PRACTICAL TRAINING REPORT

Submitted by

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B.ARCH, 8TH SEMESTER
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Creative Design Group

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FIRM OVERVIEW

Creative Design Group is an architectural firm located at Bhubaneswar, Orissa. It was established on 1st August 1993. It provides services in Architecture, Interior design, Master Planning & Facilities programming.

Its experience includes Hotels, Resorts, Office buildings, Retail Centers and Residential developments. Design commissions have been awarded to the firm in Orissa, West Bengal, Assam, Andhra Pradesh, Bihar and Uttaranchal.

Its experience includes:

- Hospitality: Fourteen Hotels with a total of over 700 rooms, including hotels in Darjeeling, Dibrugarh.
- Residential /Housing: Over Twelve apartment and condominium projects with total of over 2500 living units.
- Retail/Commercial: Over 5, 00,000 sft. Retail /commercial space.
- Interior Design: Over 2, 00,000 sft. of interior design for prestigious Hotels, Restaurants, Retail Spaces and Offices.

Creative Design Group has a staff of 12 professionals equipped with state of art communication and computer systems based in Bhubaneswar. We provide support for projects through out Eastern India.

The many longstanding relationships it has developed with the clients reflect its commitment to quality design and responsive service. The design approach incorporates high standards for quality, technical competence and cost control. The design style is versatile and diverse, reflecting its ability to respond to the unique objectives and architectural context of each individual project. It has dedicated to maintain a high level of professional service and a spirit of cooperation. This dedication, coupled with a philosophy that views the client's needs as a creative challenge, enables it to provide quality service for the clients, while producing exemplary design results.

PRACTICAL TRAINING CERTIFICATE

This is to certify that **Mr. Kiriti Sahoo**; (Roll no.Ar10013) underwent **Practical Training** from **1st Dec. '2003 to 30th April '2004** at our firm. He has completed his training with utmost dedication and sincerity.

We wish him all the best for his future endeavours.

Place: Bhubaneswar
Date: 3rd May 2004

CREATIVE DESIGN GROUP

ACKNOWLEDGEMENT

With the completion of the 6 months long training my experience with firm was excellent.

The task of undertaking the training travelled through a dynamic experience. With the constant guidance, valuable suggestions, timely help and heart warming encouragement rendered to me by Ar.Rajan Saklani, chief architect, **M/S Creative Design Group** along with all other members the firm served as an excellent learning platform.

In course of the training I came through the working pattern of the office along with professionalism. also the basic practical experience at the site helped a lot .Design methods, different construction methods ,basic details of the building elements and on-site experience are to name a few to which I was exposed to. Along with it the firm gave me enough opportunities and encouragement to think independently about the design solutions.

I would like to express my deepest sense of gratitude to the whole team of **M/S Creative Design Group**- Ar.Rajan Saklani, Ar.Amulya Kumar Panda, Ar.Subhasish Hota, Ar.Manas Misra, Ar.Pravati Mallick, Ar.Krishnendu Nandy, Ar.Mrutyunjaya Panda, Ar.Kaushik Samal and Mr. Benudhar Behera.

I would also like to thank Mr. Rabi Chandra Pradhan and Mr. Nilambar Kanhar for their valuable help they have rendered throughout the training process.

I would like to express my thanks to all those people who directly or indirectly supported me throughout my term for the training.

Above all I want to thank the **Department of Architecture, National Institute of Technology Tiruchirappalli** for giving me the opportunity for the practical training.

Place: Bhubaneswar **Signature**

Date: 3rd May'2004 **(KIRITI SAHOO)**

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PROJECT DETAILS

1. **NAME:** **GUEST HOUSE**
   NATURE: **HOLIDAY HOME**
   CLIENT: **WEST BENGAL FISHERMEN'S COOPERATIVE FEDERATION LTD. (BENFISH)**
   PLACE: **PURI**
   PORJECT BRIEF: **It is a guest house for the staff of BENFISH, a Holiday home**

   Basement floor: **2922 SFT**
   Ground floor: **2800 SFT**
   First floor: **2800 SFT**
   STAGE OF WORK: **approval stage.**

DETAILS OF WORK DONE

- **Assisted in the preparation of approval drawing**

EXPERIENCE GAINED

- Always study the approval drawing of a particular place for which the approval drawing is done.
- Study all the byelaws also.
- The site should be shown with inspection chambers and connections to it from the toilets, kitchen and the utility area along with septic tank detail, dimensions and the ground floor plan. the offset from the site line should be shown.
- Schedules of the doors and windows should be shown.
- The area statement should be shown. With the foundation detail.
- For area calculations the area of the ducts, open staircases, corridors are not taken into consideration.
- No furniture should be shown.
- Height of each floor should be shown in the sections.
-

- **Assisted in the preparation of working drawing**

- My assignment was to make the working drawing of the guest house.
- Working details of the wall was done.
- The elevation was made with frames and beams.
- Then elevations of each side were worked according to the plan.
- The slope roof was given with frame coming in the front. The slope roof was given which was according to the bye law of Puri.
- The frames given were projected 2ft from the wall primarily to avoid sun-shades and add interest to the elevation.
- To increase the verticality two false pillars were projected touching the roof.
- The detail of the sloping roof was worked out.
- The railing was designed for the balcony.

- The door and window details were worked out.
- The toilets details including flooring and the tiling of the wall were also worked out.

EXPERIENCE GAINED

- The outer side of the wall plaster thickness should be ¾" and in the interior it should be ½"
- If the interior is toilet then the wall should be done with double plaster and one layer of tile. the outermost tile should be ¼"and plaster should be ½" .The rest of the layer will vary from ½" to ¾"
- If a frame elevation is given then it should have functionality behind it and must enclose some view if looked from inside the house and outside the house.
- The height of the balcony railing should be minimum 2'9"
- At Puri the use of mild steel for the railing will not work as it will corrode. But with the use of the stainless steel the problem can be solved.
- Blank wall should be treated such that it should go with the elevation.
- Wastage should be reduced while doing tiling of the wall and flooring.

2. **NAME:** **RESIDENCE-I**
NATURE: **RESIDENTIAL**
CLIENT: **MR. NAZRUL HASNAIN**
PLACE: **BILASPUR**
PORJECT BRIEF: **It's a duplex with 4 bedroom unit cum office with 4188.41 SFT of total built up area.**
STAGE OF WORK: **approval stage**

DETAILS OF WORK DONE

- **Assisted In The Preparation Of Approval Drawing**

  - Three different levels were created in the terrace levels. This level was created because of the cut-outs and double heights of the living rooms.
  - First the roof level plan was developed with the help of the levels given in the plan.
  - The headroom minimum height should be 7'0" clear.
  - The section was also taken through the swimming pool mentioning the depth.
  - All the sectional details were provided.
  - The schedule of the door and windows were given.
  - Area statement was given.
  - The foundation details and the septic tank details along with drain detail were given.

  EXPERIENCE GAINED

  - Learnt about the site with multi levels.
  - The brick parapet should be given with 10"thickness and 2'9" height.
  - All the floor heights, beam depths, slab lines, lintel levels and sill levels should be marked properly.
  - All the cut outs should be shown with heights.
  - The sections should be shown with toilets and staircase cut sections.
  - All the doors and windows should be marked correctly.
  - All the dimensions should be given in the plans, sections and site layout.
  - Site offsets, septic tanks, drain details and the drain line should be given.

3. NAME: **SWAPNAPURI APARTMENT**
NATURE: **HOUSING**
CLIENT: **M/S VERSATILE CONSTRUCTIONS PVT.LTD**
PLACE: **BHUBANESWAR**
PROJECT BRIEF: **It is basically an apartment consisting of 16 units with 3 bedroom unit.**
STAGE OF WORK: construction in progress

DETAILS OF WORK DONE

- Assisted in the preparation of sectional elevation drawings.
  - Total of five sectional elevation drawings was made for the project.
  - The sections were taken through the duct and toilet of the apartment.

EXPERIENCE GAINED

  - Learnt about the sectional elevation details.

4. NAME: FORUM MART
NATURE: SHOPPING CUM OFFICE
CLIENT: MR. HARBIR SINGH AND M/s RAHUL & CO.
PLACE: BHUBANESWAR
PROJECT BRIEF: it's a shopping cum office building with total built up area of 197000SFT.
STAGE OF WORK: Phase 2 completed.

DETAILS OF WORK DONE

- **Went for site visits: a total of 19 site visits were done for the project with the concerned architect. Following are the observations and inferences drawn from it.**

Lighting

- The lighting arrangement was going on.
- No. of lights for the front façade was discussed.
- Planning of Design of the fixtures which is to be given in the plaza for façade lighting. This was around 7'to 8' in height.
- No. of light to be fixed in the geodesic dome was discussed.
- The parking lights were discussed with IP 67 specification.
- There was a discussion with the architect regarding the fixing of the lights in the tubular girder coming in the atrium.
- There was a discussion regarding the light fittings that are coming in the plaza area.
- The fixtures for each side of the complex for façade treatment were discussed with the consultant.

EXPERIENCE GAINED

- Learnt about the IP67 specification of lights which covers the following criteria—they are water proof.
- All the external lights which are exposed to the outer weather should come under IP67 specification.
- Came to know about the fixing of the light fixtures in the tubular girder.
- Three principles govern the lighting of a particular space. they
- Are----colour temperature property
  Colour rendering intensity
  Flux
- These three decides the overall intensity of the lighting in the façade.
- Lighting should be arranged in such a manner that no shadow of the surrounding object should fall on the building.
- Basic methods of lighting---its direction, intensity, colour and wattage.

- Showing details through lighting.
- Light and shadow effects of artificial lighting.
- Details for concealing the light.
- Lighting the plaza area with the help of curved fixtures.

Flooring and tiling

- The flooring details were discussed where it is done with tiles.
- Fixing of the stone and tiles in the lift lobby
- A detail of the footpath was worked out.
- The pattern of detail of tiling was also discussed,
- Observed the v-groves that were coming in the stones in the atrium flooring.
- Using plastic spacer the flooring was done with stone in the plaza area.
- With the help of silicon or epoxy materials the joints are filled .epoxy material gives the strength to the joints.
- The radial layout of the atrium stones was going on in a step by step manner. the radial measurements were taken from the centre of the atrium
- Stone layout was going on keeping in mind the grains of the stone coming in that.
- To fit the radial geometry the grains had to align in the radial fashion parallel to the radial lines.
- For the working out the drainage of the road section detail was taken.
- Wall stone tiling going in the first floor corridor was reviewed.
- When the stone is laid in a given plane or slab the first stone should be in the water level. Then the other stones are laid with the same level.
- The stones were given finishing touch with the help of stone rubbing compound and acid.
- Saw the method of radial layout.
- The atrium tiling was started with grouting by epoxy based filler.
- One must ensure that if the grouting is done then 24 hours is needed for drying it up.
- Process of epoxy based filler grouting was studied.

EXPERIENCE GAINED

- Details of the footpath
- Details of stone laying in plaza.
- V-grooving techniques and its applications.
- V-grooving is done to avoid the ragged finish of the cut stone especially when the stone is soft.
- Knowing about epoxy materials and its applications. Epoxy is a filler material which is hard and used as an adhesive.
- Spacers are separators which are used to give spacing between the stones while laying is done.
- Joining technique of stone slabs.
- The concept of levelling of the stone while flooring is done.

- When the silicon grouting is done the waste mortar must be cleared. Then the silicon is applied to that. When it is done it should be cleaned with a cloth so that the stains are removed.
- Then it is left for 24 hours drying.

Finish

- There was a discussion regarding the textured finish (called bubble finish)given to the steel columns in the atrium and the ramp beams
- First the paint is applied on the surface with a brush .then the colour is sprayed with a gun over that for second application and left for drying. Graphite is applied over the finish give a two tone grey finish to the application. To ensure good textures the gun should be nearer the surface.
- The columns present in the atrium were given the rustic textured finish. In this particular finish the colour is spread over by a wooden leveller and given a circular motion. The marble granules present in that moves through the paint and create texture.
- The entrance framework was designed to take the support of entrance glazing. To get smooth finish they have to be first polished with emery paper. After that putty is applied to fill the fin recesses in the members. They were painted with enamel based.

EXPERIENCE GAINED

- For thick application of colours roller is used.
- For the thin application of colours brush strokes are used.
- Learnt about the textured finish coming in the steel columns.
- Learnt about the controlling of the gun while doing the textured finish
- Learnt about the concept of rustic finish
- Making enamel finish on the steel columns.

Fixing

- Came to know about the tubular girder and its support with the help of the columns.
- Discussion regarding the fixing of the railing in the atrium with the help of grouting.
- The entrance area was given the structural glazing with the help of spider fittings.
- Spider fittings are considered to the best in the structural stability to hold the glass according to situation when large glasses are used.
- Special signage in the shops.
- Details and function of the spider fittings.

EXPERIENCE GAINED

- Design of the railings and its functionality.
- There was a discussion regarding the structural glazing of the front.
- Structural glazing details.
- Whenever any railing is fixed then the slab has to be cut and the railing is inserted inside it and fresh concrete is poured into the slab. This process is called grouting.
- When any railing is fixed on slab or beams the fixing points are marked starting from the centre and equal offsets are taken on each side.
- Learnt about the fixing of ducts from the false ceiling.
- Saw the methods of railing alignment.
- Joining of steel columns and support joints for the polycarbonate frame.
- Fibre reinforced plastic (FRP) concrete provides an alternative to steel reinforced concrete. It overcomes corrosion problems, possesses high strength and low stiffness and cracks in the matrix are not detrimental. While more expensive in most cases, it can be justified under special circumstances.

- **Fibre Reinforced Plastic Reinforced Concrete**
- Now, the latest idea is to replace the steel with fibre reinforced plastics (FRPs). These materials, which consist of glass, carbon or aramid fibres set in a suitable resin to form a rod or grid, are well accepted in the aerospace and automotive industries and should provide highly durable concrete reinforcement. The durability is a function of both the resin and the fibre, while the amount and type of fibre are keys to determining the mechanical properties of FRPs. The strength of FRP reinforcement tends to be between that of high yield reinforcing steel and prestressing strand - about 1000 MNm-2 for glass fibres and 1500 MNm-2 for carbon fibres. However, the stiffness is generally much lower - about 45 GNm-2 for glass fibres and 150 GNm-2 for carbon fibres. All FRP materials have a straight line response to failure with no plasticity.

- **Manufacturing and Limitations of FRP Reinforcing Elements**
  FRP reinforcing rods are normally made by pultrusion. One limitation of this method is that thermoset resins are generally used and so once the material is fully cured, the rods cannot be bent into the range of shapes currently possible 'specials'. Spiral reinforcement, both circular and rectangular, is being produced by several Japanese manufacturers, as are two- and three-dimensional grids. Other techniques are being developed in which resin-impregnated fibres are wound onto mandrels to produce closed shapes, such as shear links. As alternative, thermoplastic resins are being developed that would allow the fully cured material to be warmed and bent to shape. However this is likely to give weaker reinforcement where the bar is bent due to misalignment of the fibres.

Miscellaneous:

- The layout for the brickwork for the seating was constructed in the atrium.

- The layout for the brickwork for the seating was constructed in the atrium.
- To supply the required electricity to the mall planning for the power lines were discussed with electrical consultant. The underground electrical lines is always costlier than the above the ground connections.

EXPERIENCE GAINED

- When the cross section of the a/c duct is worked out then the area of the cross section is very much important
- The ratio of the length to breadth shouldn't be greater than 4:1
- The increasing of the length will increase the air velocity in the duct causing vibration and instability.
- There was a discussion regarding the level difference in the front part of the mall.
- The staircase lobby had the problem with the level of landing.
- Came to know bout the step by step working of the brick layout to be done in the atrium.
- Details of the planter section.

- **Assisted in the preparation of final approval drawings**

  - The given task was basically to make the final approval drawing and submitting to the BDA. After the final changes were made to the structures.
  - The FAR=total floor area/plot area

EXPERIENCE GAINED

- Different rules and regulations that are attached to the BDA and rules of approval drawings that are attached to the commercial complexes.
- Area calculations of each floor.
- Sectional drawing standards.
- Every possible detail should be given in the approval drawing.

5. **NAME:** **RESIDENCE-II**
NATURE: **RESIDENTIAL PROJECT**
CLIENT: **MR.RAGHURAM PATRA**
PLACE: **BHUBANESWAR**
PROJECT BRIEF: **It Is a 3-Bedroom Unit Residence**
Ground floor: **2000 SFT**
first floor: **2000 SFT**
Second floor: **1000 SFT**
STAGE OF WORK: **construction in progress**

DETAILS OF THE WORK DONE

- **Assisted in the preparation of electrical drawing layout**.
    - The electrical drawing was made for the ground floor and the first floor.
    - In the electrical drawing layout drawings the furniture layout was taken into account.
    - According to that the lighting fixtures were arranged for type of functions that is taking place at that space.
    - Different kind of light fixtures and respectively different switches were also given.
    - In the process the heights of the light fixtures and the different switch boards were also taken into consideration
    - The switch modules were calculated from the use of the switches in the board.
    - Every height of the electrical fixtures was taken.
    - The no. of switch boards was calculated.
    - The legend of the electrical layout was given.

EXPERIENCE GAINED

- The no. of sockets that were given for the types of fixtures used.
  A/C unit – 20A socket + 20A switch.
  Geyser unit – 15A socket+15 A switches
  Refrigerator - 5A socket+5 A switches
  Computer - 5A socket+5 A switches
  Printer - 15A socket+15 A switches
  Electric chimney - 15A socket+15 A switches
- modules used for the electrical furnishing
  1 switch = 1 module
  1 plug = 2 module
  1 fan regulator = 2 module(bigger unit)
  = 1 module(smaller unit)

1 telephone outlet = 1 module
1 antenna outlet = 1 module

- types of switches
  two way switch = controls the same fixture from two
  different points
- other switches are 5A switch,15A switch,20 A switch, push bell switch
- types of sockets
  5A plug, 15A plug and 20A plug.
- Rate charts of the different brands of electrical fixtures.
  Dealings and talks with the client.

- **Assisted in the preparation of door and window detailing.**

  - the door detailing was done according to the size of the window that is given in the plan.
  - Basically the wooden working detail was done.
  - The cut sections of the moulding and the details were given.
  - The joinery details, the filing of the glass, shutter and the main frame and the fixing details were given.
  - The height and width of the glass in the elevation and sections were worked out.
  - The type of hinge and joints were also given.
  - Where there are larger size windows, the middle shutter was made fixed and the side windows were made open able.

EXPERIENCE GAINED

- The door detailing should be done after finalizing the elevation.
- Learnt about the window main frame details and about the shutters (he details of the stiles and the joinery.
- Learnt about the dimensions of each element and the joinery details going to it.
- Large shutters should be avoided as it induces self weight which increases the chance of the hinges to fail.
- Cover moulding should be given in the windows to cover the joining line of the plaster and wood (main frame) and make the overall appearance as straight.
- Moulding with groves should be given in the joining so that the crack that comes in the plaster-wood joining will not appear.
- Came to know about the friction hinge given in windows.

6. NAME: RESIDENCE-III
NATURE: HOUSING
CLIENT: MR. RABINDRA NARAYAN SENAPATI
PLACE: BHUBANESWAR
PROJECT BRIEF: It is 3 bedroom units duplex with total built up area Of 2400 SFT.
STAGE OF WORK: construction in progress

DETAILS OF WORK DONE

- **Assisted in the preparation of electrical drawing layout.**
    - The method followed was same as in the previous project

EXPERIENCE GAINED

- Same type of experience as the previous project
- It was a type of practice for me.

7. NAME: **RESIDENCE BUNGALOW**
NATURE: **RESIDENTIAL**
CLIENT: **MR. PRADEEP BAGRI.**
PLACE: **BHUBANESWAR**
PROJECT BRIEF: **It is basically a residential a neoclassical renaissance residential bungalow.**
Ground floor with 10000SFT area. It has 4 bedrooms along with family living, gymnasium etc.
STAGE OF WORK: construction in progress

DETAILS OF WORK DONE

- **assisted in the preparation of electrical drawing layout**
    - The method followed was same as in the previous project

EXPERIENCE GAINED

- Same type of experience as the previous project
- It was a type of practice for me.

8. NAME: RESIDENCE –IV
NATURE: RESIDENTIAL
CLIENT: MR.B.C.PANDA
PLACE: BHUBANESWAR
PROJECT BRIEF: It is basically a residential project with ground floor as simplex and upper floor as 3 bedroom duplex
STAGE OF WORK: conceptual drawings

DETAILS OF WORK DONE

- **designing of the proposed residence**
    - The byelaws of the Bhubaneswar were studied in detail.
    - The offset rule was first checked according to the whole site.
    - The area of the plot was 21780 SFT. The existing plot was divided into 3 parts.
    - Ground coverage was 50%.
    - Taking consideration of the future developments the setback rules were taken individually of the plot divisions.
    - Requirement of the project was to design a residence with ground floor as 2 simplex and the first floor and the second floor as a duplex.
    - The two simplex units----- each include 2 bedrooms with attached toilet, 1 common toilet, a staircase to access the upper floor and a drawing cum dining hall and a kitchen.
    - A common parking area with 3 cars.
    - The upper floors had the following requirements. They are: three bedrooms, a kitchen, puja, utility, family lounge, formal living and dining.

EXPERIENCE GAINED

- All the rules of the byelaws should be studied in detail.
- In any furniture arrangement the circulation should be considered to minimize the wastage of area.
- Square pattern of the rooms increases the negative spaces.
- Rectangular rooms increase the efficiency of the rooms.
- Lobby helps in creation of a transition space before entering living room.
- Various options for the staircase positions were tried out.
- Always try to avoid the formal living to be attached to the bedroom. This will create problem in privacy.
- Creation of double height in the residence gives the possibility of flowing of spaces and brings in light.
- The access of terraces from the inside rooms and their interconnectivity was studied.
- Multileveled terraces give us the options of the terrace gardens.

9. NAME: **RESIDENCE -V**
NATURE: **RESIDENTIAL**
CLIENT: **MR.MANJIT SINGH**
PLACE: **BHUBANESWAR**
PROJECT BRIEF: **It is a residential building and a ground plus duplex**
STAGE OF WORK: **construction in progress**

DETAILS OF WORK DONE

- **Preparation Of 3d Simulation Drawing For The Conceptual Elevation**

  - The levels of the house were first checked from the elevation.
  - The floor height was studied properly.
  - There were four columns that were present on the front.
  - First the walls were shown in the punctuated position.
  - The size of the windows was worked out with the given dimensions.
  - The projected rooms of the left side and the rear side were checked for their projections.
  - An option with exposed brick work was also tried out in the wall with terracotta tiles.
  - With terracotta colour a bit of off-white colour also goes with the overall composition.
  - Bumping of bitmap helps in elevating a surface and repressing an element.

EXPERIENCE GAINED

  - Never give any details which are not visible to outside.
  - Always work out the full elevation of the wall and extrude the surface from it.
  - The background colour should be contrasting in order make the elements appear distinct on the front.
  - Angular views are desired in order to see the light and shadow effect properly.
  - The colours were chosen such that each colour is compatible with each other.
  - Adding bit of grey tone to the colours makes it appear bit dull which sometime helps.

- **Assisted in the preparation of working drawing**

  - The purpose of the working drawing was to finalise the column positions in the foundation layout.
  - All the centre lines of the columns and the walls were given and the plan was aligned to the centre line.
  - All columns were of RCC except for the non load bearing columns which are made of reinforced brick work.

- To visualise the room interiors and the slab thickness, the sections were worked out.
- After this the foundation layout drawings were made.
- The drawing shows the footing and the columns along with all the wall thicknesses and the centre lines passing through it.
- The foundation pit/excavation lines were also shown which will guide the contractor at the site to carry out the excavation work.
- The foundation layout work was done according to the drawing.

EXPERIENCE GAINED

- At the cut outs the slab should be given with inverted beams.
- The terrace level should always be at a lower level to avoid water entering the adjoining rooms.
- All the excavation lives were given as 4ft width.
- The footings were of two types with 3inch clear distance on all sides.
- The method of foundation layout.
- The site dimensions were checked first.
- Reference lines are marked 5 inch inside the site line.
- The four corners of the site were marked with pegs. are marked or their 90 With the help of principles of Pythagorean triplet the right angle conditions of the site corners was checked.
- Along the reference lines the centre lines are marked on four sides.
- After that the foundation pits of the wall and the columns are marked.

10. NAME: **COMMERCIAL COMPLEX**
NATURE: **COMMERCIAL**
CLIENT: **MR.SATPAL SINGH**
PLACE: **BHUBANESWAR**
PORJECT BRIEF: **it's a hotel cum shopping complex with 85000 SFT of built up area.**
STAGE OF WORK: **construction in progress**

DETAILS OF WORK DONE

- **Assisted In The Site Layout At Site**

  - With the help of the theodulite the level of the site was taken.
  - The steps that were taken or the site layout are---
  - The theodulite was first levelled with the ground
  - 5-6 directions were taken to maintain the level.
  - With the measuring bar which has the vertical heights in 10 cm difference vertical heights or the levels were taken.
  - The reference point was taken from an origin .the height here was taken as instrument height.
  - Then the height or level of the ground was marked with 50' interval.
  - If the abutting main road is there then the zero level should be taken from the middle of the road.
  - The station point or the point where the instrument was kept was made the reference point.
  - The level was taken as 1.55m at this zero level.
  - The abutting road mid point was taken s the zero level.
  - All the levels less than 1.55m were positive and all the levels greater than 1.55m was made negative.
  - Then all the dimensions other than this were subtracted from the reading at zero level point.

EXPERIENCE GAINED

- Learnt about the site layout practically.
- Handling of the instrument and markings made at the site.
- Different precautions to be taken at the site to make the correct measurements.
- The measurement must be marked with pegs.
- The level marking was done in order to know the average height of the site.
- The deepest and the highest points, the zero level point and the instrument standing or the reference point were the most important point.

11. NAME: **HEAD OFFICE FOR M/s. M.G.MOHANTY**
NATURE: **INTERIOR**
CLIENT: **M/s M.G.MOHANTY**
PLACE: **BHUBANESWAR**
PROJECT BRIEF: **It's A Corporate Office for M/s M.G.Mohanty**
STAGE OF WORK: **interior works in progress**

DETAILS OF THE WORK DONE

- **Assisted in the preparation of 3d simulation**

  - The working of the 3d simulation drawing was studied in detail.
  - The plan of the building was studied in detail.
  - The slope of the roof, false ceiling and the profile were studied properly.
  - The false ceiling was very complex in design because it had slope in two directions.
  - The partitions were made with angular shapes of 3"thickness
  - The height of the partitions varied between 4'6" and 3'.
  - One of the walls was treated with curve wall cladding of laminates.

EXPERIENCE GAINED

- Heights of the partitions.
- Type of wall treatment done with wooden cladding.

12. NAME: PROPOSED TELCO SHOWROOM
NATURE: COMMERCIAL
CLIENT: M/S TRUPTI MOTORS
PLACE: BHUBANESWAR
PROJECT BRIEF: It Is Basically The Authorized Showroom And Service Centre For Tata Motors For Light Vehicles.
STAGE OF WORK: Conceptual Drawings

DETAILS OF THE WORK DONE

- **3d simulation drawings**
  - The main thing in the project was to study the different levels of access involved through the sectional perspective.
  - As the showroom had third floor parking also so ramp was provided for access.
  - With above specification and data the 3d simulation was done for the site and the building.
  - All the sectional elevation in 3d was done and slabs were shown clearly.
  - The ramp connecting the third floor level was connected to the ground level with 6'7"below N-H level. This level was joined with the other level of the other ramp at 11'-0" below road level.
  - The section was taken from the middle showing all the levels as clearly as possible.
  - The slab thickness should be given as 8" thick.
  - The bearing wall was given in the basement so that in the 3d it will be helpful to understand the basement level and the ramp going to it.
  - The light direction and the camera directions were given such that all the floor levels are visible clearly in the format of a one point perspective type.

EXPERIENCE GAINED

- When giving the light or the rendering the altitude of the sun should be 23 degrees and azimuth should be -48 degrees.
- The slab thickness should be given as 8" thick.
- The bearing wall should be given in the basement.
- The viewing height should be taken at 6ft height and should be shown as one point perspective.
- The intensity of light should be taken at 0.41 levels and the shadow option should be given at 4096/3 with the azimuth at -141 degrees and the altitude between 25 to 30 degrees.

13. NAME: "THE GREAT ESCAPE" CLUB
NATURE: COUNTRY CLUB
CLIENT: M/S PANCHAM STUDIO PVT.LTD
PLACE: BHUBANESWAR
PROJECT BRIEF: It's a country club with F& B outlet, banquet hall and entertainment facilities for members of the club.
STAGE OF WORK: under construction

DETAILS OF THE WORK DONE

- **Went For Site Visits**

SITE VISIT 1

- Visited the site with the concerned architect.
- Observed the type of site marking that is given.
- For the movement of the piling machine the offset of the wall should be at least 3ft.
- Double wall construction has been given to prevent structure borne noise to pass to adjoining spaces. The air gap in-between the wall prevents the transfer of noise.
- Following measures were taken for the construction of an underground tank in a water logged area.

    - The water in the pit has to be fully drained out by the help of a motor.
    - After that immediately sand has to be filled at the bottom.
    - Then 4inch pcc slab has to caste over it.
    - The peripheral walls of the tank have to be made of RCC.For the same quick setting cement is preferably used to easy the construction process.

- Inter column distances has to be taken from centre to centre.

SITE VISIT 2

- In the site the decision was taken to cut the beam because the slab has to extend. For the old slab cut and the rods has to be taken out. New rods have to be welded to it. Then fresh concrete has to be casted.at the joining point of the new and the old concrete epoxy concrete should be used to join. This reduces cracks at the joint.
- **The process of hilti:**

- HIT-HY 150 Fast Curing Injection System
- The fast curing mortar tailored for all fastenings in concrete
- This is used in the dry fastening of the bars inside the pre-caste concrete element.
- The steps of anchoring are:
- Drill a hole in the concrete element(column or beams)

- Brush out the hole and blow out the dust inside.
- Fill the resin and hardener mixture in the hole from the bottom upward.
- Insert the bar and allow the adhesive to cure.
- The adhesive cures by 25 minutes.
- Then pour concrete on the bar.

- **assisted in the preparation of conceptual design for the proposed highway side road development**

EXPERIENCE GAINED

- Triangular fashion of arrangement of trees should be given along the side of the site adjoining the national highway. This reduces the level of noise generated from the vehicles in the national highway.

14. NAME: **ROYAL CALCUTTA TURF CLUB**
NATURE: **CITY CLUB**
CLIENT: **M/s ROYAL CALCUTTA TURF CLUB**
PLACE: **KOLKATA**
PORJECT BRIEF: **Its 3.75 acres of land in the heart of Kolkata. Needs to be developed as a social club.**
STAGE OF WORK: **conceptual stage**

DETAILS OF THE WORK DONE

- **Assisted In The Data Collection For Palladian Architecture**
  - Planning and style of Palladian architecture was studied.
  - The details connected to that---windows, pedestal, doors, arches, chimney piece, decorative glazing bars, interior doors, ceiling detail, wall treatment, motifs etc were studies.
  - Basic planning principles of the apartment, houses were studied.
  - Data that were available were---
    - centralized house plan, halls and parlours placed centrally on the ground floor
    - Symmetrical groups of rooms of diminishing size with drawing chambers, closets and cabinets ----opened off the central rooms.
    - Reception rooms were arranged around a central corridor.
    - Private rooms were moved to the upper floor.
    - Servants moved to the wings.
    - Then the conceptual elevation was drawn with Palladian style.

EXPERIENCE GAINED
- Learnt about Palladian architecture.

- **Preparation Of Report For Approval By Heritage Committee**

  - A final report was prepared for the heritage committee to approve the work for further construction at the site.
  - The report comprised of details on the Palladian Architecture, existing building t 10th/11th Russell Street, 5th and 6th Middleton Row, existing plan, proposed plan and conceptual elevation along with all the area requirements.

15. NAME: **RESIDENCE -VI**
NATURE: **RESIDENTIAL**
CLIENT: **MR. .P.C.SAMAL**
PLACE: **BUBANESWAR**
PROJECT BRIEF: **It Is Basically a 6-Bedroom Unit Residence The ground floor being a simplex unit consists of two bedrooms and the duplex above with 4 bedrooms.**
STAGE OF WORK: **construction in progress**

DETAILS OF THE WORK DONE

- **went for site visits**

SITE VISIT 1

- Went with the concerned architect to the site.
- There was a brief discussion with the client regarding the cut out given in the living room.
- Type of tiles and marbles required in each of the room and the area covered by them.
- Rod binding was going on for the roof slab of the 2nd floor.

EXPERIENCE GAINED

- Site details and variations according to the drawing.
- The functionality of the level and the ability to change the interior ambience.
- The method of roof casting and the rod binding going for that.

SITE VISIT2

- The purpose of the site visit was to see the ongoing detailing in the exterior and the interior of the house.
- Some groves are given on the wall to give the tiling. Others used to be given at the corner edge of the wall.
- Groves can also be given in the bottom(in the plinth level)
- Slits were given in the drawing room part to break the monotony.

EXPERIENCE GAINED

- Slits on the wall helps to break the monotony of the wall.
- Groves can be created on the wall using the double plaster.

- **assisted in the area calculation**

- Area was calculated for each room.
- The carpet area of each room was taken into consideration.
- The area calculation was done in order to know the no. of tiles, marbles coming in a particular room.

16. NAME: **MAYFAIR BEACH RESORT**
NATURE: **HOTEL**
CLIENT: **M/S MAYFAIR**
PLACE: **PURI**
PROJECT BRIEF: **A four star resort spread over 1 acre. Amenities include 34 guest rooms, 2 Restaurants, Bar, Health Club, Swimming Pool, Snooker, and Table Tennis.**
STAGE OF WORK: **completed**

DETAILS OF THE WORK DONE

- **Went for site visits**

SITE VISIT 1

- The site visit was done to the ongoing construction of the suit of the resort to verify the status of the work going on there.
- In the suit the lower part is a living room and the upper part is a bedroom accessed by a staircase.
- Smaller details of the cover mouldings of the partition were checked.
- Colours of the flooring tile and the stone were checked.
- The electrical fixtures, sanitary fixtures and the lighting fixtures were checked.
- Various curve forms were given in the ceiling of the bedroom to create levels in the ceiling.
- The balcony railing part was decorated with laterite stones.
- Laterite stones coloured with red cement paint to give a rich look and warm feeling.

EXPERIENCE GAINED

- Learnt about the various working details of the window main frame
- The fundamentals of the colours used in the flooring and its importance.
- One must avoid using dark colour or same colour stones at the junction of the levels (single level with 6” to 7” riser) .the reason are that due to the psychological reason single riser at a place tends to create accidents.

17. NAME: **WEBWORLD EXPRESS-I**
NATURE: **COMMERCIAL**
CLIENT: **RELIANCE INFOCOM**
PLACE: **GEETANJALI COMPLEX, BHUBANESWAR**
PROJECT BRIEF: **It's a web world express and sales and cc outlet to cater to the need of Reliance India Mobile Costumers.**

STAGE OF WORK: construction in progress

DETAILS OF THE WORK DONE

- **Went For The Site Visit And Site Measurement Drawing**

SITE VISIT 1

- The site conditions were checked and the measured drawing of the site property was done.
- A small discussion went on with the owner of the building regarding the fixing of the signage of the reliance web world.
- For long range visibility, it is required to fix the signage in the top position of the complex.
- For the reshuffling of the rolling shutter it was discussed with the owner .by doing do a spacious corridor in the front is possible and the efficiency of security is increased.

SITE VISIT 2

EXPERIENCE GAINED

- Importance of signage in the commercial complex.
- Rearrangement of openings for access to increase the efficiency of design.
- Came to know about site decisions.

18. NAME: **WEBWORLD EXPRESS-II**
NATURE: **COMMERCIAL**
CLIENT: **RELIANCE INFOCOM**
PLACE: **SAILASHREE VIHAR, BHUBANESWAR**
PROJECT BRIEF: **It's a web world express and sales and cc outlet to cater to the need of Reliance India Mobile Costumers.**
STAGE OF WORK: construction in progress

DETAILS OF THE WORK DONE

- **Went for the site visit and site measurement drawing**

SITE VISIT 1

- The site conditions were checked and the measured drawing of the site property was done.
- Some of the part was filled to keep it with the main floor level.
- One area was taken to keep it reserved for the air conditioning. This particular area is used for maintenance of this a/c unit. The outer unit of the a/c comes in this area.
- The wall were already added and the at the back a small patch was also filled up.

EXPERIENCE GAINED

- Came to know the site observation and the way in which site decisions are taken

19. NAME: **WEBWORLD EXPRESS-III**
NATURE: **COMMERCIAL**
CLIENT: **RELIANCE INFOCOM**
PLACE: **DARGHA BAZAAR, CUTTACK**
PROJECT BRIEF: **It's a web world express and sales and cc outlet to Cater to the need of Reliance India Mobile Costumers.**
STAGE OF WORK: construction in progress

DETAILS OF THE WORK DONE

- **Went For The Site Visit**

SITE VISIT 1

- Release for the agreement drawings had to be done.
- Space for the back portion had to be sorted out.
- The overall room height and the ceiling and the lintel had to be sorted out.
- The access had to be decided.
- The skirting and the flooring had to be worked out.

EXPERIENCE GAINED

- Came to know the site observation and the way in which site decisions are taken.

20. NAME: WEBWORLD EXPRESS-IV
NATURE: COMMERCIAL
CLIENT: RELIANCE INFOCOM
PLACE: MAHANADI VIHAR, BHUBANESWAR
PROJECT BRIEF: It's a web world express and sales and cc outlet to cater to the need of Reliance India Mobile costumers.
STAGE OF WORK: construction in progress

DETAILS OF THE WORK DONE

- **Went For The Site Visit**

  - At the site visit decisions were taken for the deadline of the work.
  - The bill of quantities were discussed(boq)
  - The quality of the work was checked.
  - The schedule of the work was discussed.
  - Various discussions to sort out the work and the errors done at various levels of works. For the discussions the eastern zone head for reliance infocom, Mr.R.P.Singh was present with other high level officials.
  - The shutter levels and the glazing were decided for the work going on.
  - Release of the agreements was done.

EXPERIENCE GAINED

- Came to know the site observation and the way in which site decisions are taken.