VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi -590018

Report On

"INTERNSHIP"

Submitted in partial fulfilment of academic requirement of

8th semester

For the award of the Degree Bachelor of Engineering in

CIVIL ENGINEERING

Visvesvaraya Technological University, Belgaum

Academic year 2021-2022

Submitted by:

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Under the guidance of

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HOD,

Department of Civil Engineering

RAJIV GANDHI INSTITUTE OF TECHNOLOGY

Department of Civil Engineering

Cholanagar, R.T. Nagar Post, Bangalore–560032

2021-22

RAJIV GANDHI INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University)
Cholanagar, R.T. Nagar Post, Bangalore–560032 Department of
Civil Engineering

CERTIFICATE

This is to certify that INTERNSHIP entitled **"INTERNSHIP"**, is carried out by NITHIN.K. N (1RG17CV010) are bonafide students of RAJIV GANDHI INSTITUTE OF TECHNOLOGY in the partial fulfilment of the academic requirement of 8th semester for the award of the degree Bachelor of Engineering in Civil Engineering of the Visvesvaraya Technological University, Belagavi during the academic year 2021-2022.

It is to certified that all correction/suggestion indicated for internal assessment have been incorporated in the report deposited in the department library. The project report has been approved as it satisfied the academic requirement in respect of project work prescribed for the said degree.

Mr V. K LINGAPPA	Mr.V.K.LINGAPPA	Dr.D.G.ANAND
HEAD OF THE	HEAD OF THE	PRINCIPAL
DEPARTMENT	DEPARTMENT	

STUDENT'S DECLARATION

I'm, NITHIN.K. N (1RG17CV010) student of 8th semester B.E in civil engineering, Rajiv Gandhi Institute Of Technology, hereby declare that the internship entitled "INTERNSHIP" has been carried out and submitted partial fulfilment of the requirement for the 8th semester degree in Bachelor Of Civil Engineering Of Visvesvaraya Technological University, Belgaum during the academic year 2021-2022.

Place: Bangalore

NITHIN.K.N

ACKNOWLEDGEMENT

It gives us immense pleasure that we write to express our gratitude to all who helped us in completing this project as a part of our final year project, B.E. Course, V.T.U., Belagavi.

We take pleasure in thinking our college Trustees, Chairman and Managing Director **Dr. JUNOSADASIVAN** for all the facilities provided to us throughout the project.

We express our sincere gratitude to thank **Dr. D.G**. **ANAND** Principal for his constant support.

We express our gratitude to thank **Prof. V. K. LINGAPPA**, Head of Civil Engineering Department for fostering and academic climate, which made this endeavour possible.

We express our gratitude to my professors for their guidance, support, cooperation and encouragement at various stages of this project.

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RACHITH CONSTRUCTIONS

ISO 9001:2015

DREAM TO REALITY | Building Plan Approval | Structural Design | Valuation | Execution

Ref No: Rec.2021.TE/0037 Date: 01/10/2021

UDYAM/AICTE Reg No: UDYAM-KR-12-0001679

To Whom So Ever It May Concern

This is to certify that **Mr/Miss. Nithin K N (1RG17CV010) student of Civil Engineering (UG). RAJIV GANDHI INSTITUTE OF TECHNOLOGY.** Has successfully completed internship in our organization **from 30th August 2021 to 30th September 2021**

During the period of internship with us he/she had been exposed to different process was found punctual and hard working.

01/10/21

Engineer in Charge

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CHAPTER 1

ABOUT THE COMPANY

1.1 INTRODUCTION

Rachith Construction was established in the year 2018. Company strongly entrenched with proven domain knowledge, experience and credentials. It is one of the largest building valuation undertaking company. We are present across the length and breadth of Davangere, Chitra Durga and Shivamogga district with our major office in Davangere. We have also made our footprints with operations in preparing DPR for various mega projects.

1.2 PROJECTS UNDERTAKEN BY THE COMPANY

- Residential building construction.
- Commercial building construction.
- Institutional and Industrial building.
- Third party inspection works.
- Valuation of buildings and civil structures.

1.3 ONGOING PROJECTS

- Residential building at Uttamma Badavane Davangere.
- Residential cum Commercial building at Mahalakshmi layout Davangere.
- Third party inspection at KN Halli CC Road.
- DPR preparation for Sarathi Industrial Area.
- Valuation of Shubodaya Hospital Building.

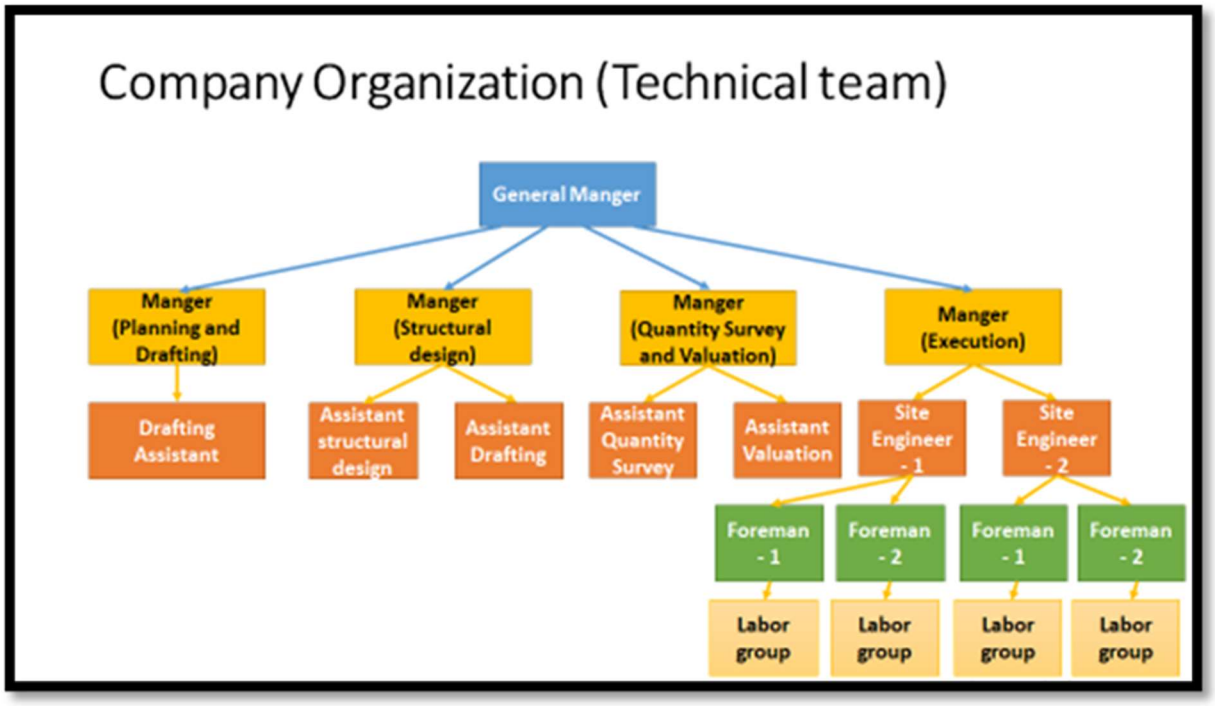

FIG 1: COMPANY ORGANISATION

CHAPTER 2

INTRODUCTION

Every creature on the earth has the primary and first requirement of having the most comfortable house. In olden days the structural safety used to be the main consideration in the buildings, but now functional design of the building has become more important, besides the structural safety. Now planning and designing of a building is not adequate, what relationship every room has to have with the adjoining rooms has to be given due consideration. Side by side all the aesthetical requirements have to be fulfilled.

Planning and designing a building do not involve only the building, there are other, outside factors which affect it. The planning of the whole of town, architectural considerations are some of the aspects which have direct bearing on the planning and design of building. So an architect or building designer must be conversant with the fundamental of town planning, architectural and the building bye laws. Besides, the buildings should also have through knowledge about the requirements of various types of buildings. Requirements of residential building are entirely different to the requirement of institutional buildings, commercial buildings, industrial buildings, etc.

CHAPTER 03

SITE SELECTION

While planning and designing „ building the first thought of an architect is about the general scope or the purpose of the proposed building. General scope of the building is associated with the requirements of accommodation which has large bearing on layout and design of the proposed building. The relation of the site with its environment largely influences the architect's views. The topographic features of the site are to be into account while planning and designing a building.

Selection of site for nay building is a very important and experts' job and should be done very carefully by an experienced engineer. The requirements of site buildings with different occupancies are different. The site which is suitable for residential building may not be suitable for other purpose buildings. So, all the buildings proposed for different purposes have different requirements and thus different consideration for their site selection. A consideration applicable for site selection of residential buildings has listed in this chapter it is almost impossible to find such an ideal site fulfilling all conditions. However, these considerations will remind of all the desirable things at a glance and it is for the individual. Room discriminates those points only on which greater stress is to be given. If there is more than one alternative site, it is advisable to go to each of the sites and discuss the pros and cons of each in light of suggestions given here.

- If available, a free hold plot is the best of all. If it is lease-hold plot, the period of the lease should be at least 99 years.
- The site should be in fully developed area or in the area which potential development. Such a site might be a little more expensive but investment is sale. If the locality is undeveloped, it is by chance that you may get the right type of people coming in as your neighbor's.
- The site should command a good view of landscape such as a hill, river, lake etc.
- There should be good transport facilities such as railway, bus service, for going to office college, market etc.

- Civic services such as water supply main, drainage sewers, electric line, telephone lines etc. Should be very near to the selected site so as to obtain their services with no extra cost.
- Soil at the site should not be of very much undulating. The site should further be on an Elevation. Building located on an elevated site adds to the expression of importance and repose of the buildings. Such site affords wider and brighter outlook and facilitates drainage.
- Soil at the site should not be made of up types as far as possible. The buildings constructed over such soils normally undergo differential settlement and sometimes, become the cause of collapse. Cracks in buildings in such conditions, are quite common.
- Building site if choose in depression causes drainage problem. Besides this building located in depression loses grandeur and impressiveness. General impression of so located building shall be depressing and not enhancing.
- The selected site should be large enough, both to ensure the building abundant light and air and to prevent any over dominance by the neighboring buildings. This care is necessary, particularly for public buildings which are generally beautifully designed and add in the beautification of the city.
- If the site is sloping, it should be rising towards the back and gives feeling of comfort. Rising slope towards rear improves elevation and also gives feeling of comfort Whereas the sites sloping down towards rear, defeat elevation. On slopes, planning with differential floors becomes possible. The garage and miscellaneous utilities like store, laundry etc. Can be accommodated in the basement.
- The ground water table at the site should not be very high.
- Nearness of school, hospitals, railway station, market etc. are considered good for residential house site but these facilities do not carry any significance in the selection of site for other public buildings.
- Good foundation soil should be available at reasonable depths. This aspect saves quite a bit in the cost of the buildings.
- Selected site should be adequate to accommodate all the essential necessaries of the buildings.

- Residential house site should be located away from the busy commercial road, hospitals, schools; college buildings should be located away from the busy areas. Shops should be located along the edge of the market roads.
- The shape of the plot or site should not be very irregular. Instead of a rectangle if it is slightly irregular, it looks more artistic. But if it has too many acute comers and irregular boundaries, it, area and cost proportionally increased without giving any advantages of space. the length of the boundary also unnecessarily gets increased.
- Buy land where there are bye-laws framed by a local authority, enforcing permanent restrictions such as fixing the maximum proportion of built-up area to the area of plot, space in front and on sides, height of buildings, separate zones for industrial and residential areas etc. They no doubt restrict your liberty, but they are very desirable as they protect you against unscrupulous people having commercial tendencies who build on every centimeter of available land to cam profits, unmindful of the inconvenience and nuisance they cause to the neighbor.
- Area of the plot should be enough for your present requirements with sufficient provision for future enhanced requirements.
- Orientation not the site also has some bearing on its selection. Site should be such in our country that early morning sun and late evening sun is accepted in the building in summer and maximum sun light is available, in most of winter

While making site selection for any building it is better or any building it is better to go through the master plan of the city once. This will give you an idea as to which side there are

- Physical conditions
- Type of soil
- Sanitary requirements
- Civic facilities
- Climate conditions such as sun, wind etc.

CHAPTER 04

BUILDING BY LAWS

Every locality has its own peculiarities in respect of weather conditions, availability of materials and labor and thus adopts its own methods of constructions, every locality prepares certain rules and regulations which help in controlling the development of the locality. The rules and regulations covering the requirements of buildings, ensuring safety of the public through open spaces minimum size of rooms, and height of the area limitations are known as building bye-laws. The building bye-laws are necessary to achieve the following objects.

- Building bye-laws give guidelines to the architects or engineer and thus help in pre planning the building activities.
- Provisions of bye laws usually afford safety against fire, noise, health hazard, and structural failure.

In the absence of suitable building bye-laws, the people will construct residences lacking in amenities and health conditions, with profit as the only motive. Hence only fanning of building bye-laws is not sufficient. If desired results are to be achieved there should be proper authority that could enforce the building bye-laws.

While farming building bye-laws assistance of experts on various subjects such as town planning law, health, civil engineering, traffic, general administrations etc. Should be sought and their views given due weightage. Now the importance of building Bye-laws is being increasingly realized. Indian standard Institution, an organization of Government of India has published I.S. 1256" code of building 4aws" covering all the salient aspects of building activities. Having realized the importance of building bye-laws and also to smoothen the work of local enforcing authorities. Government of India has published National Building Code (NBC). This publication covers all the aspects of building activities and embodies all the relevant Indian standards and thus has been taken as an advisory document by all the local authorities, government and semi-government departments and other construction agencies. The document has been drafted with performance orientation and gives better freedom to architects and engineers. In case of any difficulty or dispute the Provision of N.B.C form the deciding the things.

4.1 CLASSIFICATION OF BUILDINGS

According to Bye laws buildings arc classified based on occupancy and types of construction.

1. CLASSIFICATION BASED UPON OCCUPANCY

All the building is to be classified according to the use or the character of occupancy as follows.

- Group A - Residential
- Group B - Educational
- Group C - Institutional
- Group D – Assembly
- Group E - Business
- Group F - Mercantile
- Group G - Industrial
- Group H – Storage
- Group I – Hazardous

2. CLASSIFICATION BASED ON TYPE OF CONSTRUCTION

According to Fire Resistance may be classified into four categories

- Type 1 construction: All structural components offer 4-hour fire resistance
- Type 2 construction: All structural components offer 3-hour fire resistance
- Type 3 construction: All structural components offer 2-hour fire resistance
- Type 4 construction: All structural components offer 1- hour fire resistance

4.2 TERMINOLOGY

4.2.1 BUILDING HEIGTH

In case flat roofs, the vertical distance measured from the average level of the center line of the adjoining street to the highest point of the buckling is known to height. In case of pitched roofs building height is vertical distance measured from the average level of the center line, of the adjoining street to the point where external surface of the outer-serve no other purpose except that of decoration, shall not be considered for the purpose of taking heights.

4.2.2 BUILDING LINE

The liner up to which the plinth of the building adjoining a street or on extension of a street or on a future street may lawfully extend is known as the building line.

The line refers to the line of building are allowed to be constructed beyond the building line. But certain building such as cinemas, factories commercial concerns which attract large number of vehicles should be set back a flatter distance apart from the building line. The line up to which such buildings can be constructed is known as a control line. This line is set further deep from the building line. The distance of control line from the center of the adjoining street of road may be about one and half times that of the building line.

The distance of lines of building frontages is decided by the category of the city zone in which the site of the proposal building is located. Town planning authorities mark the present width and future likely widening of each street and road. The minimum distance from the center line of the road in prescribed for the line of building frontages. Sometime, there is a line to which generally all the buildings about. This line is known as general building line. No building is allowed to be extended beyond this line. However, the rule of the general building line is released if the general line existing building is too deep or more than 15 m from the road way. The setback obtained by the building line prover helpful in (i) future widening of the road (ii) reducing noise, dust from abutting buildings, (iii) Preventing creation of blind comers at the intersections of streets and (iv) maintaining open spaces for air, sun, etc.

4.2.3 SET BACK LINE

Set back line is a line usually parallel to the plot boundaries and laid down in each case by authority beyond which nothing can be constructed towards the site boundaries.

4.2.4 SERVICE ROAD

It is a road or lane provided at the rear or side of a plot. It is used mostly or service purpose. Floor area ratio (FAR); It is the quotient obtained by dividing the total covered area (plinth area) on all the doors multiplied by 100, by the area of the plot.

FAR = Total covered area of alt floor X l 00 plot area / Plot area

Coverage area = (Building area /Site area) X 100

4.3 REQUIREMENTS OF PARTS OF BUILDINGS

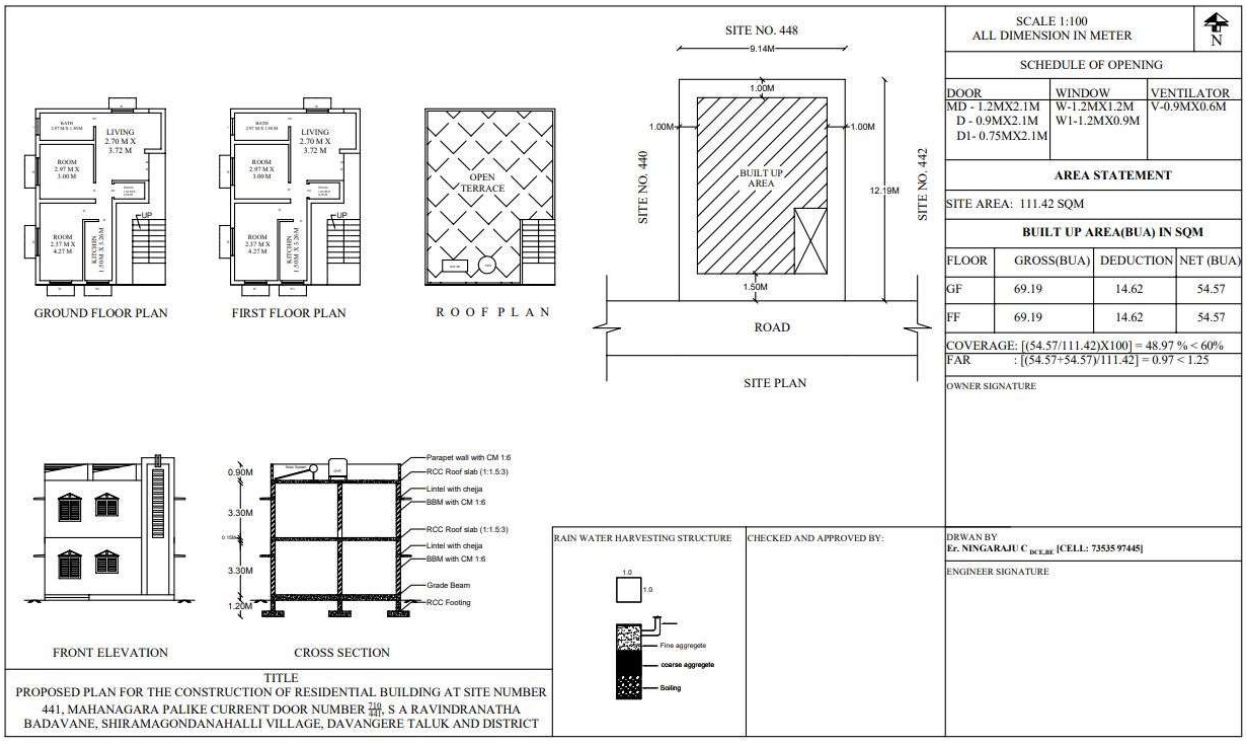

FIG 2: PLAN FOF CONSTRUCTION OF RESIDENTIAL BUILDING

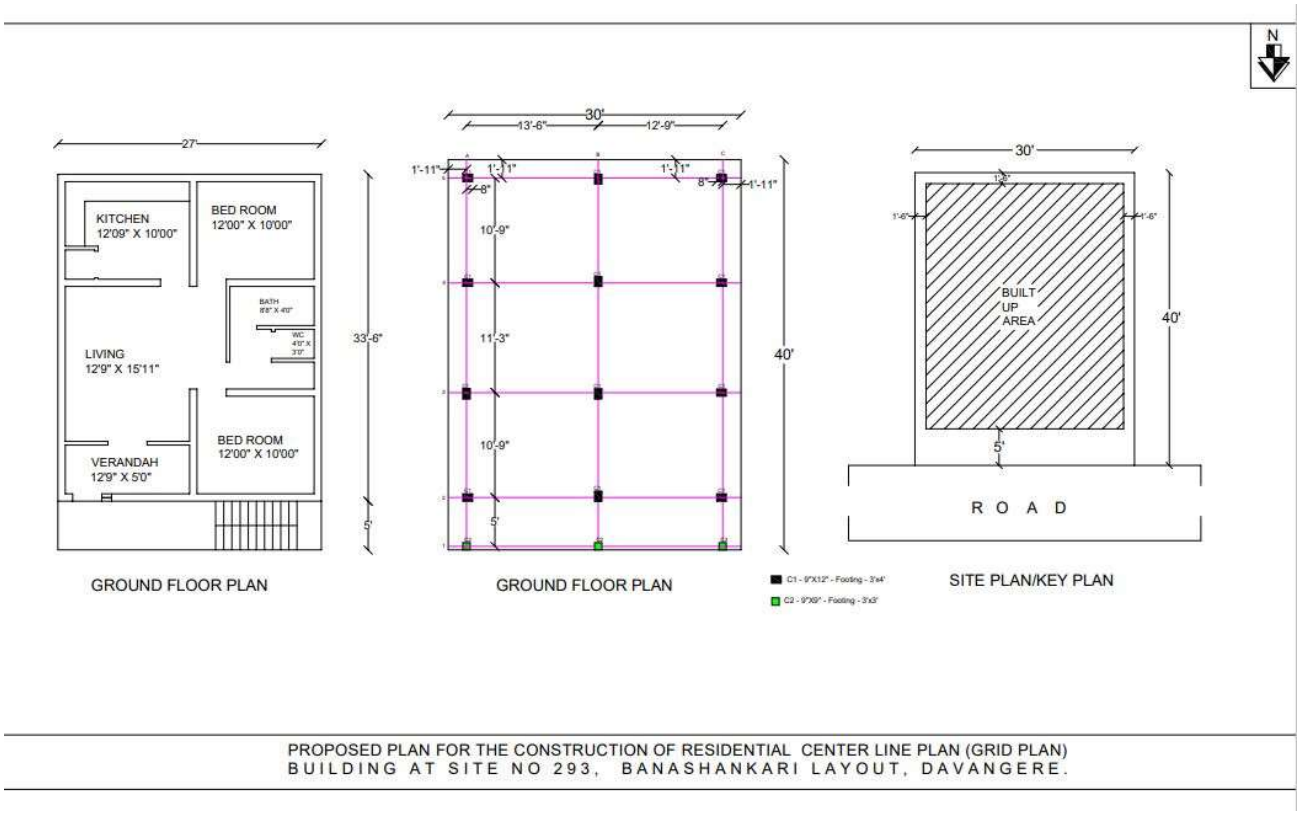

FIG 3: CENTER LINE DIAGRAM

4.3.1 PLINTH HEIGHT

The plinth of the building should be kept at such a height with respect to surrounding ground level that adequate- drainage of the site is assured. It must not less than 30 cm from,

- The central part of the abutting, street.
- The footpath of the abutting street.
- The highest part of a service lane which determines the drainage of the premises.
- Surrounding ground within 3m distance.

Every interior courtyard should be at least 15 cm above the level of the nearest street and should be satisfactorily drained.

4.3.2 HABITABLE ROOM

The height of the all rooms for human habitation shall not be less than 2.75 m measured from the surface of the floor to the lowest point of the celling. In case of air-conditioned rooms a height of not less than 2.4 m measured form the surface of the floor to the lowest point of air-conditioning duct or the false celling if provided. For row housing schemes, the height of rooms shall be not less than 2.4 m. The areas of habitable rooms shall not be less than 9.5 m where there is only one rooms with a minimum width of 2.4 m. where there are two rooms, one of these shall not, be less than 9.5m "and the other be not less than 7.5 m "with a minimum width of 2.4 m.

4.3.3 KITCHEN

Height shall not be less than 2.75 m except for the portion accommodating floor trap of the upper floor. The area of the kitchen shall be not less than 5.6 m with a minimum width of 1.8 m. where there is a separate stone, the floor area of the kitchen may be reduced to 4.5 m. A kitchen which is intended for use as a dining room also. Shall have a floor area of not less than 9.5 m with a minimum width of 2.4m Besides above size and height, a kitchen shall have

- A flue if found necessary
- An impermeable floor and
- Unless separately provided in a pantry, means for the washing of kitchen utensils which shall lead directly or through a sink to a grated and trapped connection to the waste pipe.

4.3.4 BATHROOMS AND WATER-CLOSETS

The height of bathroom and W.C measured from the surface of floor to the lowest point in the celling shall not be less than 2.2 m. the size of separate bathroom shall be not less than 1.5x1.2 or 1.8m2. If it is combined with WC its floor area shall not be less than 2.8m with a minimum width of 1.2m. The Minimum floor area of a separate W.C shall be 1.1 m2" Bathroom and W.C shall prevent creation of blind comers at the intersection of streets and maintaining open spaces for air, sun, etc.

4.3.5 STAIRCASE

Stair may be internal and external stairs are used as fire escapes and hence are usedonly during fires. Internal stairs are used for maintaining contacts with the floor above and below. Internal or interior stair ways: interior stairs must be made ofnon-combustible material and must be a self-contained unit. The minimum width of treads without noising shall. Be 25cm and maximum height of riser shall be 19 cm. maximum number of riser per flight shall be limited to 12 and minimum number of riser per flight shall be limited to 3 stair case will have a firmly supported handrail with a minimum height of 100cm from the surface of the tread. The thread should not Be slipping. In case of public buildings a stair case not less than 1.2m in width Shall be provided for every 600 persons or part therefore expected to use the building and the farthest comer of building shall not be more than 30m distance From the stair case. External stairs: as already stated it is a stair case used during emergencies like Break out of fires, in external stairs minimum width has to be 75cm with 15cm.

Wide tread and rises limited to not more than 19cm the riser per flight shall be limited to 16. It will also have a handrail of a height not less than 100cm.

- Width of a passage serving a single stair case shall not be less than the width of staircase
- The width of a passage serving more than one staircase shall not be less than the width of the widest staircase it serves plus 'A the sum of width of the remaining stair cases.

4.4 LIGHITING AND VENTILATION

4.4.1 HABITABLE ROOMS

Windows and fans lights, opening either directly to external air or into an open veranda are provided for admission of natural light or air into the rooms. If a window is partly fixed, only open able area shall be counted also no portion of a room assumed to be lighted if it is more than 75m away from openings for lighting and ventilations point of view should be not less than,

- 1/10 of floor area for dry hot climate
- 1/6 of the floor area for wet hot climates.

4.4.2 LIGHTING AND VENTILATION OF BATHROOMS AND W.C:

Bathrooms and water closets should be provided with natural light and permanent ventilations by one of the following means,

- Sky light may be provided which will provide light and ventilation as FN
- Windows having an area of not less than 10% of the floor area and located in an exterior wall facing a street, alley, yard, or an airshaft whose dimension in the direction perpendicular to the window is not less than one third the height of the building on which the window is located, subjected to a minimum limit of 1m and maximum 6m.

4.4.3 KITCHEN

Every kitchen should be ventilated according to standard prescribed for habitable room near ceiling as far as possible.

4.4.4 STAIR WAYS

Every stair case should be lighted and ventilated from an open-air space of not less than 3m depth measured horizontally in case of ground and upper floor structure. 4.5 in case of ground and two upper and in higher structure than this, the open-air space shall be not less than 1m per floor height. Every stair case should be ventilated properly.

4.4.5 BASEMENT AND CELLARS

Basement and rooms located there in expect storage room shall be lighted and ventilated by windows in exterior walls having a ventilating area of not less than 2.5% of floor area.

4.4.6 STORES, BACK ROOM

These will have at least half of ventilation required for living room. Where such by apertures in walls is not possible or advisable, at least there shall be ventilation by means of a flu or chimney.

4.5 BUILDING BYE LAWS BY -DAVANAGERE HARIHARA URBAN DEVELOPMENT AUTHORITY (DHUDA)

Sl.no	Depth of site in meters	Min. front in meters	Min.rear area in meters
1	Up to 10	1.00	1.00
2	Over 10 up to 13	1.50	1.00
3	Over 13 up to 13	1.75	1.25
4	Over 16 up to 19	2.00	1.50
5	Over 19 up to 22	2.50	1.75
6	Over 22 up to 25	3.50	2.00
7	Over 25 up to 28	4.00	2.25
8	Over 28 up to 31	5.00	2.75
9	Over 31 up to 37	5.75	3.50
10	Over 37 up to 45	9.00	4.00

TABLE 1: FRONT AND REAR SETBACKS FOR RESIDENTIAL BUILDING

Sl.no	Width of site in meters	Left setbacks in meter	Right setbacks in meter
1	Up to 7	-	1.00
2	Up to 7 to 10	1.00	1.00
3	Up to 10 to 13	1.00	1.50
4	Over 13 up to 16	1.25	2.50
5	Over 16 up to 19	1.50	3.00
6	Over 19 up to 22	2.00	3.00
7	Over 22 up to 25	2.50	3.50
8	Over 25 up to 28	3.00	4.00
9	over28upto31	3.75	5.00
10	Over 31	4.50	6.00

TABLE 2: SIDE SETBACKS FOR RESIDENTIAL BUILDINGS

SI.NO	Height of the building in meters	Exterior open spaces/ setbacks to be left on all sides (front, rear and sides) in meters
1	Above 10.00 up to 12.00	4.5
2	Above 12.00 up to 15.00	5.0
3	Above 15.00 up to 18.00	6.0
4	Above 18.00upto21.00	7.0
5	Above 21.00 up to 24.00	8.0
6	Above 24.00 up to 27.00	9.0
7	Above 27.00 up to 30.00	10.0
8	Above 30.00 up to 35.00	11.0
9	Above 35.00 up to 40.00	12.0.
10	Above 40.00 up to 45.00	13.0
11	Above 45.00 up to 50.00	14.0
12	Above 50.00	16.0

TABLE 3: EXTERIOR OPEN SPACES / SETBACKS FOR RESIDENTIAL, COMMERCIAL, PUBLIC AND SEMI-PUBLIC, TRAFFIC AND TRANSPORTATION, PUBLIC UTILITY ABOVE 10.00MTS IN HEIGHT

For residential sites up to 120sq m:

- Open stairs shall be permitted in the side setbacks , but there shall be a minimum open space of 0.50m from the boundary and1.0m from the front and rear boundary of site.
- Toilets minimum of 1m x 1.5m and not exceeding 1.4 percent of the plot urea permissible in rear set back only.
- Front and rear setbacks must be as per Table-1 and side setbacks as per Table-2 subject to limitations of coverage vide as per Tabc-4.
- Ground + one floor may be permissible FAR on buildings exits before this zoning regulation comes in to force.
- Steps may be permitted within the setback portions of sites of 9xl2mtrs (108 sq.mt) and 6x9mtrs (54 sq.mt).
- When minimum set back of 1.5mtrs is the right side, a scooter garage may be permitted at the back side limiting the depth of the garage to 3.0mtrs.

Plot area in sq.m	Max plot coverage	F.A .R	Max no of Floors	Max height in MTS	Road width in MTS
Up to 120	80%	1.25	G+1	7	Up to 6
Over 120 up to 240	75%	1.25	G+1	7	Over 9
Over 240 up to 500	70%	1.25	G+2	11	Over 12
Over 500 up to 750	65%	1.50	G+2	11	Over 12
Over 750 up to 1000	65%	1.50	G+3	15	Over 15
Over 1000	60%	1.75	G+3	15	Over 15

TABLE 4: MAXIMUM PLOT COVERAGE, FLOOR AREA RATIO, NUMBER OF FLOORS. FOR DIFFERENT SITE AREAS, AND ROAD WIDTH FOR RESIDENTIAL BUILDINGS.

4.6 CONSTRUCTION EXCLUDED FROM F.A.R COMPUTATION

The Following construction are excluded from FAR computation:

- Car parking.
- Lift floor area in all the floors.
- Architectural features.
- Chimneys.
- Overhead tanks with its headroom not exceeding 1.5m
- Fire escape staircase.
- Garbage shaft.
- Stairca.se floor area in all the floors.
- Escalators, ducts main sanitary duct, opening balcony, machine rooms.
- For the following constructions 10% of the total floor area in all the floors is excluded from the computation of FAR

a. Meter room
b. Air- conditioning plant
c. Electric sub- station
d. Pump room
e. Service ducts
f. Generator room
g. Watchman's booth
h. Lumber room
i. Swimming pool at any floor
j. Effluent treatment plant, parking under a building on sticker or in a basement or cellar floors

CHAPTER 05

THE PRINCIPLES OF PLANNING OF RESIDENTIAL BUILDING

The principles of planning arc as follow

- Aspect
- Prospect
- Furniture requirements
- Roominess
- Grouping
- Circulation
- Privacy
- Sanitation
- Elegance
- Economy
- Flexibility
- Practical considerations

5.1 PLANNING OF RESIDENIAL BUILDING

A residential building such as a bungalow or flat can be divided into three major area

- Living area
- Sleeping area
- Service area

5.1.1 LIVING AREA

This area is for general use. Hence the living and drawing room should be planned nearby entrance. It should be planned taking to view the following consideration,

- It should not provide direct passage/access to the bed room and WC or both.
- It should be adjacent the dining room.

- It should be comfortable and spacious in order to accommodate furniture and also allow proper circulation area.
- It should be sufficiently lighted and offered and attractive view of the surrounding landscape, garden, etc. It should have a southern and northern aspect.

5.1.2 SLEEPING AREA

This area provided bed rooms for sleeping and relaxing. Bed rooms may be with attached toilets i.e. bath and W,C their size depends upon the number of beds. They should be located so us to give privacy and should accommodate beds, easy care, cup boards etc. they should have a north-west or south-west aspect.

5.1.3 SERVICE AREA

This area includes the kitchen, dining room bath room W.C:

- **Kitchen:** It may be adjacent to the dining room or separate. It consists of a cooking area i.e., kitchen, oat sink, and cupboard: it should have an eastern north- eastern aspects.
- **Dining room:** This room may be attached to the living room or to the kitchen. It is a room in which meals are served. Kitchen activities should be screened from the dining area by means of cupboard or a screen. A service window may be provided between the kitchen and the dining room.
- **Bath and W.C:** It should be approachable from all the rooms. Dadoes or glazed tiles should be provided or otherwise walls should be finished with smooth waterproof cement. They should also be provided with the necessary fixtures. Size and type of W,C pans, wash basin electrical installations for hot water, planning fixtures, etc control the size of the bath room and W.C.

5.2 STANDARDS SPECIFIED BY BUILDING BYE-LAWS

Description	Minimum requirements
Plinth height	More than 300mm 450mm in General
Habitable rooms-area	9.54m^2
Only one room	2.4m minimum width
Two rooms	9.5m^2 minimum for one room 7.5m^2 for other rooms (with a minimum width of 2.4m)

TABLE 5: STANDARDS SPECIFIED BY BUILDING BYE-LAWS

Kitchen cum Store	5.5rrr with minimum width of kitchen 1.8m
Kitchen having a separate store	4.5m^2
Kitchen cum dining	9.5m^2 with minimum width 2.4m
Bath rooms	1.5m xl.2m or 1.8m^2
Combined bathroom and W.C	2.8m^2 mini floor area with a width 1.2m
Water closet	1.2m^2
Mezzanine floor area	9.5m^2 if it is to be used as a living room
Habitable rooms-height	2.75m
Habitable rooms if air conditioned	2.3m
For habitable rooms under row housing scheme	2.6m
For kitchen	2.75m
For bathroom and water closets	2.2m

TABLE 6: KITCHEN AND BATHROOM

For residential building	Rise 175mm to 185mmm Tread 250mm
For public building	Rise 150mm Tread 300mm
pitch	40 degree maximum 25 degree minimum
Lighting area	$1m^2$ per floor height
Head room	2.2m

TABLE 7: RISE AND TREAD

CHAPTER 6

CONCLUSION

- After completion of my internship, I had been exposed to a Civil Construction working life. Throughout my internship, I could understand more about the definition of a Civil Engineering Construction prepare myself to become a responsible and innovative construction technique in future.
- Through the section I have studied about the constructing different elements of multistoried building.
- Along my training period, I realize that observation is a main element to find out the root cause of a problem.
- The project helped us to learn independently, communication skills, discipline myself, be considered/patient, self-trust and take imitative and the ability to solve problems got an exposure to the real Civil Engineering field, different construction practices and effective method.