

THESIS REPORT  
ON  
**RESIDENCE DUPLEX**  
**PATNA BIHAR**

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENT FOR THE DEGREE OF:

**BACHELOR OF INTERIOR DESIGN**  
BY  
**(SHRUTI SRIVASTAVA)**  
**(ROLL NO. 1190107026)**

THESIS GUIDE  
**(PROF. SANGEETA SHARMA)**

SESSION 2022-23

TO THE  
**SCHOOL OF ARCHITECTURE AND PLANNING**  
**BABU BANARASI DAS UNIVERSITY**  
**LUCKNOW.**

**SCHOOL OF ARCHITECTURE AND PLANNING  
BABU BANARASI DAS UNIVERSITY, LUCKNOW (U.P.).**

**CERTIFICATE**

I hereby recommend that the thesis entitled “Residence Duplex, Patna” under the supervision, is the bonafide work of the students and can be accepted as partial fulfillment of the requirement for the degree of Bachelor’s degree in interior design, school of Architecture and Planning, BBDU, Lucknow.

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Prof. Mohit Kumar  
Agarwal

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Recommendation      Accepted

Not Accepted

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External Examiner

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External Examiner

## **ACKNOWLEDGEMENT**

First and foremost, This thesis is dedicated to my parents,  
for there endless love ,support and encouragement

I would acknowledge my guide, **Prof. Sangeeta Sharma**, for her constant motivation and for helping me decipher problems and possible solutions for my commission. her guidance, indulgence, dynamism, optimism, vision, sincerity and encouragement have deeply inspired and helped me in completing my thesis in a productive manner

**BABU BANARASI DAS UNIVERSITY, LUCKNOW**  
**certificate of thesis submission for evaluation**

1. Name : SHRUTI SRIVASTAVA
2. Roll No. : 1190107026
3. Thesis title: RESIDENCE DUPLEX
4. Degree for which the thesis is submitted: BACHELOR OF INTERIOR DESIGN
5. Faculty of the University to which the thesis is submitted YES / NO
6. Thesis Preparation Guide was referred to for preparing the thesis. YES / NO
7. Specifications regarding thesis format have been closely followed. YES / NO
8. The contents of the thesis have been organized based on the guidelines. YES / NO
9. The thesis has been prepared without resorting to plagiarism. YES / NO
10. All sources used have been cited appropriately. YES / NO
11. The thesis has not been submitted elsewhere for a degree. YES / NO
12. Submitted 4 spiral bound copies plus one CD. YES / NO

.....

Signature of Guide

PROF. SANGEETA SHARMA

BBDU, Lucknow

.....

(Signature of the Candidate)

Name: SHRUTI SRIVASTAVA

ROLL No.: 1190107026

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- 7. LOOPING PLAN**
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# Introduction to RESIDENCE DUPLEX

## WHAT IS RESIDENCE DUPLEX ?

- A duplex is a multi-family home that has two units in the same building. These two units always share a common wall, but the floor plan can vary. Units can be arranged either side by side or stacked on top of one another, each occupying an entire floor or two of the building.
- Each unit has a separate entrance and there is no interior connection between the two units. If there is outdoor space on the lot, the residents of the two units must share it, or it will be partitioned.
- A duplex building has a single owner, who may or may not live in one of the two units. The owner of the duplex rents out either one or both units to tenants.
- Triplex and fourplex buildings are similar types of multi-family housing, with three and four units within them respectively.

## TYPES OF RESIDENCE DUPLEX ?

### **1 Ground Duplex House**

A duplex house, which is built on the ground floor of an apartment, is known as a ground Duplex. In this type, the lower floor of the duplex faces the garden, while the upper portion houses a kitchen and a living room.

Ground Duplex House is generally preferred by homebuyers who prefer to have an open garden attached, which can serve their pets as well.



### **2 Standard Duplex House (Most common)**

This type of Duplex house is the most readily found duplex house design. In this, two floors are built vertically, one over the other. In this modern duplex house design, the lower floor generally consists of a kitchen and a living room, while the upper floor houses two bedrooms or a single bedroom with a children's room.

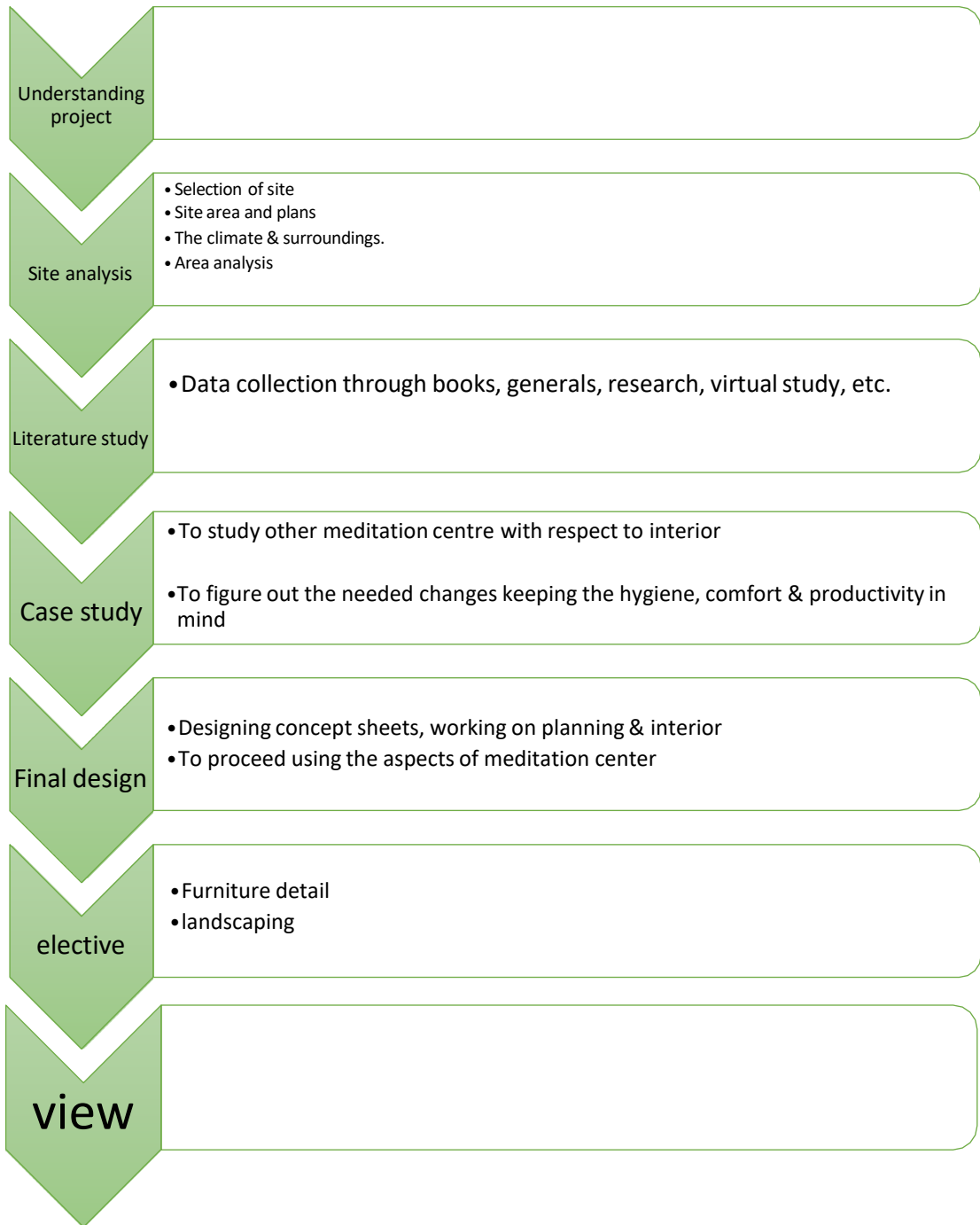


### **3 Low-rise Duplex**

This state-of-the-art modern duplex house design includes spacious balconies on the upper floor. The area of this duplex house is generally smaller than other duplex house designs. This type of modern duplex house design is a challenge for the architects, and they have to make sure of the optimal utilisation of the space available.



## METHODOLOGY

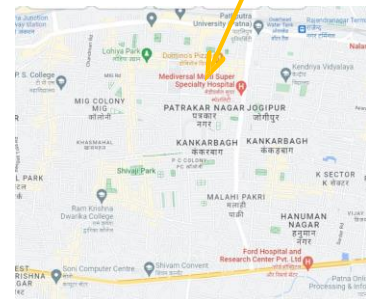


# SITE ANALYSIS

## INTRODUCTION OF PATNA CITY

### ABOUT RESIDENCE DUPLEX

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THE MAIN ROAD IN FRONT OF THE SITE IS SANJAYE GANDHI NAGAR ROAD

**Area:** 250 km<sup>2</sup>

**Elevation:** 53 m

**Metro population:** 38,74,000  
(IN: 12th)

**Mayor:** Sita Sahu

**Weather:** 21 °C, Wind NW at 8 km/h, 70% Humidity

**LOCATION-** The proposed site is about 0.033 acres of land

**SITE AREA – 1437.82 sq ft**

**SITE LOCATION – HANUMAN NAGAR , KANKARBAGH [PATNA]**

**CLIENT – AMIT GUPTA**

**LATITUDE AND IONGITUDE COORDINATES ARE : 25.612677, 85.158875.**



RESIDENCE DUPLEX

SITE SURROUNDING IMAGES



PATNA CLIMATE

WINTERS

Starts here in November and lasts till February. Average minimum temperature in Patna during the winter remains around 12 degrees while maximum hovers around 30 degrees.

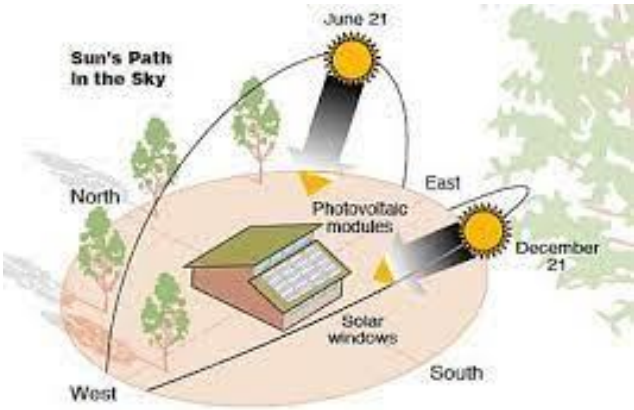
SUMMERS

Begins in March and ends in May. Being in the sub-tropical zone, Patna experiences hot and humid summer days. The average maximum temperature remains around 37 degrees while the minimum stays close to 26 degrees.

MONSOONS

Season starts in June and ends in September. Good amounts of rain is witnessed in the city during the monsoon which sometimes floods the entire city. Weather remains very warm and humid during these months.

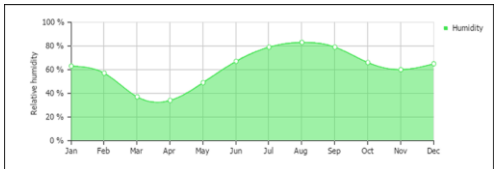
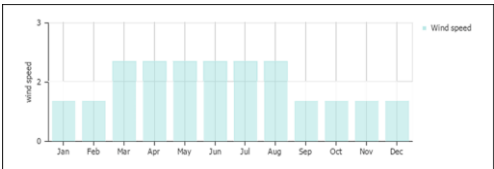
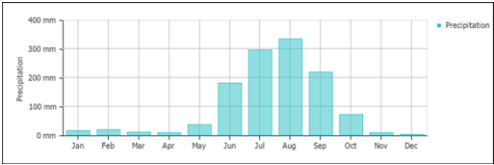
SUN PATH DIAGRAM



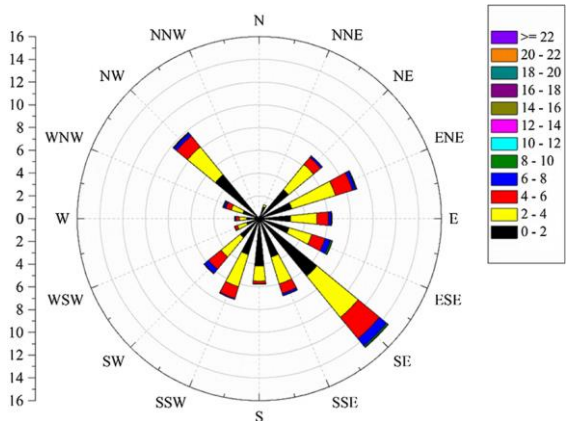
**WIND SPEED:** The average wind speed in PATNA is 2.3m/s with the maximum wind speed of around 9 m/s.

**TEMPERATURE:** The average ambient temperature remains 25.4°C, varies from 5°C to 43.3°C.

**HUMIDITY:** The average relative humidity remains around 66%, varies from 14.8% to



WIND SPEED



# LITERATURE STUDY-1

- Architects:** Luigi Rosselli Architects
- Project:** Potts Point, Sydney NSW, Australia
- Location:** Australia



- **Architects:** [Luigi Rosselli Architects](#)
- **Project:** Potts Point, Sydney NSW, Australia
- **Location:** Australia

## PRINCIPAL OF DESIGN

- Biophilic design
- An underlying geometric formal logic
- A simplified and naturalistic materiality
- Luxurious look

The interiors were thoughtfully planned out to incorporate lots of storage for the homeowners. An eclectic mix of furnishings and art add life and make each space feel like a home.



**Interior Design**  
: Jane McNeill

Composed of two apartments, this [duplex](#) in Potts Point, Sydney, NSW was renovated by [Luigi Rosselli Architects](#), who demolished just 40% of the original structure to make it happen. The back of the house is where most of the construction happened to create a modern, four-story structure – a basement parking area, a ground floor apartment, and a two-story penthouse.

## INTERIOR SPACES

- The northern portion of the duplex, the kitchen, and the utility areas open onto the central court.
- The configurations of mirrors the arrangement of the service core and darkroom in the studio component is directly opposite.
- Double-height, Glass-paneled interior spaces occupy the outermost portions of each component.
- That creates alternating positive and negative spaces. Smaller interior spaces, like the upstairs bathrooms and bedrooms, have well-placed glazed panels that provide light without compromising privacy.
- Design of the house reflects space, light, and flexibility.
- The double height spaces allow for certain spaces to be created and create multipurpose spaces. Sliding partitions in the upstairs bedroom areas for maximum flexibility.
- A rhythm
- between double height and single height spaces creating public and private spaces within the living area and the studio, but not strictly.
- Panels allow light to flow in to the house, and the trees in front allow shade to help keep the inside more cooler. The use of wood and the glass in the house provide a warm and comfortable feeling within the house.

## MATERIALS

- Main materials within the house are the Steel I-beams, glass, and the colored panels.
- Other materials such as wood panels, concrete walls, wood block floors, and wooden staircase within the house as organic materials.
- Windows and doors are made of industrial aluminium framing.
- The roof and terrace are made of steel. Prefabrication pushed the production of the house to be built within 90 hours. Steel framing was used in the structure as the prefabricated frame. Inside materials of the house are in relation to the nature of the outside.
- Foundation of the house is concrete, and roof was asphalt. The walls are a mixture of Glass Stucco, wood, asbestos, metals and synthetics.



The front of the house kept its Queen Anne windows, wood shingles, and dark brickwork to remain tied to the street's character, but once inside, a modern interior is unveiled. The floor plans are open and both apartments have outdoor space by way of terraces that offer views of the city.



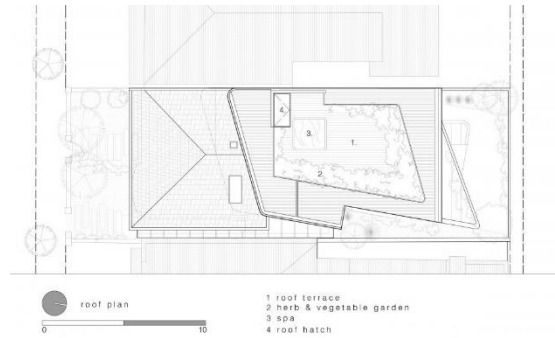
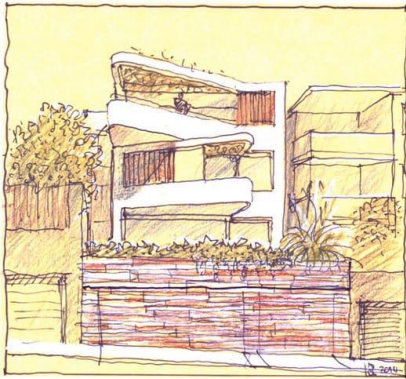
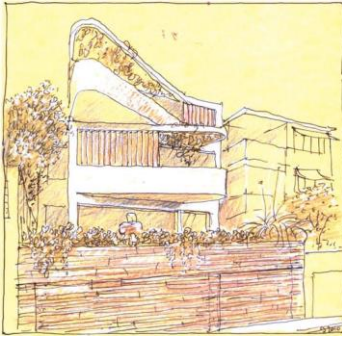
A library was designed to provide space for the owner's book collection right beside the Jacobs Ladder staircase that leads to a hatch door with access to the roof terrace.



Dressing table is design with dark American oak timber veneers, cararra marble benchtop, polished chrome framed mirror,



monochrome kitchen opens out onto a terrace.  
Joinery by Space Joinery, Lighting by Tangent Light



ground floor plan

1 entry  
2 terrace  
3 bedroom  
4 wardrobe  
5 ensuite  
6 bathroom  
7 lift  
8 laundry  
9 kitchen  
10 living room

0 10



first floor plan

1 study  
2 bedroom  
3 entry  
4 bathroom  
5 studio  
6 lift  
7 dressing  
8 laundry  
9 ensuite  
10 master bedroom

0 10



second floor plan

1 powder room  
2 library  
3 dining room  
4 lift  
5 kitchen  
6 living  
7 terrace

0 10



garage plan

1 garage  
2 bike store  
3 plant room  
4 lift

0 10

# LITERATURE STUDY-2

Architects: Studio B Architects

Area : 7000 ft<sup>2</sup>

Year : 2005



Located in Aspen, Colorado, these two twin 3,500 square foot homes won the 2006 rocky mountain news architect choice award.

This project consists of two adjoined and related cousins on a corner site and is often thought of as a 'sibling rivalry'. They sit quietly in the historic section of Aspen and their massing responds to the contextual rhythm. The two houses divide the property equally and draw a line through the sand via a concrete demising wall.

**•Primary Materials Used:** Frame construction, Italian marble and mahogany siding

Architects: Studio B Architects  
Area : 7000 ft²  
Year : 2005

The exterior material palate is simple yet elegant and is comprised of Italian marble slabs, mahogany siding with reveal details adding a depth to the skin and aluminum-clad doors and windows.

The interior of each house, serves as a gathering space, fills it with light, and contains ample wall space for art. The bold interior surfaces are contrasted by the warmth of the wood floors, casework and furniture."

This concrete divider yields privacy from one another, defines the patios and carries a fire element to warm the terraces on cool summer evenings.

The residences are within easy walking distance of Aspen's numerous cultural institutions and are inter-related in their posture and appearance.

Because of their close proximity, the window patterns were carefully composed insuring privacy from both levels and terraces.

### Principal of design

- Clean, contemporary design
- Natural light
- Different use of wood
- Open space
- Different colour pattern and fabric on the furniture

### Concept

- Its plan comes from his feeling of a monastery. He always wanted to give a solid and formal look his buildings. He wanted to create a wood in keeping with this some of the features
- Exposed concrete tiles
- Large glass are use in windows.
- Interplay of light and shade in corridors.
- Hide intrances , window openings.

Contrast adds the balance needed to bring a design together. Contrast can be achieved by placing two or more elements with opposing characteristics together in a space. It can be accomplished using a variety of design aspects, such as colour, shape, size, material, texture or style.

### Material Board

ALUMINIUM  
STEEL  
ENGINEERED WOOD  
MIRROR  
OAK  
SAND  
ITALIAN MARBLE  
MDF BOARD  
PARTICLE BOARD  
FABRIC  
HDF

Downlight and LED light are used in living room

s





Downlight and LED light are used in living room

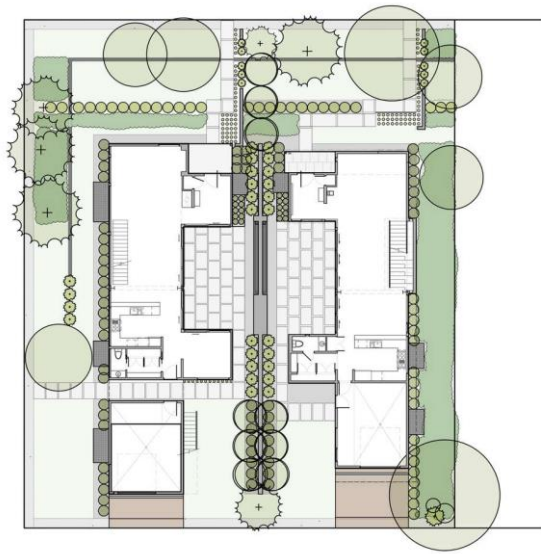


Large doors are provide for natural light

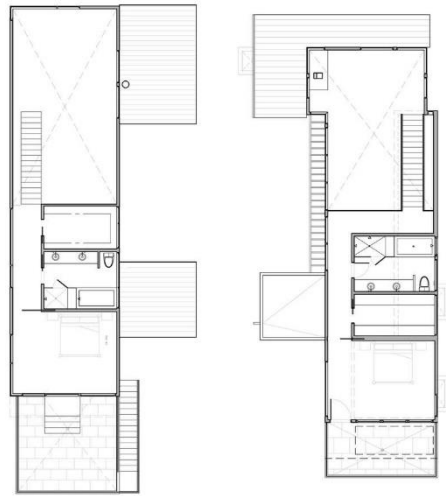


Engineered wood are used in flooring

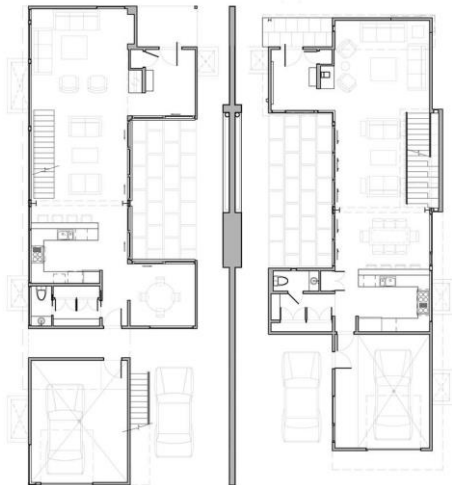
Smoked Oak has been used throughout the living space and master bedroom for flooring and contrast furniture are used by fabric



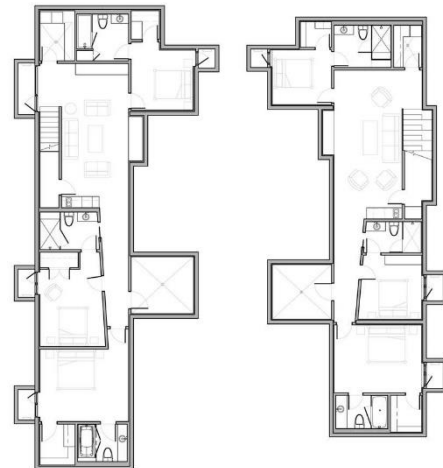
PLAN



UPPER PLAN



MAIN PLAN



LOWER PLAN



MODEL



MODEL

# CASE STUDY-1

**SITE AREA – 1372.92 sq ft**

**SITE LOCATION – CHAPARA**

**CLIENT – SANJEEV KUMAR**

# CHAPRA

## LOCATION

SITE AREA – 1372.92 sq ft  
SITE LOCATION – CHAPARA  
CLIENT – SANJEEV KUMAR



Gautam Asthan



Silhauri



Chirand

## INTERIOR

PLY and lacquered glass are used in wardrobe structure  
High –Density Fiberboard (HDF)are used in furniture

## FLOORING

Smoked oak has been used throughout the living space and master bedroom , ceramic in Kitchen and in Countertop Granite tiles are used.

## CEILING

Gypsum board and wooden strip are used

## LIGHT

Chandelier ,Ceilling or wall – mounted fixtures light, led and table lamps are used

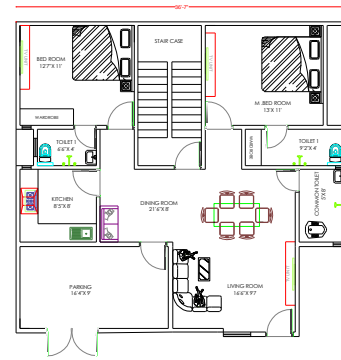
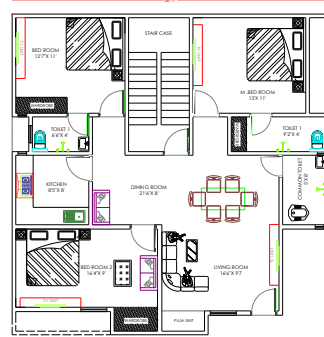


## MATERIAL BOARD

STEEL  
IRON  
MIRROR  
BRICK  
PLY  
FIBERBOARD  
OAK  
WOOD  
GYPSUM BOARD

### Cost

1. **Foundation- ₹1,93,407**
2. **Steel Structure ₹45,760**
3. **Roofing- ₹ 3,88,312`**
4. **Super Structure- ₹2,94,210**
5. **Flooring- ₹4,94,208**
6. **Painting- ₹1,59,916**
7. **Electrical & Plumbing- ₹4,21,200**



## SURROUNDING





KITCHEN



FLOORING





# CASE STUDY-2

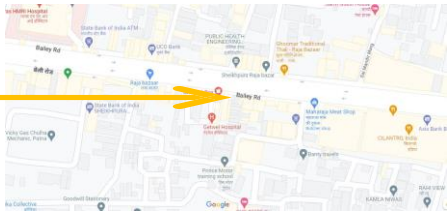
**SITE AREA – 1652.62 sq ft**

**SITE LOCATION – PATNA  
BAILEY ROAD**

**CLIENT – PANKAJ KUMAR**

# PATNA

**Area:** 250 km<sup>2</sup>  
**Elevation:** 53 m  
**Metro population:** 38,74,000  
(IN: 12th)  
**Mayor:** [Sita Sahu](#)  
**Weather:** 21 °C, Wind NW at 8 km/h, 70% Humidity



## TOURIST ATTRACTIONS

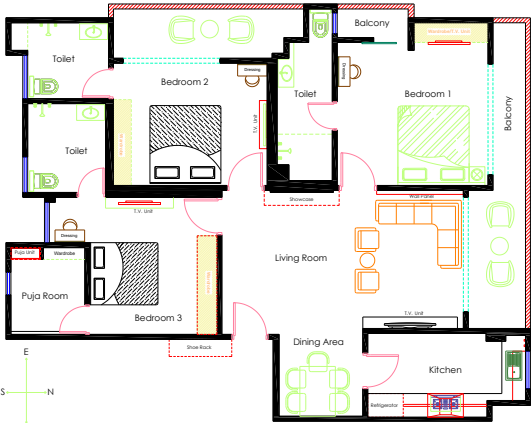
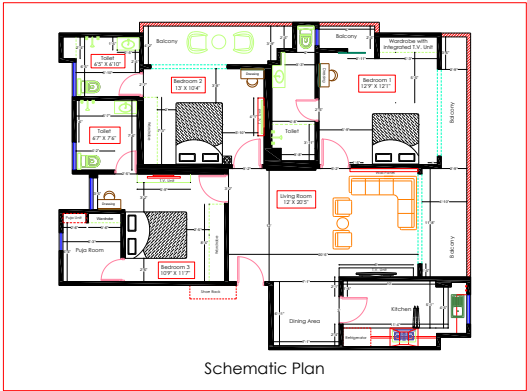


Left to Right: Golghar , Sabhyata Dwar in Patna      Museum

Gandhi Setu Bridge

Material Board

WOOD  
PLY  
CEREMIC TILES  
MARBLE  
STEEL  
MDF BOARD  
PARTICLE BOARD  
FABRIC  
HDF  
MIRROR



### Cost

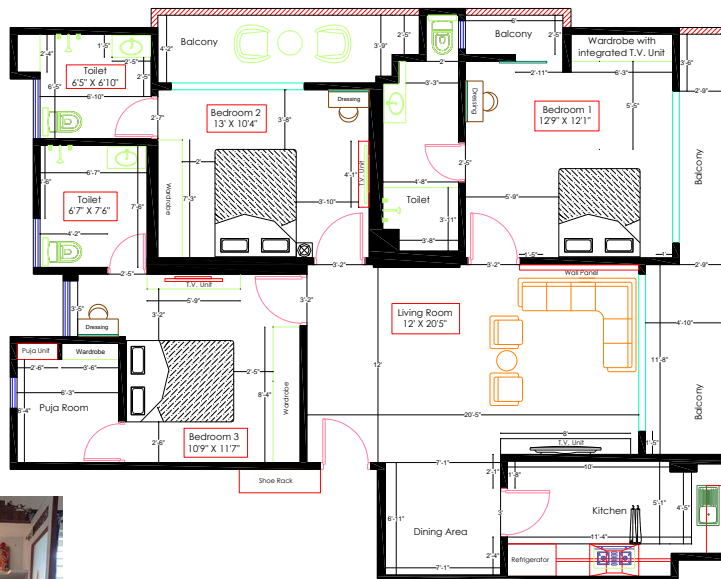
1. **Foundation-** ₹164,201
2. **Steel Structur** ₹64,650
3. **Roofing-** ₹ 4,00,232`
4. **Super Structure-** ₹2,62,341
5. **Flooring-** ₹4,27,300
6. **Painting-** ₹2,24,612
7. **Electrical & Plumbing-** ₹5,29,394

RESIDENCE DUPLEX



### LOCATION

**SITE AREA** – 1652.62 sq ft  
**SITE LOCATION** – PATNA BAILEY ROAD  
**CLIENT** – PANKAJ KUMAR



# CONCEPT

# COASTAL BEACH

Beach-inspired spaces with natural light and a soft palette



Natural fibers, materials & textures



Watery hues paired with- natural textures



White walls and elements amplify an airy sense of brightness



Performance fabrics that can stand up to indoor/outdoor lifestyles



*Light, airy, and blissfully beautiful. Coastal style interiors are not only pretty, but they also have a calming atmosphere. With a few tweaks on your own, your house can transform into a remarkably peaceful statement home.*

*Types Of Coastal Interior Design*

## 1 Cottage Coastal

In places like Cape Cod, you might find the cottage coastal interior design style. This decorating style is all about cozy, comfortable vibes with a nautical twist. Think coastal colors like navy blue and white, along with maritime-inspired decor like ship wheels and anchors.



## 2 Beach House Coastal

If you live in a beach house, then you might want to go for a more laid-back coastal interior design style. This style is all about relaxing and enjoying the coastal lifestyle. Think coastal colors like sandy browns and sea greens, along with beach-themed decor like seashells and starfish.



## 3 Traditional Coastal

If you want a coastal interior design style that is timeless and classic, then you might want to go for a traditional coastal style. This decorating style is all about traditional coastal colors like navy blue and white, along with classic coastal decor like sea glass and driftwood. Found in old money towns on islands such as Nantucket, the traditional coastal style is all about keeping the past alive.



## 4 Modern Coastal

For a coastal home with a more sophisticated feel, you might want to go for the **modern coastal style**, found in upscale places like the Hamptons and Monterey. This look is all about elegant, coastal-inspired furniture and decor. Think slipcovered sofas, seagrass rugs, and whitewashed wood.



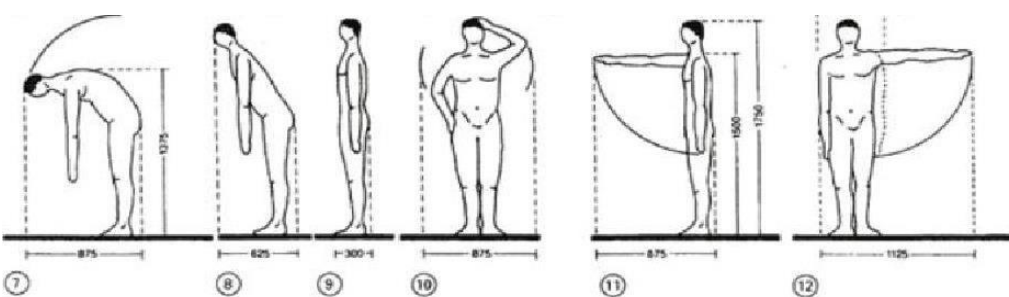
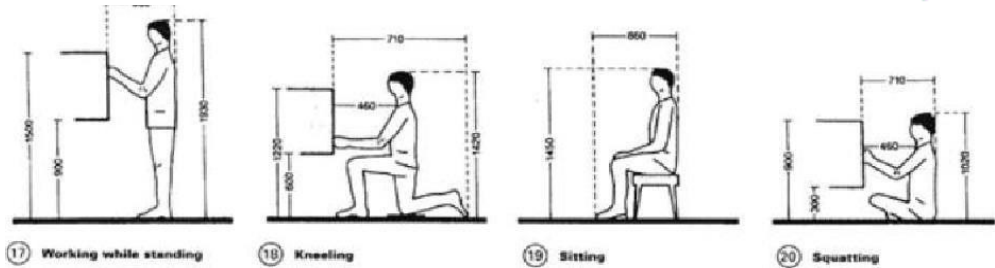
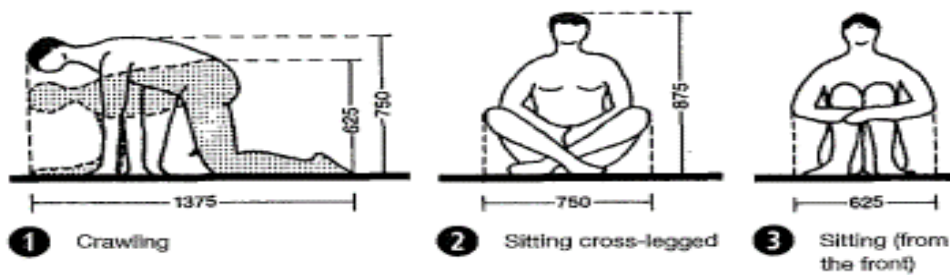
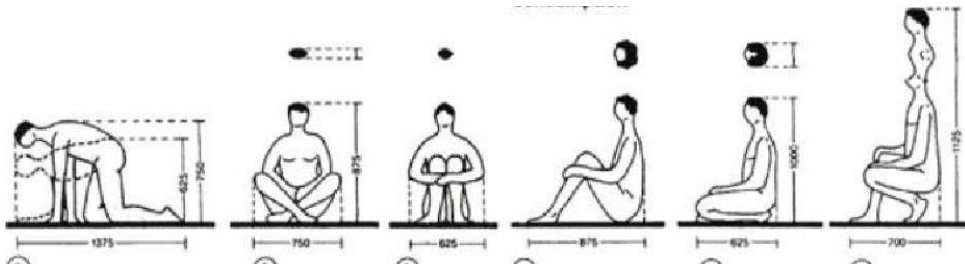
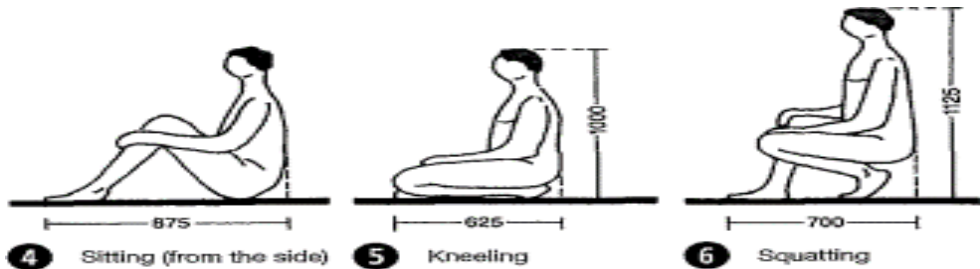
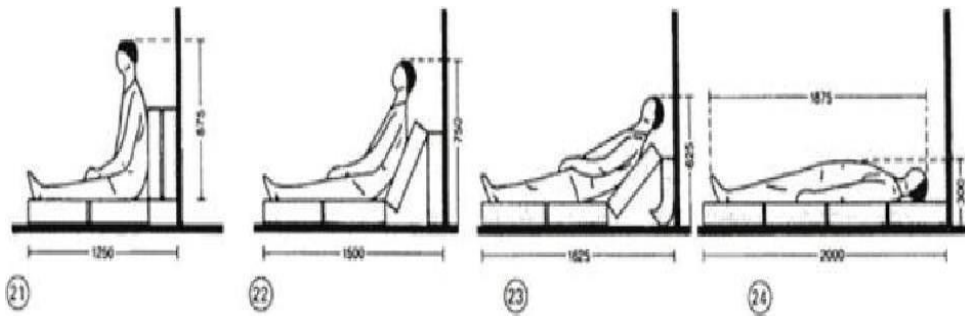
- Features
- Natural Light + Soft Tones + Linen + Indoor/Outdoor Spaces
  - Feel
  - Calm + Relaxed + Natural
  - Furniture + Materials
  - Natural Woods, Textures & Fabrics + Glass + Durable Materials
  - Finishes + Color
  - Neutral + Blues + Green

**INSPIRED BY**  
•**Architects:** Laurie C. Fisher Architecture  
•**Project:** New Modern Beach Home  
•**Location:** California, USA

*Coastal Colour*

Coastal			
	Shell	Saltmarsh	Tasman
	Kelp	Coral	Pacific

## STANDARDS



Painting By Coastal Colour Theam



- Woven pendants
- Ocenic abstract
- Net Curtain
- Rattan Round Coffee Table
- Wooden Flooring

Living Room



- Blue + White Sofa Desogn
- Rattan Round Coffee Table

Sofa Design



- Stainless Steel Towel Hanger
- Mirror Cabinet
- WC
- Ceremic Tiles

Kitchen



- Woven pendants
- Sea Fan
- Nogu rounded ratten mirror
- Net Curtain

Bed Room



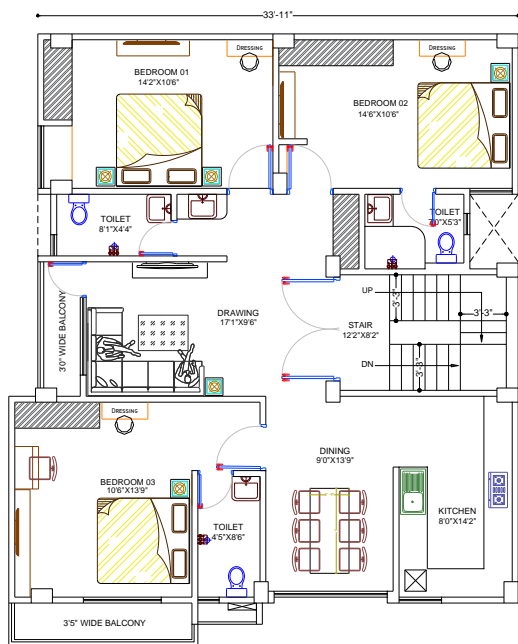
- Coastal wall art
- Palm Leaves
- Hanging Macrame Chair

Hanging Macrame Chair

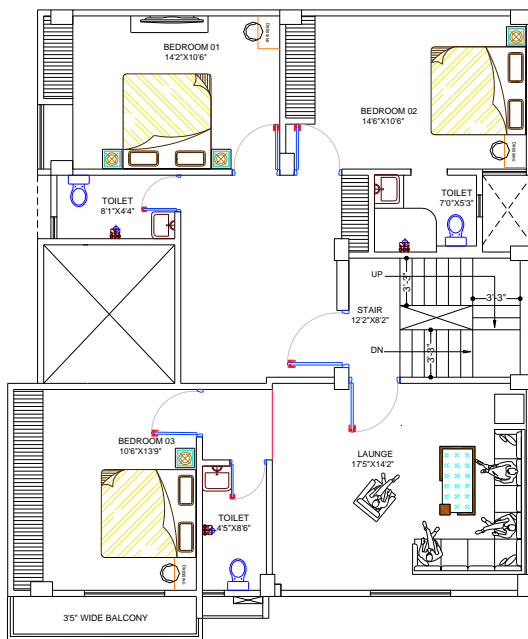


- Mirror Cabinet
- Refrigerator
- HDFHMR

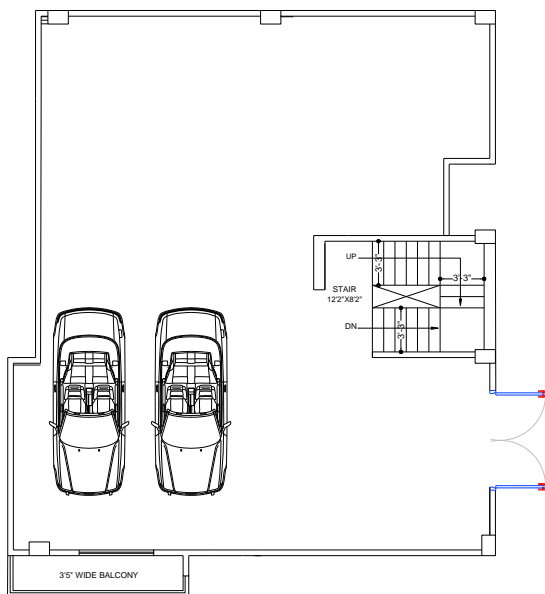
Washroom



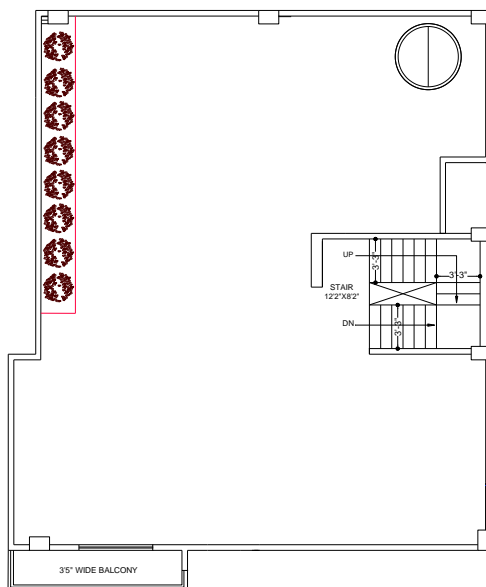
FIRST FLOOR PLAN



SECOND FLOOR PLAN

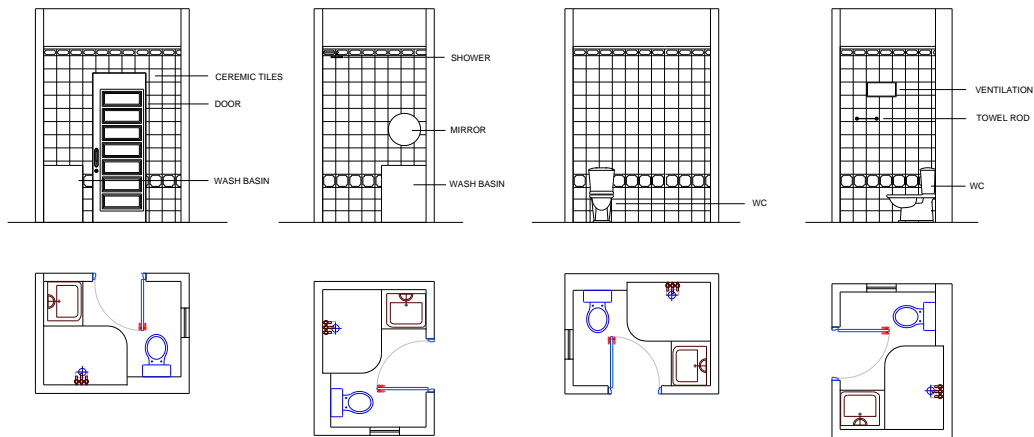


GROUND FLOOR PLAN



TERRACE FLOOR PLAN

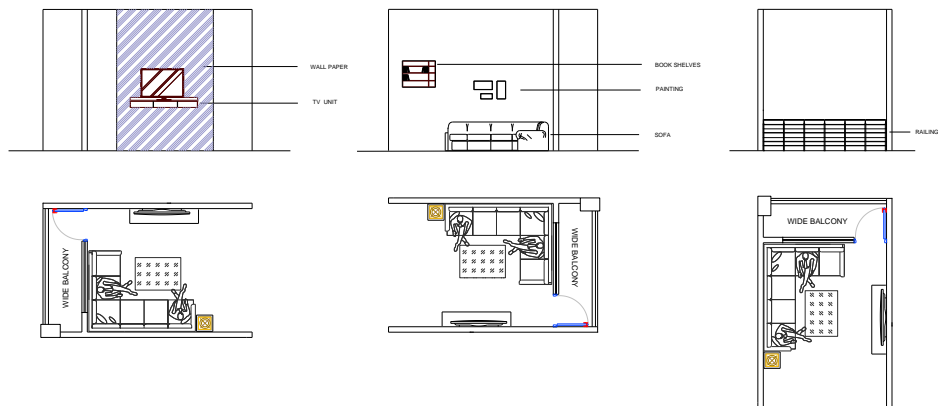
WASHROOM ELEVATION



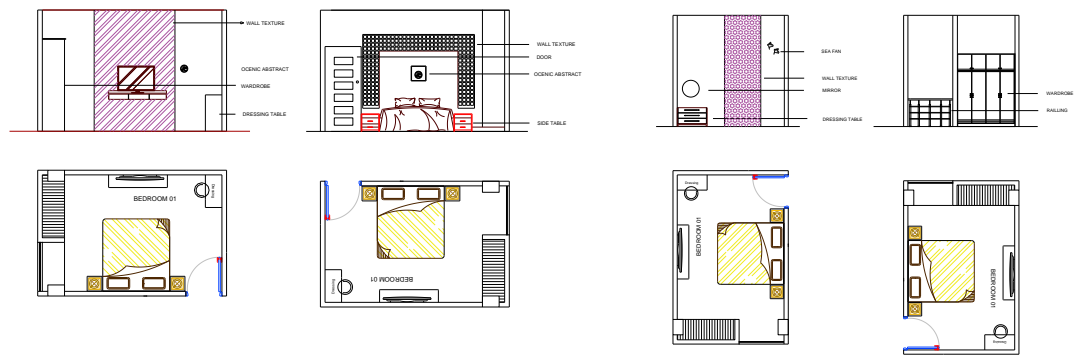
KITCHEN ELEVATION



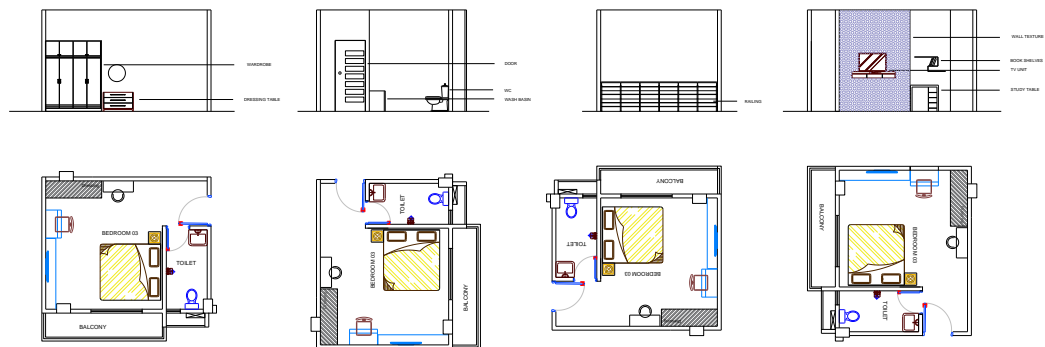
LIVING ROOM ELEVATION



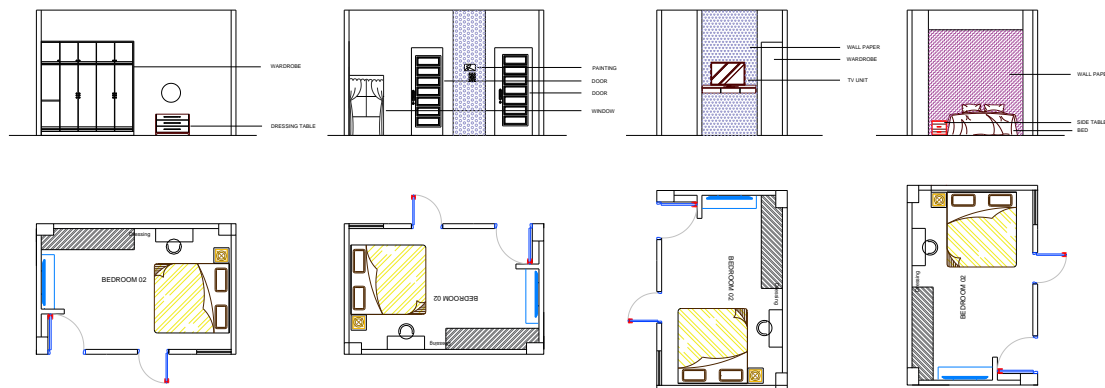
BEDROOM 1 ELEVATION

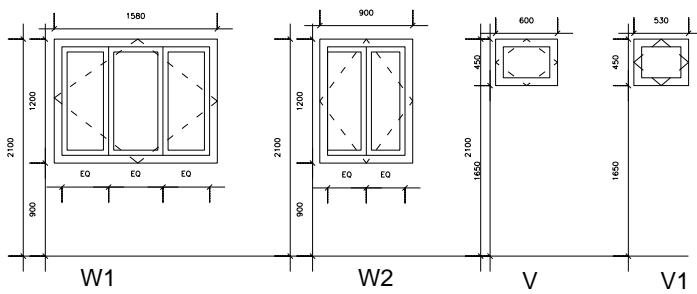
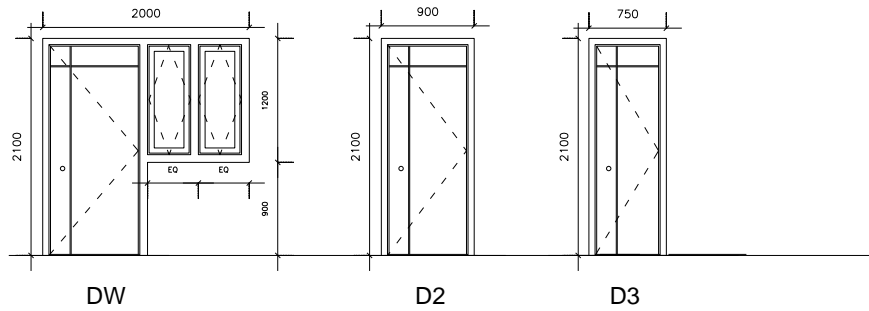


BEDROOM 2 ELEVATION



BEDROOM 3 ELEVATION





SCHEDULE OF OPENINGS						
FIRST FLOOR						
S.NO	NAME	WIDTH	SILL	LINTEL	HEIGHT	NO.
DOOR						
1	DW	2000	900	2100	2100	2
2	D2	900	—	2100	2100	4
3	D3	750	—	2100	2100	4
WINDOW						
1	W1	1580	900	2100	1200	2
2	W2	900	900	2100	1200	2
VENTILATOR						
1	V1	600	1650	2100	450	2
2	V2	530	1650	2100	450	2

SCHEDULE OF OPENINGS						
SECOND FLOOR						
S.NO	NAME	WIDTH	SILL	LINTEL	HEIGHT	NO.
DOOR						
1	DW	2000	900	2100	—	2
2	D2	900	—	2100	2100	4
3	D3	750	—	2100	2100	4
WINDOW						
1	W1	1580	900	2100	1200	2
2	W2	1000	900	2100	1200	2
VENTILATOR						
1	V1	600	1650	—	2100	450
2	V2	530	1650	—	2100	450