



INTERNATIONAL
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Scribd Impact Factor :4.7317, Academia Impact Factor :1.1610

Analysis and Design of Hostel Building with Special Reference to Krishnagiri

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Abstract

This Article Presents the Functional Planning, Structural, design and estimate of “hostel building” The proposed building to be constructed nearby krishnagiri. There is no in that zone. So it is planned to construct the proposed building nearby in krishnagiri. The plinth area of the proposed building is 2460 m²The plinth area rate of the building is 11000/m²The approximate building cost is R.s. 1,02,3 0,000/-The building consists of the following Mess hall, Warden room, Kitchen,. Games zones, Toilet, Conference hall, Bath rooms, Rooms, Gym, Staircase, Store room,. Canteen. As per NBC recommends water supply and sanitary arrangements has been provided at required places for effective use of rain water harvesting structure and recycling the water is also included in this article the guide lines are taken from IS 456-2000 and limit state method of design is going to be adopted. The rates are taken from the current schedule of rates for the year 2016-2017. Located at Krishnagiri district.

Key words Structural, proposed, Rooms, recycling



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1. Introduction

1. General

The report is based on limit state design concept, plan design and estimation for the proposed "HOSTEL BUILDING". The proposed project site is located at Krishnagiri. The total plot area of the site is 600 sq.m. The plinth area of proposed site is 300 sq.m. The proposed construction consists of gold and silver shop and show rooms safe room and rest room are provided. The plinth level super structure will be in brick work with cm 1:6 floor and roof slab is reinforced cement concrete M₂₀. Doors and window are made of salare provided with suitable size with all fittings.

All joints are polished with good quality at polish color washing has been done on walls inside and outside of all building over a coat white washing. Concrete is the most commonly used building material. It has the advantage of being formed into any desired shape most conveniently.

It is an artificial stone obtained by mixing coarse aggregate and fine aggregate 43 grade cement and water and allowing the product to cure for hardening. It essential ingredients are cements and water, which react with each other chemically, to form another material having useful strength. The strength of concrete depends upon the quality of its ingredients, their relative quantities and the manner in which they are mixed, compacted and cured. It is possible to produce concrete of different specification for various purposes by suitably adjusting the proportions of cement, aggregate and water.

1.2 specification report

Nature of work:



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Proposed constructions of a hostel building at Krishnagiri district.

Excavation:

Earth work excavations after Clearing the site and setting out the excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawing or as directed. The contractor shall do the necessary shoring and shutting or providing necessary slopes to safe angle, at his own cost. The payment of such precautionary measures shall be paid separately if not specified.

The bottom of the excavated area shall be leveled both longitudinally and transversely as directed by removing and watering as required. No earth filling will be allowed for bringing it to level, if by mistake or any other reasons excavation is made deeper or wider than shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of contractor. The excavation up to 1.5 m depth shall be measured under this item

Cleaning the site:

The proposed area is to be cleaned of all obstructions, loose stones, plants, trees, materials, rubbish of all kind as well as roots of trees, etc. Entirely rubbed out

Leveling of site:

After cleaning the site should be leveled properly before commencing the earth work excavation

Earth work excavation

After cleaning site centerlines and foundation for excavation marked. The depth of excavation is 1.5m below ground level. The safe bearing capacity of soil is 200 kN/m²

Foundation



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For foundations isolated footings for each column are provided the ratio of cement concrete is 1:2:4

Basement filling

1m above ground level with brick masonry is cement mortar 1:5 with RCC pillar provided. The basement will be filled with river sand.

Damp proof course

The damp proof course shall be with cement 1:3, 20mm thick and mixed with crude oil 5% by the weight of cement wed

Flooring

Provide cement of 1:4:8 main for flooring to a depth of comma with is cement mortar of 1:3,20mm thick and finished cement ratio

Foundation concrete

Concrete with hard broken granite jelly using 40mm size in C.C 1:4:8 for foundation including dewatering wherever necessary. The depth of concrete is 0.2m and the width of concrete is 0.9m.

Footing

Brick work masonry in CM 1:6 for one footing 0.6m width and 0.4m depth.

Basement

The basement will be constructed with brick work in CM 1:5 to a depth of 0.6m and width is 0.3m.

Sand filling in basement

The basement is filled by river sand to a depth of 0.45m in three equally



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compacted layers and consolidated by using hand hammers.

Super structure

All main walls will be in brick work in CM 1:5 using first class bricks 0.2m thick. The height of the main walls in the buildings will be 3.35m above floor level to roof level. The parapet walls will be 0.2m thick and 0.6m height over the main walls. The partition walls in between W.C and bath will be 100mm thick in brick work in CM1:3.

RCC beam

The RCC beam size 300x500 is to be provided in longer span of the slab and the beam size 300x400 is to be provided in shorter span of the slab. The cement concrete used is RCC beam is 1:1.5:3 and the reinforcement is provided as per the structural.

RCC column

The RCC column of size 230x230mm will be provided and the reinforcement is to be provided as per the structural. The RCC 1:1.5:3 concrete and 20mm size broken stone used.

R.C.C. roofing

RCC slabs 1:1.5:3 using 20mm size broken stone to a thickness of 170mm and the bath room slab will be 220mm thick. The reinforcement will be provided as per the structural design. Head room is to be provided over the stair case portion.

weathering course

Weathering course is laid with brick jelly lime concrete of 75mm thick using 20mm size brick and over that a course of flat tiles set in CM 1:3 mixed with crude oil will be provided over the slab.



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Lintel

All internal wall openings will be provided R.C.C lintel 1:1.5:3mix And 200mmthick.

Steps

Steps will be in brick work in cement mortar 1:6. The C.C 1:4:8 in steps 1.5m wide and 150mm thick.

Plastering

All the walls including basement will be plastered smooth with cement mortar 1:4 both externally and internally 12.5 thick and ceiling plastered with CM 1:3,10mm thick.

White washing

The plastered surface to be white washed with shell lime of two coats as per standard specifications.

color washing

The white washed surface of all walls to be color washed as per standard specifications.

Water supply arrangement

The average requirement of water is 350 lit/head/day. To satisfy this overhead tank is provided near the building. The capacity of tank is 64.2m³for internal water supply distribution 20mm PVC or used. A necessary provision has made for the water.

Sanitary arrangement

The sewage from the complex is carried and disposed to the common septic tank. 230mm dia stone ware pipes laid at gradient of 1 in 150 with manholes appropriate phase



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50mm dia the septic tank is design taking into account that 40% of the water used comes to the water.

Drainage facilities

The waste water from the toilet, bathrooms and wash basin and though drains to the gardens 100m dia AC rain water are provided to drain out the rain from roof the drains.

Electrical installation

It include all the electrical wiring accessories, fitting, consuming device control and protection gears and all other accessories associated with the wiring situated on any premises. All material, fitting appliances Etc. Confirming to port VNBC (building material 0 are used in electrical installation necessary earth leakage circuit breaker is provided and ground cables are used for getting service connection from TNEB.

Fire alarm

In this hostel building is provided with fully automatic fire alarms and emergency water services in case of catching fire. The automatic alarms system as also included with local fire service station.

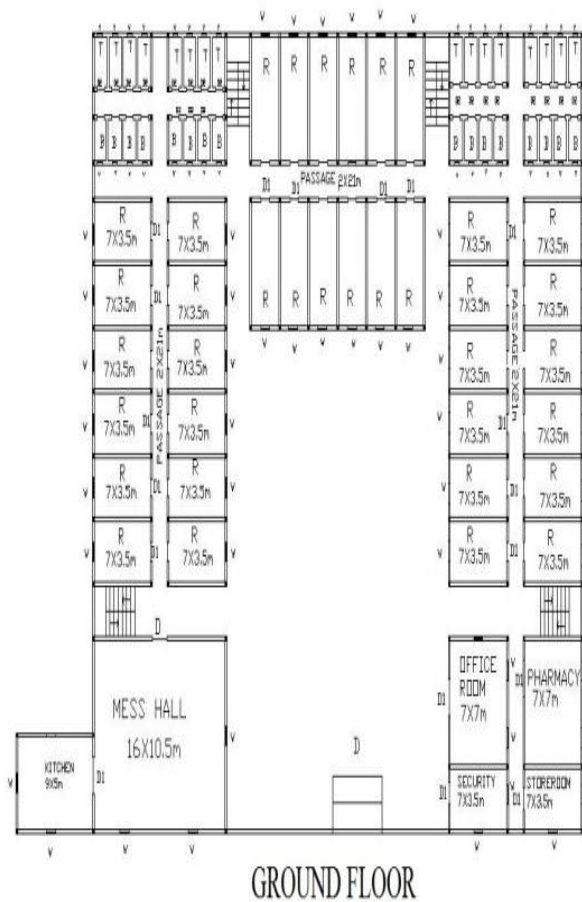
Plan of building



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| REFERENCE DETAILS | |
|-------------------|------------|
| D | 2.5x2.0m |
| D1 | 1.2x2.0m |
| W | 1.1x2.0m |
| V | 0.6x0.6m |
| B | 1.75x2.75m |
| T | 1.75x2.75m |

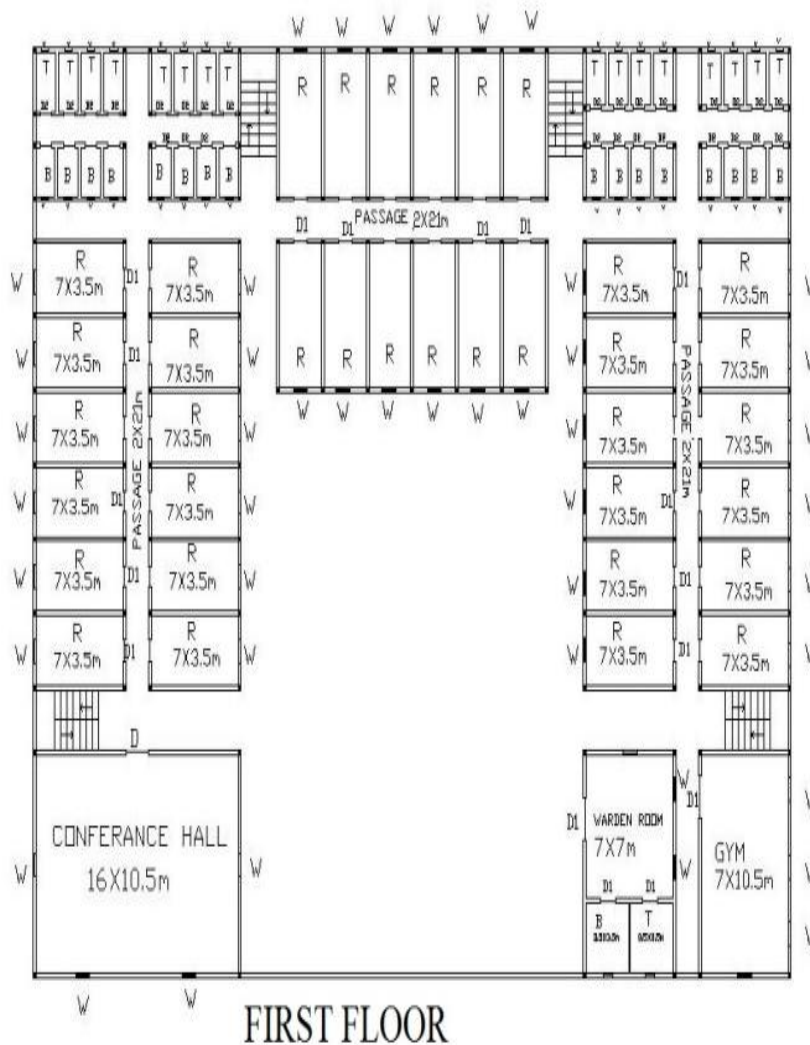
Figure-1.1 ground floor plan



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1.2 first floor plan



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3. CONCLUSION

By completing this project, we have acquired an idea of planning building, Structural drawings, bar bending schedule and their sources of materials. We also come to know about the way of approaching offers for various types of works. The project provides us a good theoretical and practical knowledge. This will be useful for our future, by means of this project. The current rates of the materials, labour and the rate of wood work, painting, white washing and other items of building were known. Further, we have acquired knowledge of Items of working, preparation of book and presenting it in an efficient manner. We have planned the Hostel building as per the minimum requirements of National Building Code. Analyzing and Designing for Slab, Footing and Staircase are designed manually. We make the structural design drawing all are in Autocad. Finally we have gained the basic experience and difficulties in Planning, Analyzing and Designing of a Building.

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Impact Factor: 2.9463

INTERNATIONAL JOURNAL OF RESEARCH REVIEW IN ENGINEERING AND MANAGEMENT (IJRREM)

Tamilnadu-636121, India

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