

## Design and Analysis of Clubhouse

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**Abstract:** Planning and Designing of Clubhouse Building having G+1 floor. I am getting to prepare an idea of the clubhouse building then an in depth structure design (footing, column, beam, staircase, and slab design) plan of the building. The software I am using for planning and designing are AutoCAD and Staad.pro. Structural design is that the primary aspect of engineering. The most important basic in structural engineering is that the design of the members of a building, Slabs, Beams, Columns, and Footings. So as to design them, it's important to first obtain the plan of a specific building. Thus on the basis of suitability; the plan layout of the beam and the position of the column are fixed. Subsequently, the vertical load is calculated. Once the loads are achieved, the component first takes the load i.e. the slabs are often designed. The Design of a slab depends on, it is a one-way or a two-way slab, the top conditions, and the loading. The loads are transferred from the slab to the beam. The masses coming from the slabs onto the beam could also be trapezoidal or triangular. Counting on this, the beam could also be designed. After it, the masses (mainly shear) are taken by the columns from the beams. For designing columns, it's necessary to understand the moments they're subjected to. For this, the frame analysis of the structure is completed by the instant Distribution Method. After this, the planning of columns is based on end conditions, moments, eccentricity, and if it is a brief or slender column. Most of the columns designed in mini project we considered to be axially loaded with uniaxial bending. Designed is based on the soil bearing capacity of specific area and loading from the column. Most significantly, the sections must be checked for all four components with reference to strength and serviceability.

**Keywords-** Clubhouse design, slab, column, beams, Load.

### 1. Introduction

A clubhouse is a community on purpose organized to support people living with the results of mental state. Through participation during a Clubhouse, people are given the opportunity to reconnect with the world of friendship, family, important work, employment, and to access the services and supports they'll individually need. A clubhouse is a restorative surrounding for the people that have had their lives non-contiguous, and need the support the people who believe that recovery from mental state is possible.

The fundamentals need of human life is food, attire, and asylum. Man has been putting forth his attempts to improve his way of life since days of yore. The motivation behind his endeavours has been to supply a financial and proficient sanctuary. The ownership of a safe house other than being a fundamental, utilized, gives a suspicion that all is well and good, duty, and show the economic wellbeing of man.

The architect has to bind mind the civil conditions, building bye-laws, environmental factors, money related capacity, water framework, squander material course of action, arrangement of future, air circulation, ventilation, and so on, in proposal a specific kind of masterminding to any shopper.

Each individual has an inalienable preference for a serene climate required for his wonderful living, this item is accomplished by having a territory of living arranged at a protected and helpful area, such a region for an agreeable and lovely living requires considered and kept in sight.

- A Peaceful climate.
- Safety from all-common inventory and atmosphere conditions.
- General facilities.

## 2. Theoretical discussion of the work

### What is Clubhouse Building?

The distinct name of "Clubhouse" was taken from the underlying language that was utilized to impart the work and vision of the essential Clubhouse, Fountain House in New York, which began in 1948. On account of the underlying network of its sort, Fountain House has filled in because of the model for all succeeding Clubhouses that have created the world over. Wellspring House started when previous patients of a substitution York mental clinic started to fulfil themselves together casually, as such a "club." it had been coordinated to be an organization for individuals living with psychological instability, rather than as an administration or a treatment program. Networks far and wide who model themselves after Fountain House have received the term "clubhouse" since it unequivocally gives enrolment and related messages. The message is sincere in transit the clubhouse works.

### Theoretical description of the designing work

A designing or planning process may include a series of steps to be followed depending upon the merchandise or service, a number of the stage could also be irreverent, ignored within the real-world situations so as to save lots of time, reduce cost or because they'll be redundant within the situation.

Typical stages of the design process include:

- Design brief – a statement of design goal
- Analysis – analysis of current design goal
- Research – examining comparable plans arrangements inside the field or related subjects
- Specifications – determining necessities of plan
- Problem tackling – conceptualizing the arranging arrangements
- Presentation – introducing plan arrangements
- Implementation – bringing a planned arrangement into the climate

### Geometry of design

Planning and designing of geometry of building having G+1 floors. When diminishing the expense of clubhouse structures, diminishing operational expenses alongside the development costs will demonstrate valuable not only for the proprietor or potentially client of the home yet additionally for the public economy. Inside the plan stage, choices with respect to building shape substantially affect both development expenses and building warming energy costs. Along these lines, this investigation will dissect whether the adjustment in the size of the structure influences the development cost and the structure warming energy cost, and consequently give pre-plan data to future reference for clubhouse structures with less energy utilization and less ecological contamination. To this end, clubhouse structures with similar attributes have been utilized by separating just structure shapes, directions, and envelope choices to evaluate the progressions they cause in development, energy, and life cycle costs.

### Load definitions in structure

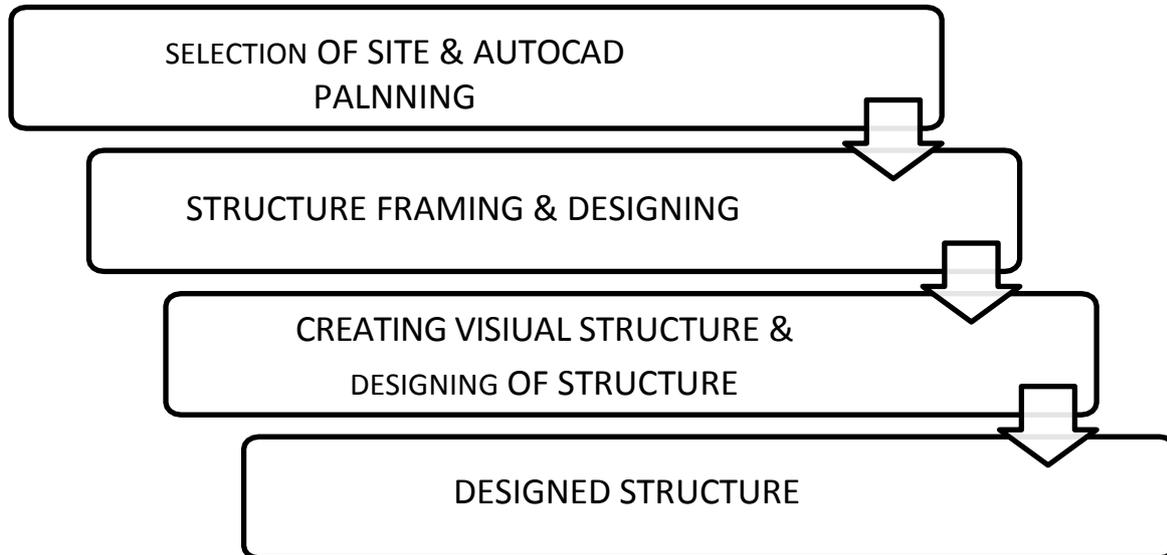
**Dead Loads:** Gravity heaps of steady sizes and fixed places that demonstration for all time on Structural Loads Fy the structure. Such masses oblige the loads of the underlying framework itself and of every single distinctive material and instrumentation for very much associated with the primary framework. Loads of perpetual instrumentation, such as warming and cooling frameworks, zone unit in some cases acquired from the producer.

**Live Loads:** Live loads see the dynamic powers from inheritance and planned use. They speak to the transient powers that can be riveted through the structure or follow up on any express primary part. Likewise estimated in psfs, these heaps incorporate the foreseen weight of people, furniture, machines, cars, moveable gear, and subsequently the like.

### 3. Methodology

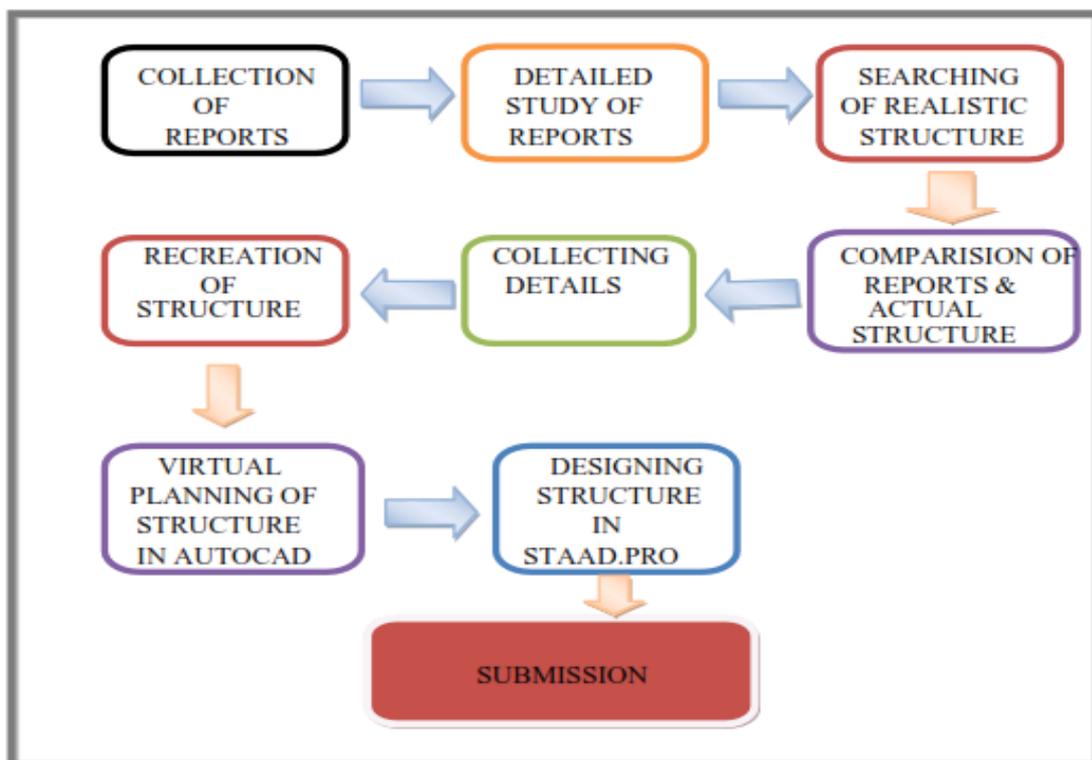
Outline of the project –

Outline of the project give the idea about the steps involved in completion of the project. This is the steps or methodology which I followed to complete the project.



### Methods employed

During the project these are steps being followed one by one to complete the project.



#### 4. Future Scope

I designed this structure as a future requirement. When the population of the society increases in the future, we will need more area for utilities so I am creating a structure to manage these things as new construction will be more expensive in future so when we need more area we will Can move vertically so it design the structure for g+2 floor so when we need more space in Clubhouse we add 1 floor to existing clubhouse.

#### 5. Conclusion

The responsive design approach used for this project has provided a framework for the type of community centre that would best fit needs. The findings section shows many examples and ideas of what this particular community wants. It demonstrates that a responsive design approach can be useful and tailored to the needs of the community and organization conducting the research. The participants in this research did indeed know what they want and need in a clubhouse. They described not only what they would like in a future building, but also some of the various issues surrounding the usage of a community centre.

A summary of the ideal clubhouse project. The general size of the structure does not need to be a large centre or have a stage, but it should be able to hold around 200 to 250 people. The centre would mostly be composed of a large room. This room would contain dividers to facilitate the creation of multiple smaller rooms. This will allow multiple groups to meet at the same time by creating even more available community space. It is a center that will be used for all age groups, and therefore needs to have various features to accommodate this, such as: handicapped accessibility, technology support (Wireless internet, projectors, sound system, a television, etc.), good heating and cooling, lighting, and other features found in newly constructed buildings. One of the most important features will be a kitchen large enough to accommodate a variety of functions. Besides the kitchen, the center itself will need to have an atmosphere which can be adjusted by its furnishings. It will need to have new and useful tables, chairs, and furnishings. Overall, community members want a center that is a nice place in which to meet and have events.

#### References

##### BOOKS

1. Advanced Reinforced Concrete Design (Is: 456-2000) By N Krishna Raju - Cbs Publishers
2. Design of Steel Structures by S. Ramarutham
3. Limit state Design of Reinforced Concrete by P.C. Vaghese - Prentice Hall of India
4. Design of Reinforced Concrete by Jack C. McCormac and Russell H. Brown 9th Edition Bungale S Taranath
5. Reinforced Concrete Design of Tall Buildings

##### CODES

1. IS 800 (2007): General Construction in Steel.
2. IS 800 (2007): Working Stress Design
3. IS 800 (2007): Limit Stress Design
4. IS 801 (1975): Code of Practice for Use of Cold Formed Light Gauge Sled Structural Members in General Building Construction
5. IS 456: 2000 - plain and reinforced concrete - code of practice (fourth revision)
6. IS 875 (Part 1 to 5): 1987 - code of practice for design loads (other than earthquake) for buildings and structures (second revision). Part - 1: Dead loads Pan - 2: Imposed (Live) loads Part - 3: Wind loads Part - 4: Snow loads Part - 5: Special loads and load combinations
7. IS 1893: 2002 - criteria for earthquake resistant design of structure (fourth revision).