iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** IV **Month of publication:** April 2017

DOI: http://doi.org/10.22214/ijraset.2017.4014

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Feasibility Study on Flexible Building (G+2)

Yashwant Bundele[1], Tushar Salunkhe[2]
[1] UG Student(Third year), [2] Assistant Professor, Civil Engineering Department, DYPSOE Pune.

Abstract: ***A good design teaching environment requires good utilization of all the space available which can move very often be improved and made some flexible by the incorporation of some type of movable partition wall, day by day population increases it lead to lack of space and increases in the rates of the plots, flats etc . We aware of the thing that, traditional flat system has fixed walls but if we required more space in flat we cannot make it happen due to fixed walls but we come here with the solution at it by introducing installing flexible partition walls. In this arrangement, we can move the wall between hall and gallery towards the end gallery whenever we need so and can increase the carpet area. When there is no need of space and we can again maintain the wall at the original position. Similarly, we can move the wall between Hall and Kitchen by we make Dining +Hall. There we can move this wall towards Kitchen and achieve or objective. Also we can extend the size at the bedroom, as per the planning requirement and owner choice due to this project space utilization can be effectively done Here, we should note one point one point that most of the time for kitchen we need more space or less too, but due to the moving flexible partition wall we can arrange dimension of kitchen as per the requirement. Also we required more space in hall during the season of festivals or some kind of parties Celebration this can be achieved by moving flexible partition wall.***

Keywords: Flexible, Building, Gallery, wall.

I. INTRODUCTION

The traditional flat system is designed as per the present choice of owner requirement as per the traditional construction techniques there is the fixed position of all the members of the building like wall column etc. and due to this fixity of member the utilization of carpet area is fixed or limited extent. due to this fixity, we have to the things with respect to available limit.

II. OVERVIEW

To over this drawback, we are going to design the new concept called Flexible Building. In this project, we can arrange the space as per the owner requirements by moving the members of the building. In this project, we can extend our building as per our requirements and also our carpet area to be greater extent. In this project we are design the wall of building such that we can change the position of Door & Windows and also the wall itself at any time as per owner requirements & we can change the position of window as per the direction of the wind and sunlight & In this design we will design the staircase such that when it is not in use, we can fold the staircase and lifted up and use that passage for our easy and for better.

III. RESIDENTIAL BUILDING

Residential buildings are most often called houses or homes. Residential buildings containing more than one dwelling unit are called a duplex, apartment building to differentiate them from 'individual' houses. A condominium is an apartment that the occupant owns rather than rents. Houses may also be built in pairs (semi-detached), in terraces where all but two of the houses have others either side; apartments may be built around courtyards or as rectangular blocks surrounded by a piece of ground of varying sizes. Houses which were built as a single dwelling may later be divided into apartments or bedsitters; they may also be converted to another use

A. Sub -Structure

Footing and plinth of a building are a part of a sub-structure. This part of building safely transfers the load of building to the underlying soil. Therefore, footing should be of such strength that it can easily carry the building load. Failure of footing leads to failure of the building. Width and depth of footing should be designed according to a load of a building coming on it plus the bearing capacity of soil.The bottom part of the footing is generally constructed of Plain Cement Concrete (P.C.C) or Reinforced Cement Concrete (R.C.C). Steps are made above (P.C.C) by using bricks, stones or concrete to reach the plinth level. Generally, Damp Proof Course (D.P.C) is laid on plinth level. This layer stops the penetration of moisture to the superstructure part of a building.

B. Super -Structure

The superstructure is a part of the structure that is above plinth level (P.L). Generally, columns and walls are constructed in

©IJRASET: All Rights are Reserved

Volume 5 Issue IV, April 2017
ISSN: 2321-9653

superstructure. Following are the important parts of super-structure.

1) Floor
2) Column
3) Beans
4) Roof
5) Lintel
6) Parapet
7) Sun Shade
8) Drop Course
9) Doors & Windows

C. *Human Sentiments*

As per human Psychology, one get to turn off by viewing the same arrangement daily. This same eternal arrangement of the house can be negotiated by flexible building by moving the position of the partition wall. Human Sentiments change with respect to Time and condition so, one we manage the space as per the choice

IV. FLEXIBLE BUILDING

The main concept of this project is to design the flexible building. In This project, I am going to Design Flexible Building i.e. Movable and changing the position of Building components without disturbing the outer dimension of building a flat system. But While the considering Residential House, we can also extend the Room size as per time and requirements. Now just considering the apartment Flat .with the help of this technique we can utilize the space of balcony too. This Technique has the batter advantage over the problem of toilet. sometime we need common toilet or some time we wish to have separate Toilet. We can arrange the toilet in Bed Room or in Common section as per the owner Requirements by just changing the position of Partition Wall according to corresponding requirements. By same concept we can extent the floor size as per owner requirements. We use the same technique for Doors and Windows too. Hear we can change the position of it ,we can replace door by windows or vice versa as per the requirements .Also we can utilise the space in the staircase.When Staircase is not in use we can roll away the flights . Table I, Consist of Flexible (Movable) and Non Flexible (Non Movable) Item like Wall, Column, and Beam.

TABLE I FLEXIBLE ITEM

Sr No.	Description	Column no's	Beam no's	Wall Location	Colour Code
1	Hall 5 X 5.85 M	C1 , C2 , C3 C7 , C8 , C9 , C10 ,C11	B1 , B2 , B3, B4	MWB1 WB2 MWB3 MWB4	
2	KITCHEN 4.85 X 3.85 M	C8 , C9 , C10 , C13 , C14	B4 , B5 , B6 , B7	MWB4 WB5 WB6 WB7	
3	BED ROOM 5 X 4.75 M	C3 , C5 , C6 , C11 , C12	B3 , B8 ,B11 ,B12	MWB3 WB8 WB11 WB12	
4	BED ROOM 4.85 X 4 M	C10 , C11 , C14 ,C15 , C16	B7 , B8 , B9 ,B10	WB7 WB9 WB8 WB10	
5	TOILET 1.5 X2.5 M	C3 , C5 , C17 , C18	B12 , B13 , B14 ,B15	WB13 WB15 WB14	
6	TOILET 2.36 X 1.6 M	C16 , C12	B10 , B16 , 17	WB16 WB17	

©IJRASET: All Rights are Reserved

Volume 5 Issue IV, April 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

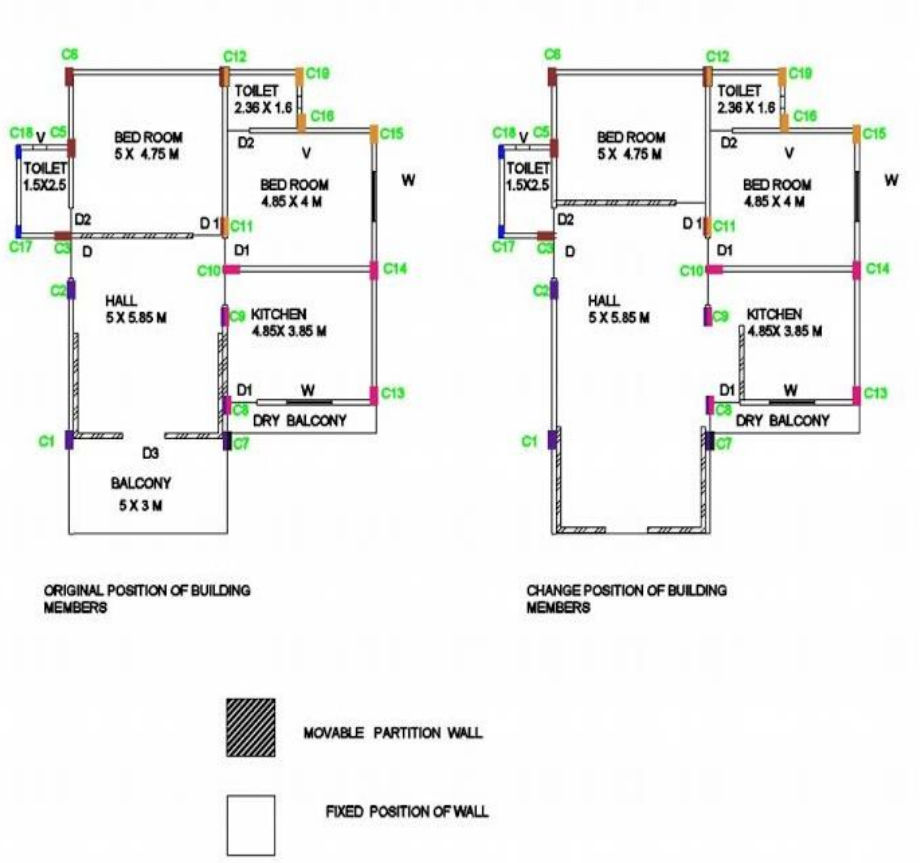


Fig.1 Details of Building Element (Column, Beam, Wall)

The Details of Building element or item described by using number code for wall ,column, slab as shown in fig.1. In which case there is an overlapping or else combined column and beam element separate mark as shown in fig.3

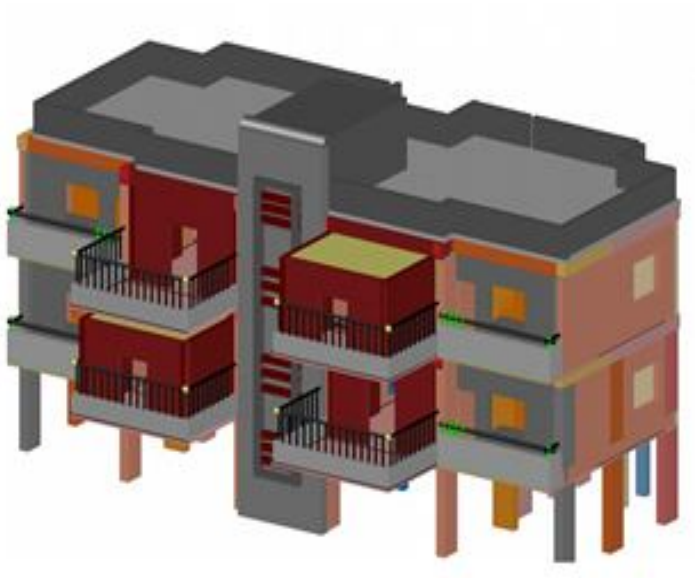


Fig.2 Movable Balcony for (G+2)

©IJRASET: All Rights are Reserved

Volume 5 Issue IV, April 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

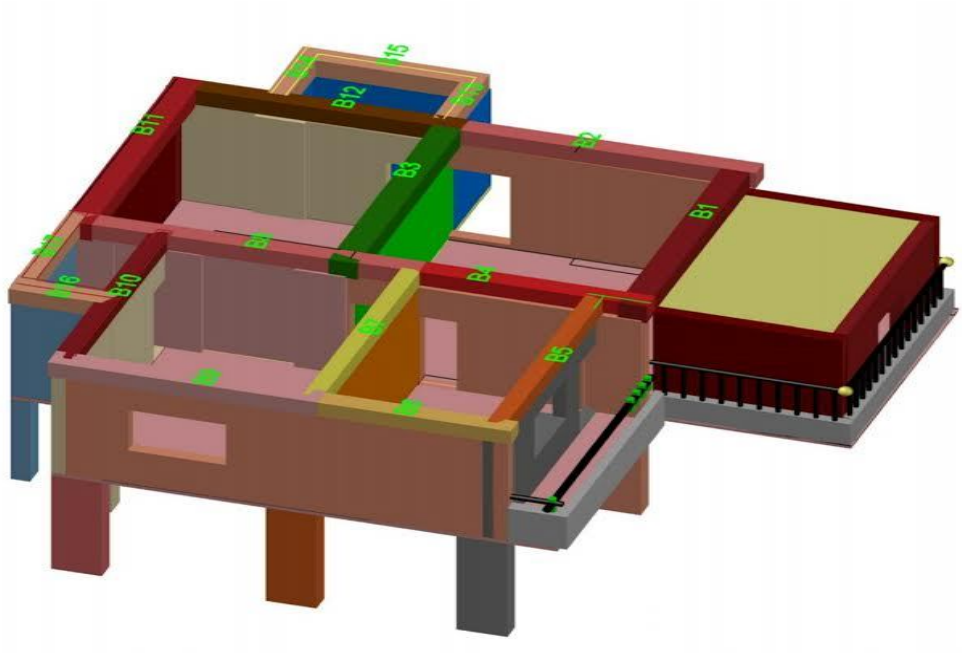


Fig.3 Building Element (Column,Beam,Wall)

The area calculation are shown in fig.4.It includes the built up area and plot area to calculate the consumed FSI.

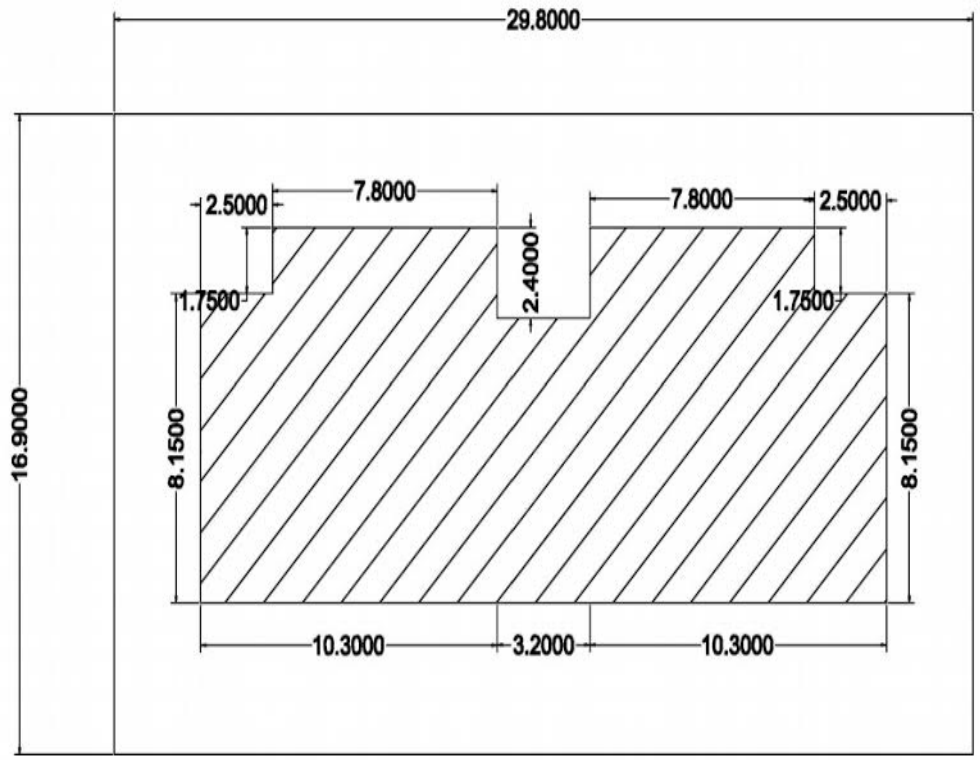


Fig.4 Area Statement (G+2)

©IJRASET: All Rights are Reserved

Volume 5 Issue IV, April 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

TABLE II
CONVENTIONAL BUILDING (G+2)

Sr.No.	Description	Area (Sqm)	FSI
1	Built up Area	438.38	
2	Plot Area (Front Side=4m and Remaining Sides=3m)	503.62	=0.87<1 Permissible

TABLE III
FLEXIBLE BUILDING (G+2)

Sr.No.	Description	Area (Sqm)	FSI
1	Built up Area	438.38	
2	Plot Area (Front Side=4m and Remaining Sides=3m)	503.62	=0.87<1 Permissible

From Table-I and II is it very clear that, by using conventional construction the Consumed FSI is 0.87 and which is within permissible limit. At the same time by using flexible building the consumed FSI is 0.87 and it is also within permissible limit without disturbing the Government authority code of conduct.

V. LIMITATION OF CURRENT STUDY

In this study, feasibility criteria is valid for Wall only. The next Article Will introduced column as well beam. The current feasibility study is required detail structural and foundation design as well as analysis of structure. The study need to satisfy model condition under theoretical analysis.

VI. CONCLUSIONS

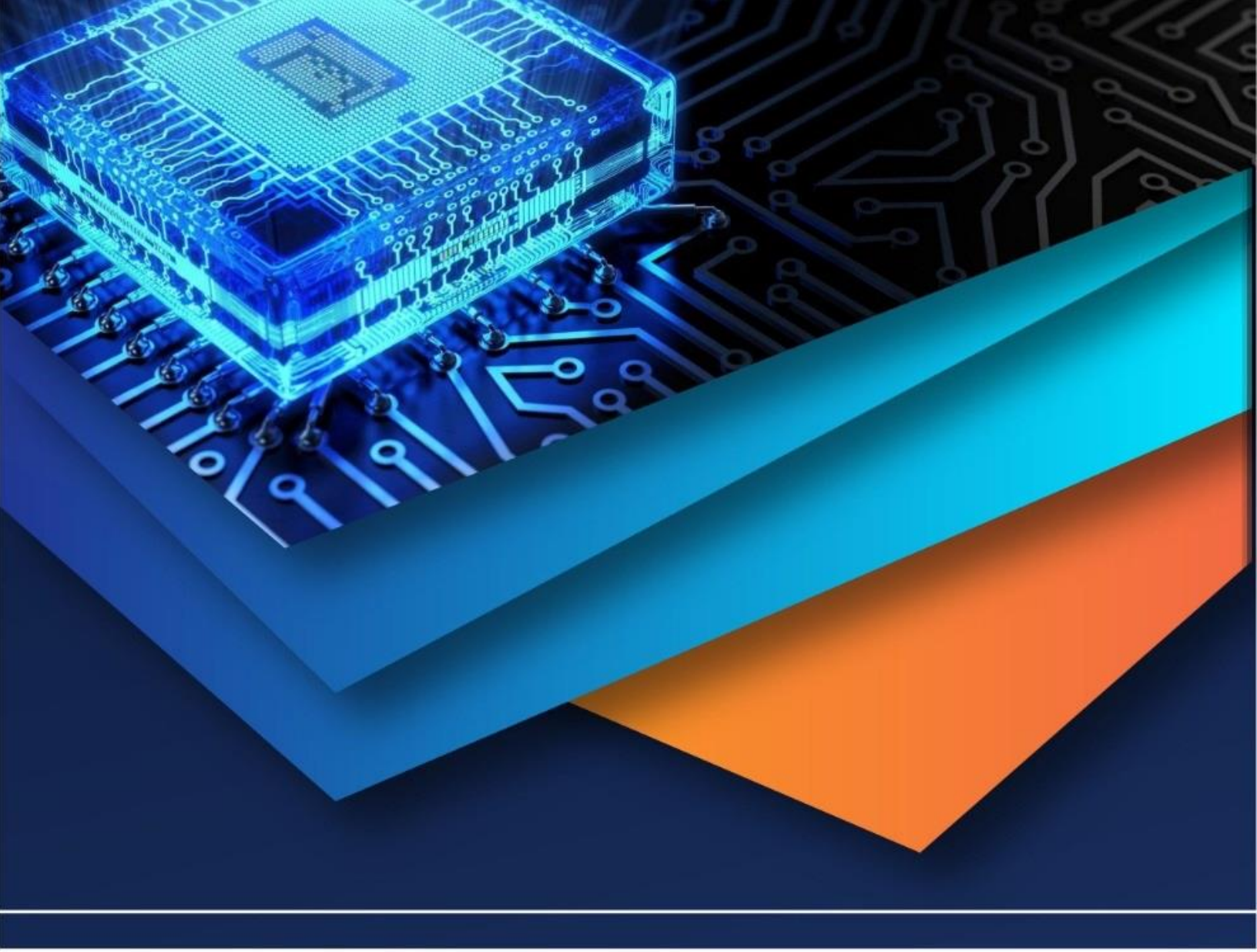
From above Feasibility study we conclude the following points,

A. The average life of building construction is about 30 to 40 years. Within this life span we are able to change painting color of building at a regular or else irregular interval.
B. We do have moody peoples that are why they are changing their building color with change in mood. But this is a limitation of human psychology as per govern by mind set.
C. The position of Beam, Column, Slab, and wall are unable to change during and after construction.
D. Only color was applied to particular building element for the mood change purpose.
E. Now due to speedy construction the change in element of building are possible within specified permissible limit and also as per Maharashtra government code of conduct.
F. The consumed FSI in case of flexible building is within permissible limit.(0.87<1)
G. This concept is taken into account as in pleasure of peoples.

REFERENCES

[1] I.S. 962 – 1989 Code for Practice for Architectural and Building Drawings.
[2] Building Design and construction by Frederick Merrit, Tata McGraw

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)