

Architectural Description

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3.1 Introduction:

Architecture is one of the most prominent engineering sciences, which is not a product of this era ; it is since God created the human being which unleashed talents and thoughts. It proceed with these talents from the life of the caves to the best form of luxury, taking advantage of God's gift for this beautiful nature.

The simplicity of the building is not an indication of the simplicity of the architectural work, the building despite its simplicity, may contain interior beauty and architecture in its interior parts. And whatever the function of the building the architectural beauty can be achieved by mixing between the real beauty in the interfaces also the shape of the building and the function to be performed by that building, because the architectural concept is not limited to the form, as some think, but also achieve function.

The design process of any building is carried out in several stages until it is completed to the fullest. It starts with the architectural design stage, at this stage, the form of building is determined , in addition to the different functions and requirements for which the building is being constructed are considered. With the aim of achieving the required spaces, dimensions and the location of columns and axis. Also, in this process we have the studying of the ventilation, movement and other functional requirements.

After the completion of the architectural design stage, the structural design process begins with the aim of determining the dimensions and characteristics of the structural elements depending on the different loads that are transported through these elements to the foundations and then to the soil.

3.2 Project Overview:

The idea of the project is the structural design and environmental study of a current residential building located in the city of Hebron, which is characterized by its very beautiful architectural style and it also achieves the goal to be designed for it.

We obtained the architectural drawings of the project from the students of the Faculty of Engineering, specializing in architectural engineering at the Polytechnic University of Palestine, in order to carry out the design work and environmental studies after an analytical and detailed study of these architectural plans prepared by the student Tuqa Talahma under the supervision of Dr. "Ghassan Dweik". The total area of the building is about 9113m², distributed over several floors as follows: The basement area is 2190 m² , the ground floor area

is 665 m², The first floor area is 1042 m² and the second floor area is 1042m². The first and second floors are repeated three times in a row.

3.3 The site of the project.

The design of any project should have a study of the construction site, taking into consideration the geographic location and impact of climatic conditions in the region. So that we maintain existing elements and fit with the proposed design.

Therefore, a general idea of the elements of the site should be given an explanation of the proposed land measurements for the building, the relationship of the location to the streets and the surrounding services, the height of the surrounding buildings, the direction of the winds and the correct path of the sun.

This proposed project is located in the land of Hebron city in aensarah street and it should be said that the infra structure of roads, electricity and communications reach to that site and meet the needs of this project.



Figure 3.1the general location of the land

3.3.1 The importance of the site.

Hebron has a unique location between the cities of Palestine, both geographically and economically. There are several reasons why this area was chosen for the study, in addition to

the vitality of the area and the other conditions necessary to choose the appropriate location and the advantages available in the site of this project are as follows:

- 1- Provide a suitable area of land to combine the architecture with its own garden.
- 2- The vitality of the region.
- 3- Easy access to the site and that it is located in the center of the city, and its environmental impression suitable for all parts of the city.
- 4- The site has natural features qualify it to contain the project as well, the proximity to Al Hussain Bin Ali Stadium and Childhood Happiness Complex its other features.

3.3.2 The movement of Sun, Wind and moisture:

Hebron is exposed to the northeastern winds, which are very cold and dry winds. This is due to the low temperatures in the highlands. It is also exposed to the southwest winds, which are windy with rain and humidity. Because of its geographical location, the western wind blows on them and collides with warm currents. Those coming from the east meet with the winds coming from the west, reducing their moisture and making them more harmonious. They make the air moderate and dry, and the city blows dry wind like the five winds in the late spring.

The movement of the sun and wind are important factors in the analysis of the building, and the effect of the sun and wind on the building should be taken into consideration. So that it can be divided into spaces suitable for climate and to meet the design requirements related to ventilation and natural lighting.

Sun: The movement and angles of the sun is one of the most important things to consider when directing and arranging buildings within the site, in order to avoid its direct radiation, especially in the summer, and here comes the role of solutions and environmental considerations that help us to avoid high temperatures. Also, trying to exploit the sun to serve renewable energy taking into consideration the movement and the horizontal and vertical angles of the sun.

Wind: In the region the wind speed is about 3.27 km / h throughout the year. The direction of the wind changes during the day from the southern winds in the early hours of the morning to the winds of northwesterly evening, and the southern wind that starts from the shores of the Dead Sea.

Moisture: The climate of Hebron is affected by the climate of Palestine, which is known as dry and hot in summer, moderate and rain in winter. Despite the small area[of Hebron, its climate varies according to the terrain and the water bodies adjacent to and away from the desert. As for precipitation, rainfall rates vary depending on the geography of the area, as rainfall in Hebron ranges between (400-600 mm) annually.

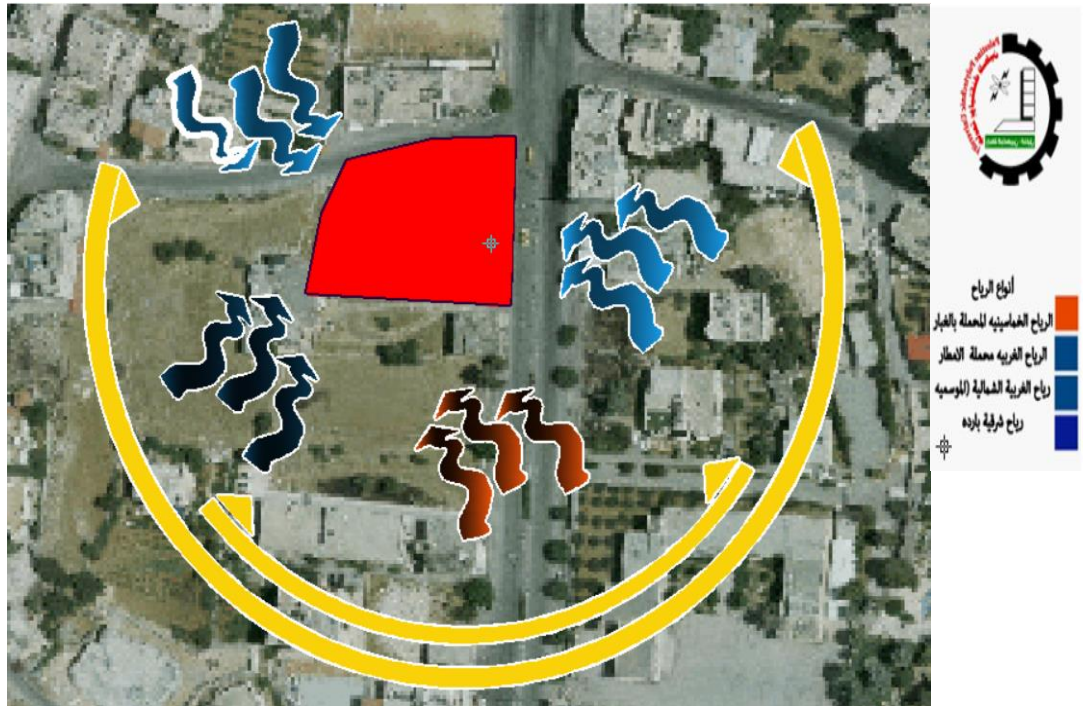


Figure 3.2 Movement of the sun and wind.

3.3.3 Architectural Elements:

Hebron city is located to the south of the west bank in addition of its high mountains, and this has given it a strategic location between cities. The city has an increasing in population in recent decades including several buildings and facilities. Also, the nature of its economic activity, which is mostly commercial and industrial, which earns it a unique architectural model.

3.4 Plans Description.

The building in its engineering structure depends on the rectangular and circular shape. This is governed by the nature of the land. The building area is $[9113] \text{ m}^3$. It is distributed over several floors as follows:

3.4.1 Basement:

The area of the floor is $[2190] \text{ m}^2$. The floor level is -02.70 m . It includes the parking. As shown in figure(3.3).

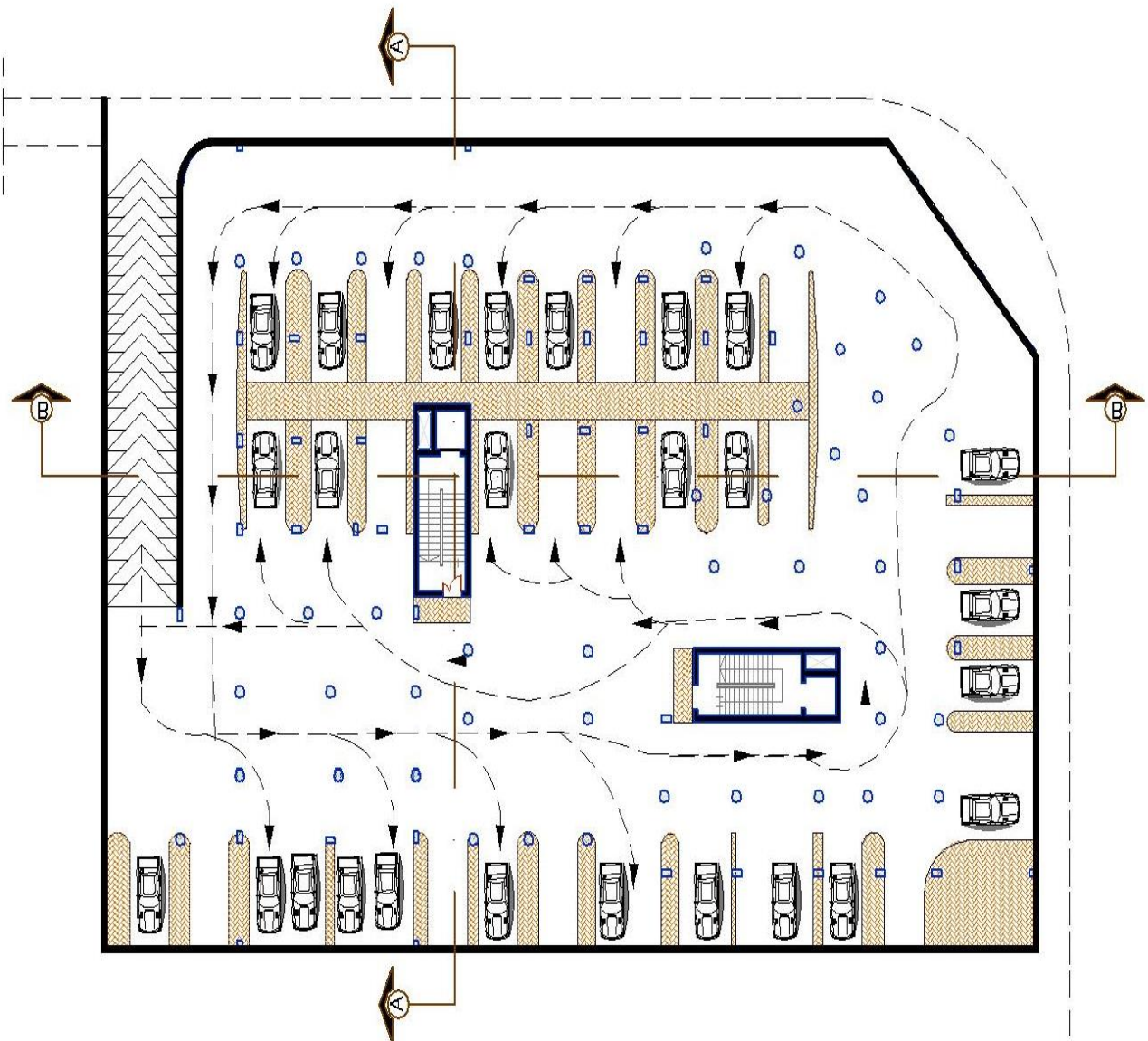


Figure 3.3Basement Plan.

2.4.2 Ground Floor:

The area of the floor is= [665] m² . The floor has several level to solved the defiance of land level, it's as follow +0.45m, +0.90m, +1.35m, +1.80m, +2.25m . It is include seventeen deferent store as shown in the figure(3.4).

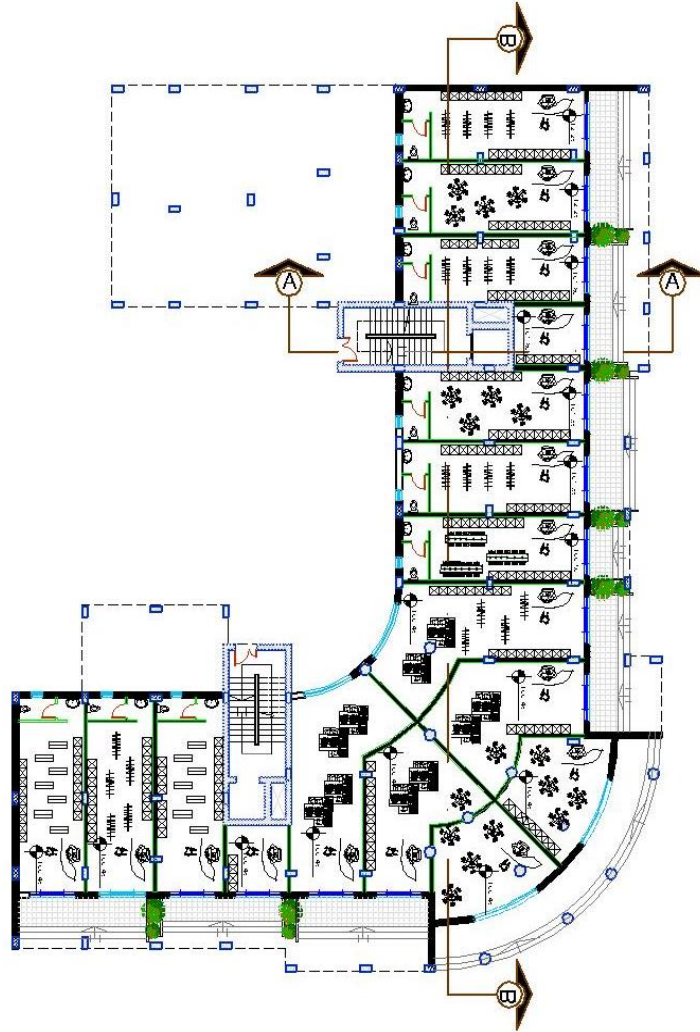


Figure 3.4 Ground Floor Plan

3.4.2 First Floor

The floor area equal $[1042] \text{ m}^2$. it's repeated in third and fifth floor. The floors level is +6.30 m, +13.50, +20.70. It is include four deferent apartments, each apartment include master bedroom, two bedrooms, two bathrooms, W.C, kitchen, guestroom, living room and dining room , and two partial from two another apartments include two guestroom, W.C, kitchen, living room, dining room and stair to move to other partial of the apartment as shown in the figure(3.5).

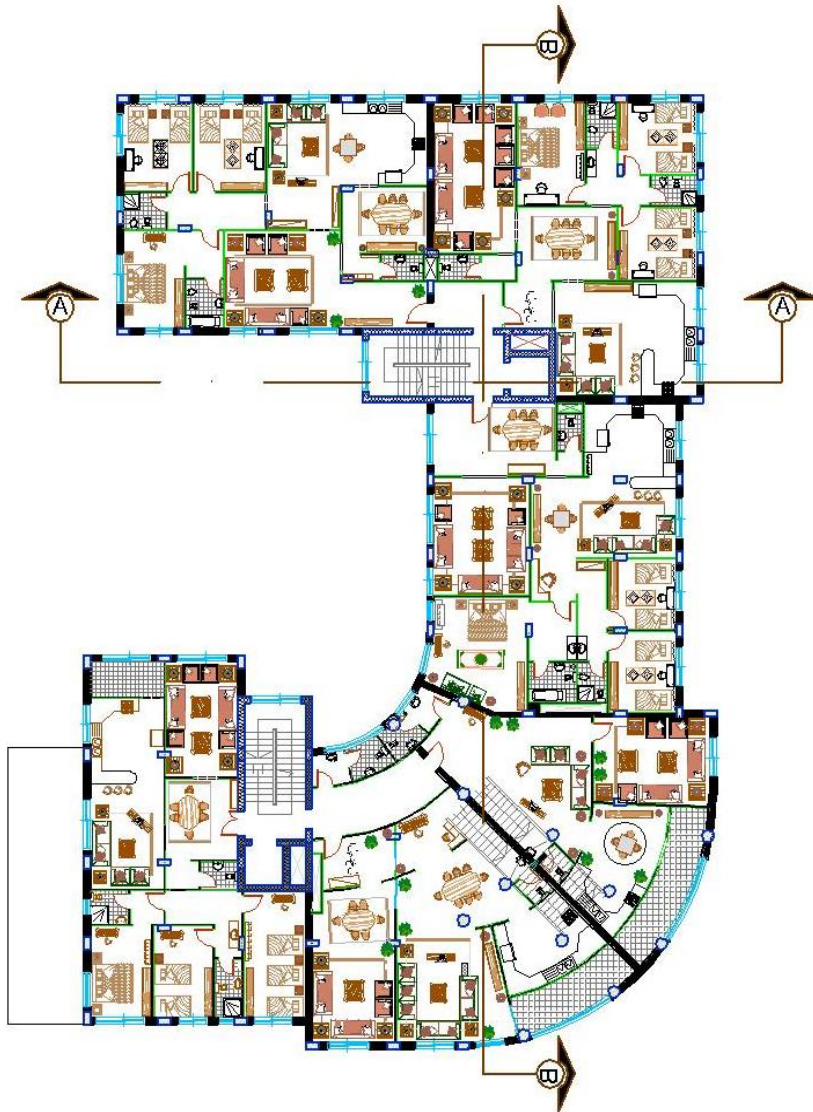


Figure 3.5 First plan

3.4.3 Second Floor

The floor area equal [1042] m². it's repeated in four and sixth floor. The floors level is +9.90 m, +17.10, +24.30. It is include four deferent apartments, each suite include master bedroom, two bedrooms, two bathrooms, W.C, kitchen, guestroom, living room and dining room , and the second two partial from the one of two other apartment include master bedroom, two bedrooms, two bathrooms, and living area and the other apartments include master bedroom, bedroom, two bathrooms, and living area as shown in the figure(2.6).

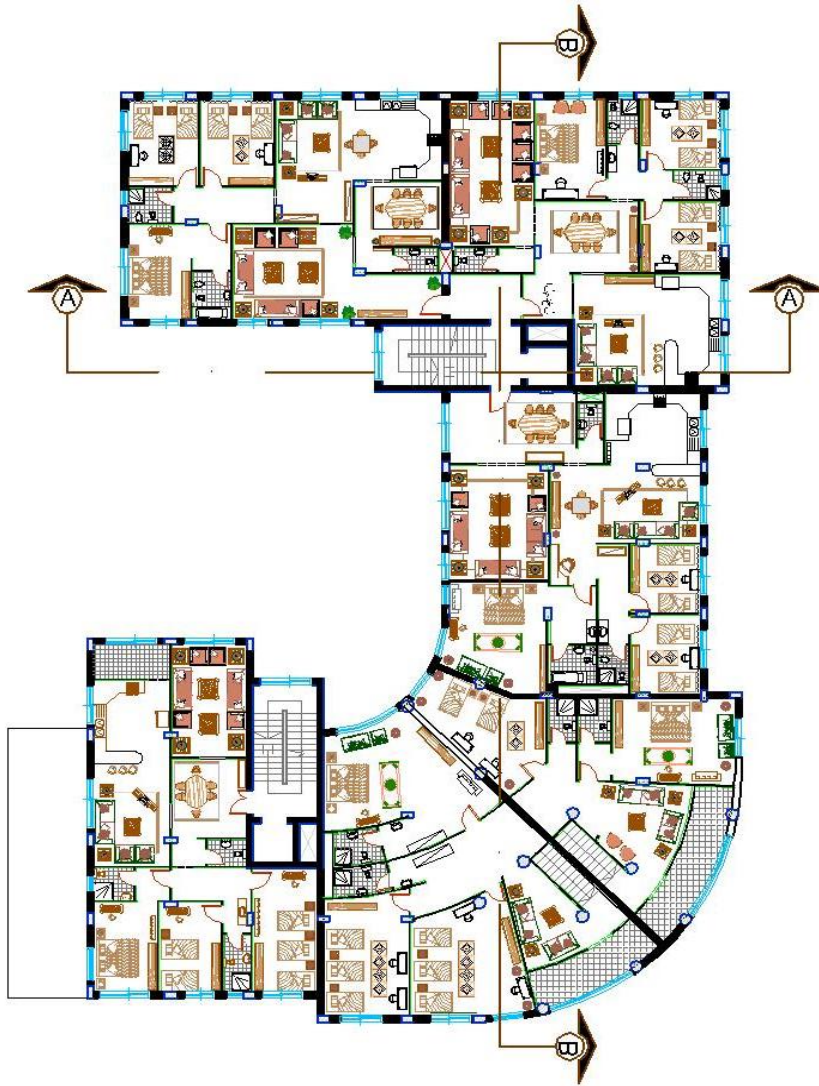


Figure3.6 Second Floor

3.5 Elevation Description

There is no doubt that the elevation of any design give the first impression of the building and its relationship with the surrounding environment. It also shows the differences in the function performed by the spaces reflected by the facade. and this comes through the openings that appear in the elevation, which must fit with the function of this spaces.

3.5.1 North Elevation

This elevation is the main elevation of the project because it has a full view of the building and its main entrance, it is include a good view for the viewer of the size of the project. And also highlights the main entrance that drives the people who comes to the building to enter through it without the need for a reference or guide. As shown in the figure(3.7).



Figure 3.7 North Elevation

3.5.2 East Elevation

This elevation shows the continuity of the windows along the building, and this highlights the architectural beauty of the elevation. Here also used the same type of stone used in other elevations and the same arrange for openings and windows as in other elevations. In addition, this elevation contains a set of windows that are consistent with each other, this gives a unique architectural layout. As shown in the figure(3.8).



Figure 3.8 East Elevation

3.5.3 South Elevation

In this elevation, there is some overlap in the building so it gives a kind of beauty and vitality. The openings and windows are arranged as in the other elevations this gives it a special character with a wonderful architectural touch, and it is shown the entrance to the first staircase. On the other hand, this elevation was characterized by the use of glass along the floors in the area of Stairs As shown in the figure(3.9).

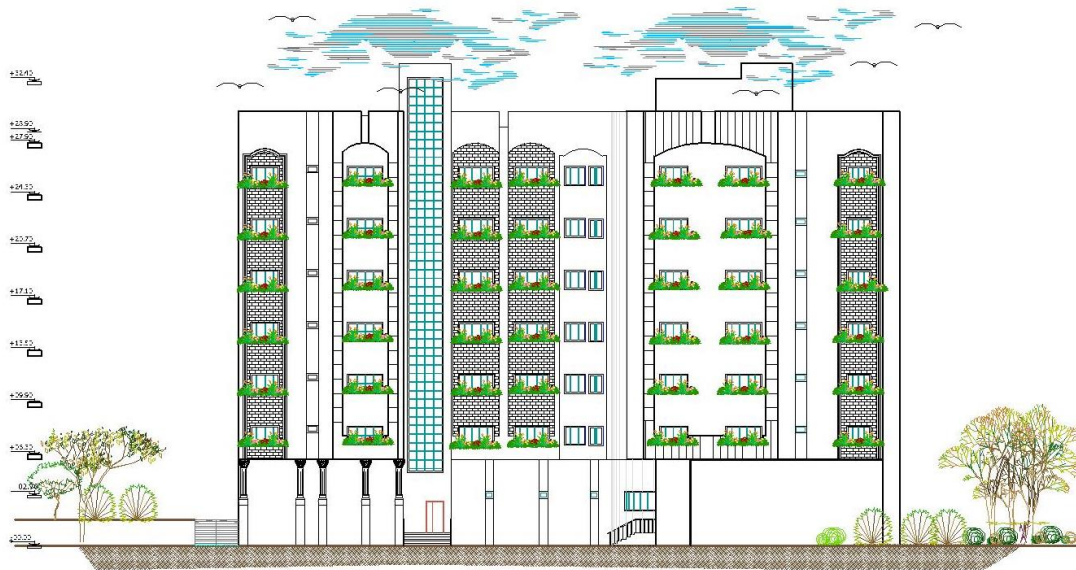


Figure 3.9 South Elevation

3.5.4 West Elevation

This elevation resembles the southern elevation in which horizontal and vertical blocks overlap, giving the building a beautiful view. Also using the same kind of stone and the same arrangement of windows and openings. It shows the entrance to the second staircase of the apartments. As shown in the figure(310).



Figure 3.10 West Elevation

3.6 Movement Description.

The movement from the outside and the inside takes many forms. And it's very smooth; so the renter can reach him apartments from the stairs, and elevator. which in turn allows free entry and exit from and to the building.

And each store has its own entertain, that gives it its privacy. Below are some sections of the building shown I n figure (3.11)and(3.12)



Figure 3.11 Section A-A

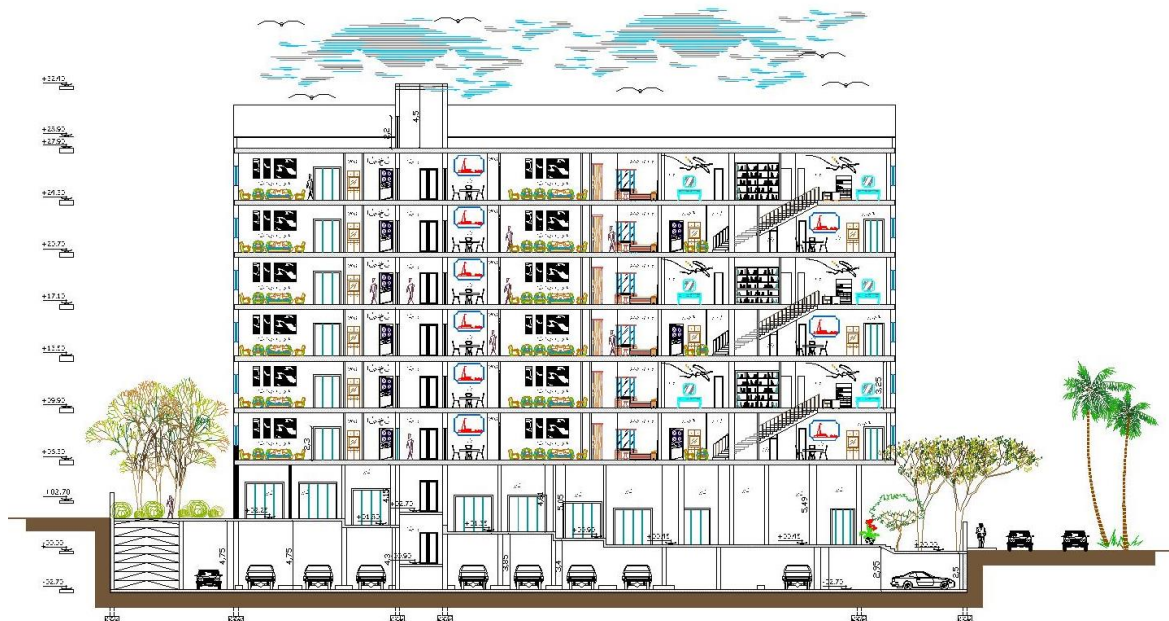


Figure 3.12 Section B-B