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Design of Multi Storey Sleeve Car Parking With Stadd Pro.

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Abstract: This review paper involves the study of various aspects of analysis and design of multi storey car parking by using STAAD. Pro. Structural designing requires a detailed structural analysis on which the design of the structure is based. But it is not always possible to do in manual calculation hence the need for programming tools was found. For which several of power tools were formed, among which the most widely used one is STAAD. Pro, which allows the structural and seismic analysis prior to its construction. For high rise buildings its quite feasible to use STAAD. Pro for computing the loads and its combination and analysing the structure and designing the structure based on the analysis.

Keywords: Structural designing, Analysis, Seismic , STAAD. Pro , Programming tools, Auto Cad.

I.   INTRODUCTION.

Day by day a increase within the number of vehicles on road. It's very Easy to park vehicle on road or when vehicle are moving. When the vehicle Stops due to work or ay region, we cannot leave vehicle on road or unsafe place. For correct storage of auto when not in use parking lot is required. For a person or cargo occupation a vehicle, a terminal facility is important both at the origin and therefore the destination. When the person has got to stop on the way for a few purpose aside from traffic related, the vehicle needs some halting facility, without disturbing traffic flow otherwise on the road. Such a facility is named parking. With the increased ownership and usage of personal vehicles within the sort of automobiles and motorized two wheelers, parking has become an important fact of this age, particularly in urban areas Thus, thanks to increase in population there's increase in vehicle demand and that we require more parking lot thus on top of things by constructing multi parking building or road street. Parking facilities can be both indoor and outdoor, public or private. It can be a parking garage, or a parking space that belongs to the property of a person's house.

A parking lot is an area that is assigned for parking. Normally, the parking spaces are marked on the ground with white or yellow lines that form squares that each fit one car. Parking lots are common near shops, bars, restaurants and other facilities that require parking. There are parking lots that are open throughout the year, but there are also improvised parking lots that are specially assigned for an event. For example, when there is a music festival that only happens once a year people can decide to open a nearby meadow to provide parking spaces for the visitors of that particular music festival.

Parking garages

A parking garages is also called car park, parking structure, parking building, parking ramp, parkade or parki

II. **METHODOLOGY.**

What is Sleeved Parking?

Multi-storeyed sleeved parking is parking that occupies multiple levels with part or all of the external edges having active uses such as office or residential units.Sleeved parking solutions conceal parking from public view and make best use of outlook by locating habitable/occupied space on the perimeter of the building.Sleeved parking is suitable for larger sites as it takes a significant area to accommodate parking bays, aisles and ramping wrapped with a usable depth of office or apartments.

Software Introduction.

This project is mostly based on software and it is essential to know the details about these software's. List of software's used .

Staad-pro.

Staad is powerful design software licensed by Bentley .Staad stands for structural analysis and design Any object which is stable under a given loading can be considered as structure. So first find the outline of the structure, where as analysis is the estimation of what are the type of loads that acts on the beam and calculation of shear force and bending moment comes under analysis stage. Design phase is designing the type of materials and its dimensions to resist the load. This we do after the analysis. To calculate s.f.d and b.m.d of a complex loading beam it takes about an hour. So when it comes into the building with several members it will take a week. Staad pro is a very powerful tool which does this job in just an hour's staad is a best alternative for high rise buildings. Now a days most of the high rise buildings are designed by staad which makes a compulsion for a civil engineer to know about this software. These software can be used to carry rcc, steel, bridge, truss etc.

A structure can be defined as a body which can resist the applied loads without appreciable deformations. Civil engineering structures are created to serve some specific functions like human habitation transportation, bridges, storage etc. in a safe and economical way. A structure is an assemblage of individual elements like pinned elements (truss elements), beam element, column, shear wall slab cable or arch. Structural engineering is concerned with the planning, designing and the construction of structures.

Objective of Work .
To analysis and design a multi level parking.
To estimate the load for construction.
To provide safe and easily accessible area for parking.
To minimize the traffic load due to parking of vehicle in no parking zone.
Upgrading the infrastructure of the town using this type of structure.
To give a technical solution for the traffic congestion problem and proper plan and design of multi storey parking

Plan Details
1 All Floors are same in plan (80 x 40 m2)
2 Ramp of diameter = 6m
3 Staircase is provided for emergency.
4 Lift

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5 Height of each Floor = 4m
6 Parapet wall thickness and height are 100mm and 1m respectively.

Slab
The most common type of structural element used to cover floors and roofs of buildings is a reinforced concrete slab. The slabs are classified into the following types, they are
1 One-way slab (1/b ratio greater than 2)
2 Two-way slab (1/b ratio lesser than 2)
3 Flat slabs
4 Grid Slabs

III. CONCLUSION.

The multi-storey car parking was designed as G+5 building.
The layout of the building was planned with reference of Codes to facilitate utility.
Columns were designed according to axial, uniaxial and biaxial loading condition and footings were provided based on column design.
For emergency purpose separate dog-legged staircase is provided on front side of structure.
The structure was designed for Mumbai city, considering the advantages of structure the possibilities for the project to be proposed in real time are on positive side.
The project has helped us gain fair amount of knowledge on Structural Analysis and Design of reinforced concrete and had an experience on STAAD PRO.

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