International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 08 Issue: 07 | July 2021 www.irjet.net p-ISSN: 2395-0072

ANALYSIS AND DESIGN OF MULTI STOREY PARKING BUILDING

Harish C[1]., Gouri S[2]., Kavya J[3]., Priyanka M[4]

Professor: Anand S Bankad, Dept. of Civil Engineering, S G B I T, Karnataka, India

---

Abstract - *Now –a-day there is an increase in no. of vehicles. Parking is the act of stopping and disengaging a vehicle when not in use, hence parking space is required. It is also noteworthy that a personal vehicle is in the move hardly for 2-3 hours in a day, while for the remaining period it is parked. With the increased ownership and usage of private vehicles, parking has become an essential fact of this age. Thus due to increase in population there is increase in vehicle demand thus in control by constructing multi parking building.*

1. INTRODUCTION

The first multi level parking was built in 1918 for the Hotel La Salle at 215 West Washington Street in the West Loop area of downtown Chicago, Illinois. It was designed by Halberd and Roche. The Hotel La Salle was destroying in 1976, but the parking structure remained because it had been designated as preliminary landmark status and the structure was several blocks away from the hotel. It was smash in 2005 after failing to receive landmark status from the city of Chicago A 49-storey apartment tower, 215 west, it was taken place, also features a multi-level parking garage.

Parking building is used for safe guarding the user vehicle. Successful parking structures meet the user demands. It includes feeling safe and also knowing that their vehicles are in a safe environment. In provision of parking area is unplanned so there is need to make an improvement in the parking area.

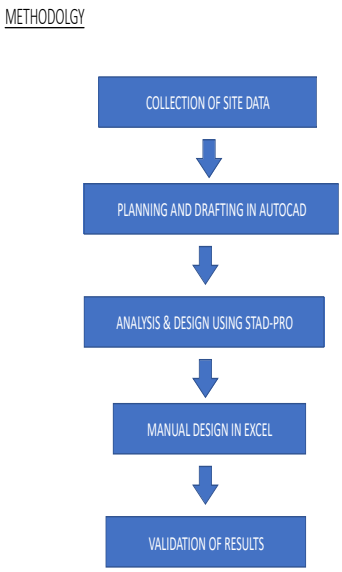
A parking lot should obtain a large space enough to park a car in. The system should provide easy exit and re-enter. Instructions or guidelines should be provided to help the drivers. The idea behind this work is to prepare a detailed plan of a Multi-Level Parking with provision for parking area in each floor (G+1). The primary objective of this project is to learn the design philosophy of RC framed structures. Identified site for our project is our college's (S.G.B.I.T.) existing parking area. Conducted the survey on vehicle in college which resulted in intake of 150 bikes and 20-25 cars. Measured the site and found out to be 30m*40m in dimension. The total area of the Parking system is 1200 m2. . The wall width is 230 mm and the height of wall in one storey is 3.2 m above the Ground floor.

1.1 Software Introduction

AUTOCAD-AutoCAD is powerful software licensed by auto desk. The word auto came from auto Desk Company and cad stands for computer aided design. Autodesk introduced and developed AutoCAD in December, 1982.

STAAD-PRO SOFTWARE-Staad-pro- is powerful tool to design structures (RCC & STEEL). Staad stands for structural analysis and design of any object which is stable under a loading can be considered as structure.

2. METHODOLOGY



2.1 Collection of site data

Fig -1: Existing parking site for four-wheeler vehicles.

Fig -2: Existing parking site for two-wheeler vehicles.

2.2 Planning in AUTOCAD-

Taken into consideration many factors such as standard dimensions of the site and vehicle, no. of cars and bikes, enough standard spacing dimensions for the four-wheeler vehicle to park and exit from parking area etc, have planned Multi-storey parking building. Parking building consists of ground floor and first floor where ground floor is meant for car parking and first floor for bikes. 30 no. of cars and 200 no. of bikes accommodate in parking building.

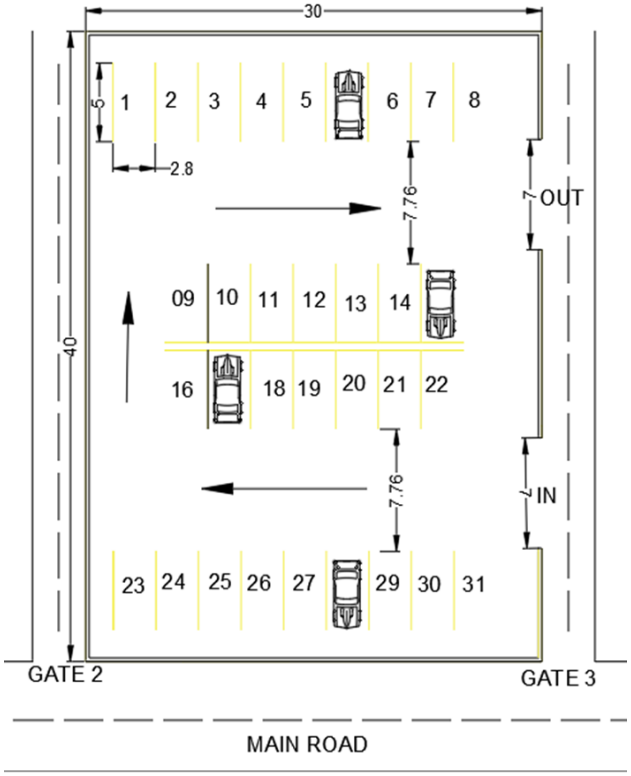


Fig -3: Planning of multistory parking in AUTOCAD (Ground Floor).

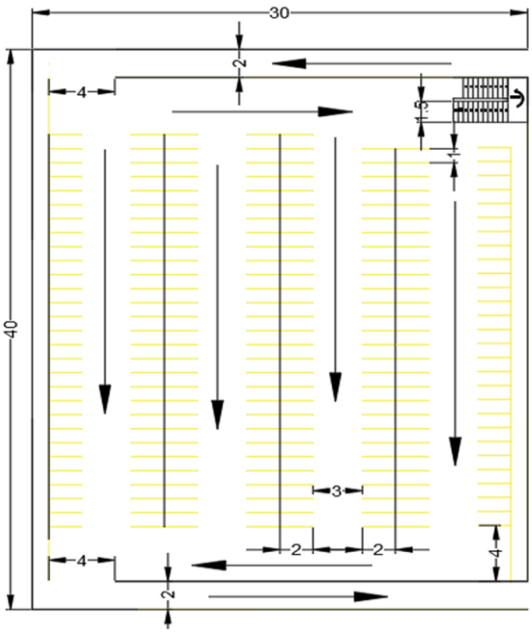


Fig -4: Planning of multistory parking in AUTOCAD (First Floor).

3. EXPECTED OUTCOMES

1. Safe and stable design of structure by validating the results from manual and software.
1. 150 numbers of two wheelers can be parked at a time without any Traffic congestion.
2. 30 numbers of four wheelers can be parked a time without any traffic congestion.
3. A good aesthetic view for a college parking area.

REFERENCES

1. Design and Analysis of Multistory Parking, B Vamsi, Dr. DumpaVenkateswarlu, Dr. D V Rama Murthy (Ijrsae).
2. A study of analyses and design of multi level parking, Upendrasingh dandotia1, Rakesh Gupta2 , Mukesh Pandey3 (IJDER).
3. Zhen (Sean) Qian , Feng (Evan) Xiao, H.M. Zhang(2012)a, Department of Civil and Environmental Engineering, University of California, USA
4. M.D. Rezza, M.F.Ismail (2013) Department of mechanical engineering (BUET) :- Smart , parking system obtain information about available parking spaces.