial version STAAD Pro is one of the most widely used structural analysis and design software. It supports several steel, concrete and timber design codes. It can make use of various forms of static analysis, 2nd order p-delta analysis, geometric nonlinear analysis, buckling analysis. It can also make use of various forms of dynamic analysis from modal extraction to time history and response spectrum analysis.

To perform an accurate analysis a structural engineer must determine such information as structural loads, geometry, support conditions, and materials properties. The
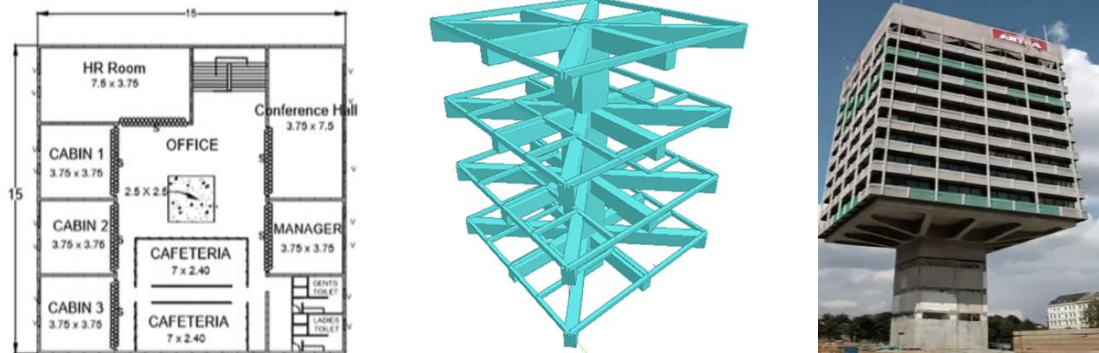
results of such an analysis typically include support reactions, stresses, and displacements. This information is then compared to criteria that indicate the conditions of failure. Advanced structural analysis may examine dynamic response, stability, and non-linear behavior


Building plan, 3D view of the structure (Staad.pro)

ETABS integrates every aspect of the engineering design process. Creation of models has never been easier intuitive drawing commands allow for the rapid generation of floor and elevation framing. CAD drawings can be converted directly into ETABS models or used as templates onto which ETABS have large and complex models to be rapidly analyzed and supports nonlinear modeling techniques such as construction sequencing and time effects (e.g., creep and shrinkage).

SAFE is the ultimate tool for designing concrete floor and foundation systems. From framing layout to detail drawing production, SAFE integrates every aspect of the engineering design process in one easy and intuitive environment. Slabs or foundations can be of any shape and can include edges shaped with circular and spline curves, mat footing, isolated

footing and combined footing easily able to design. Mats and foundations can include nonlinear uplift from the soil springs, and a nonlinear cracked analysis is available for slabs.
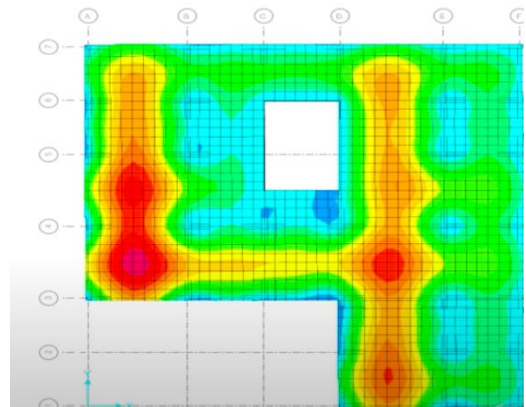
Mat foundation, Analysis of Mat in SAFE software (Output)

List of software's
1. Staad.Pro
2. ETABS 2019
3. AUTOCAD 2020
4. Midas
5. SAFE Footing
6. Staad Foundation
7. ArcGIS
8. MX Road
9. IIT Pave
10. Primavera, BIM