

# **Palestinian Contemporary Architecture, analysis of the current situation in Gaza Strip.**

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## **1.0 Introduction**

Modern architecture is generally characterized by simplification of form and creation of ornament from the structure and theme of the building. It is a term applied to an overarching movement, with its exact definition and scope varying widely.<sup>[6]</sup> The Palestinian contemporary (modern) architecture is the term set for architecture that had been erected in new materials and techniques. Today's styles, however, are quite varied and have a number of different influences. Examples of contemporary architecture therefore do not necessarily have similar or easily recognizable features as in classical architecture. A precise definition of "contemporary" architecture, therefore, is not so simple to articulate. It is generally recognized that contemporary architecture is an evolution of modern architecture. While these two terms are sometimes used synonymously, this usage is not correct. Modern architecture refers to the building style of the early to mid-20th century. It featured clean lines and an emphasis on function. Those elements that characterized modern architecture however were also sometimes thought to be cold and impersonal. This belief led to the creation of the contemporary style as recognized today. Like the modern style, contemporary architecture connects indoor and outdoor spaces, but it adds some personal touches and warmth throughout the living space. This research will present analysis that explores the current examples of Palestinian contemporary architecture, especially in the Gaza Strip and recommendation for development.

## **1.1 The Purposes of the Study**

This study aims to review the tradition used and available in contemporary architecture in the Gaza strip. Therefore, this study is structured as follows:

- The major architectural building of various types has been presented, Identifying building materials and building components.
- Recommendations depending on this study any ideas, materials, architectural elements, or solutions that could be considered in the future architecture design in Gaza strip are presented.

## **1.2 Methodology**

The methodology of this study is based on:

1. Review of available literature and interviews with concerning the current.
2. Field visits to the concerned architects to conduct discussing the status.
3. Contact of the local companies working in the field.

## **2. Architectural Education in Gaza**

A School of Architecture was not established in Gaza until 1992 However, there were sufficient numbers of architects who had completed their studies abroad. In 1993, the Islamic University established the Department of Architecture through its Engineering Faculty in Khanyounis and the Palestinian university of Gaza. The staff members exhibit an interesting mixture in terms of background, specialization, which adds to the

strength of the departments. The educational system is based on a semester credit hour system. The students must complete 152 credit hours to obtain a B.Sc. degree in Architecture, which takes five years. The curriculum is similar to that adopted by other Universities. This covers mainly Architectural Design, Graphics & Visual Arts, Building Technology, Urban Design, Structural Design, and Landscape & Interior Design. The housing needs in the Gaza Strip are not just limited to the Operation Cast Lead destruction. The total war related caseload includes damages from pre Cast Lead Israeli-related destruction. It must also not be forgotten the housing units partly completed, but frozen since June 2007 due to the blockade and the refugees currently living in camps who need to be re-housed. This is in addition to the tens of thousands of units needed to be built in Gaza to accommodate natural growth. After three years of the blockade on the Gaza Strip and almost eighteen months after operation Cast Lead, little of the extensive needs for homes and infrastructure throughout the Gaza Strip have been met. Since the beginning of the blockade, largely only the repairing of minor damaged houses or transitional construction has taken place. Almost zero progress has been made for over 6,000 major and totally damaged homes during Cast Lead, less than 200 have been completed to date. The suffering continues; reconstruction is being prevented because the blockade on the Gaza Strip. The humanitarian community cannot do its job because of the blockade.<sup>[3]</sup> Despite their willingness, for the last three years local authorities, NGOs, UN and other agencies have had little or no impact on shelter construction. INGOs and some donors have re-directed or even withdrawn their effort until change happens. Meanwhile, families, continue to suffer. There remains no durable solution on the horizon for the worst affected families, unless the blockade is lifted. Thousands of Palestinians in Gaza Strip live in refugee camps that have gradually become permanent settlements, while many others live in comfortable homes in modern towns. The crowded refugee camps are equipped with small cement-block huts with corrugated metal doors and roofing. Food is prepared on a metal grate placed over a container of charcoal. Thin mats placed on the floor serve as beds. People bathe and wash clothes in metal drums filled with water from a community well.<sup>[2]</sup>

## **2.1 Plans of Contemporary Architecture in Gaza strip**

If you are looking for modern building plans in the Gaza strip, there are many different types of plans that you can consider. The contemporary architectural features that you desire are going to be unique to the needs, but they will be much different than traditional home features. Contemporary buildings have been popular since the mid 1995s, and are influenced by postmodern and design elements. You can usually identify contemporary buildings and modern designs by tall windows, unique shapes, and other architectural features. When you are inspecting the features of contemporary architectural design to include in modern design plans, there are many different things to look for as, the exterior design, which takes a minimalist approach, and landscaping is usually used to create minimalist of design. Interior features of modern building plans include things like:

- Open floor plans
- High ceilings of building
- Ceramic tile

- Gypsum materials
- Kitchen designs
- Marble, stainless steel and concrete counters-----etc.

Of course, the contemporary design features, which are selected to identify the current modern building, depend on the types of elements expected to be seen in most building plans which are categorized under modern and contemporary design. It offers something different from traditional home styles and allows people to have a more stunning and architecturally unique design for their needs. These are things to keep in mind when we are looking for architectural design plans. Gaza Strip has passed through many political periods in the last 64 years; this affected the building process and caused chaos in the planning and in the development of the architectural styles. During the occupation period the main concern of so many people was to build a shelter in a very economical way regarding the form, shape, or style. The architect until late 1980s was not the only designer and building process could pass even without the architect's signature. These facts were behind the reason for the static development in the modern architecture styles. <sup>[6]</sup>In reality, contemporary buildings decor, although sleek, clean and smooth, can make a colorful and dramatic design statement that is an interesting blend of textures, colours and elements. If you enjoy clean lines, smooth surfaces, bold colours and natural elements, contemporary buildings decor could be the creative lifestyle expression for you. Resulting from variety of the graduates of Architectural faculty from different counties and from local university, it could be found that adding one more element to the area might be too much<sup>[6]</sup>, it's probably right. Err to the "less is more" philosophy of decorating and you will be fine. It is important to analyze, understand types of contemporary architectural within the building use and type.

## **2.2 Residential Buildings:**

### **2.2.1 Separate House**

The circulation in this house is horizontal movement; the staircase is the vertical movement to an additional floor on top, with almost the same design. In some cases the stairs are an external element and especially for the two-floor houses. A single house style is one of the popular styles for growing up families, Different designs can be found for the same functions; 2-3 bedrooms, 1-2 bathrooms, kitchen, guest room, sitting room, and balconies. The design and form of such houses are simple; the upper floor is usually gaining much heat in summer time. This happens because its roof is exposed to the sun directly with no insulation materials for the roofs. While in winter the upper floor is again, behave opposite to the climate for the same reason <sup>[4]</sup>. Ventilation of such house is very good since four elevations exposed to the natural environment. These types of houses are mainly built with in two materials mainly; either concrete or hollow block external walls, which are found in all cities and villages in Gaza. Concrete and hollow block walls are plastered and painted from both sides with light colors. (See Figure (1)).

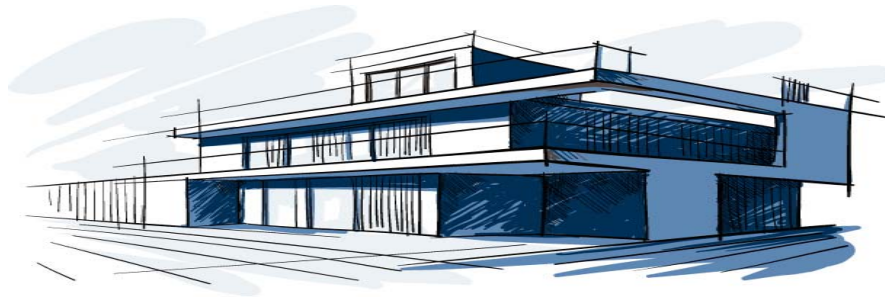


Figure (1) Separate House

### 2.2.2 Villas

Private Villa building in modern style architecture for young family are found in all cities and in villages in the Gaza strip. Villas are built in one building material mainly hollow blocks external some examples are made from concrete and hollow blocks, with external plaster. (See Figures (2-4))



Figure (2) Khan Younis Villa



Figure (3) Khan Younis Villa

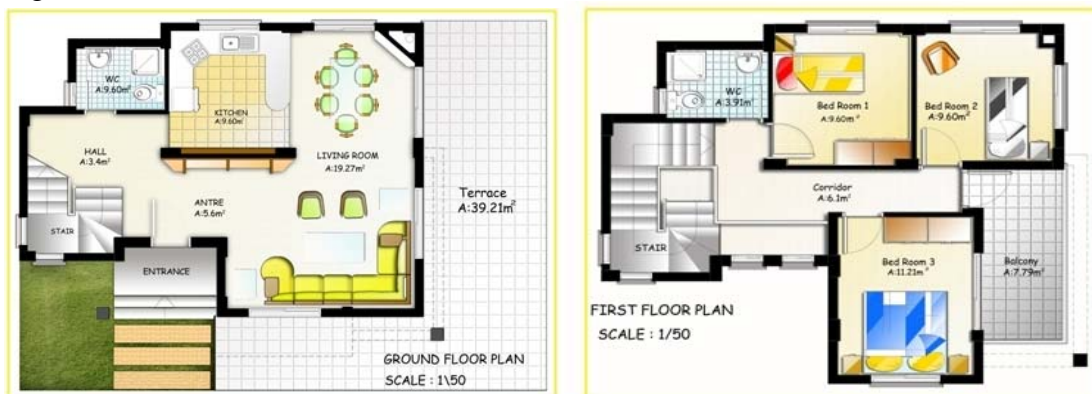


Figure (4) Plans of Villa

### 2.2.3 Apartment Buildings

The most Architectural Apartments include two Apartment buildings in the Midtown Area for each floor. Most buildings have a newer look with balconies. apartment house, also called apartment block, or block of flats, building containing more than one dwelling unit, most of which are designed for domestic use, but sometimes including shops and other nonresidential features. For regulation reasons and political ones, the areas for building purposes are small comparing to the demand of housing needs, especially in cities. This is another reason for the vertical expansion in apartments. <sup>[8]</sup> See Figure (5)



Figure (5) El Amal district- Khan Younis

#### 2.2.3.1 Low-Apartment Building

Apartment blocks have technical and economic advantages in areas with high population density. They have become a distinguished form of housing accommodation in virtually all densely populated urban areas around the world. In contrast with low-rise and single-family houses, apartment blocks accommodate more inhabitants per unit of area of land they occupy and also decrease the cost of municipal infrastructure. The demand for apartment housing has continued to grow as a result of continued urbanization. The mid- or high-rise apartment complex has become a fixture of the skylines of most of the world's cities, and the two- or three-story "walk-up" apartment also remains popular in somewhat less built-up urban areas. The areas of apartments vary from 80m<sup>2</sup> up to 180 m<sup>2</sup> with the same functions as in the single house functions. A staircase with elevator in the middle leads to different levels and apartments, the design and form varies depending on number of apartments in the same floor. <sup>[6]</sup> In most of the low-apartment buildings, 1, 2, or 3 apartments in the same level is the typical example, while the number of floors can reach 7 floors above the street line. In such buildings at least one mutual wall separate two apartments from each other; this leaves each apartment with three facades open to the natural environment in the best cases for ventilation and natural lighting. The increasing popularity of condominiums in Palestine and elsewhere is based Major cities in Gaza Strip are famous of such style, which is an "investment building", and rarely found in villages. The building material is a concrete and hollow block external wall in some case, the other kind of apartment buildings is Tower-Apartment ,See Figure (6&11) .:



Figure (6) Low-Apartment Building plan

### 2.2.3.2 Tower-Apartment

The tower apartment's style exists in Gaza Strip cities since 1995, and has the same functions as any apartment from the interior space. The form of the building is different than any other apartment building; it is tower with one or two vertical access staircase and elevators leads to the upper floors that can reach more than 15 floors. Tower block, high-rise, apartment tower, office tower, apartment block, or block of flats, is a tall building or structure used as a residential and/or office building. In some areas they may be referred to as multi Dwelling Unit. Depending on the design and number of apartment in the same floor the natural ventilation in tower buildings vary, but in general in summer time they are cool (with humidity) and windy (open to the west – the sea), and in winter they are cold. The building material is mainly concrete façade painted with light colors. <sup>[5]</sup>, See Figure (7&8).



Figure (7) Gaza city



Figure (8) Gaza city-Rimal District

#### 2.2.4 Multifunctional Buildings

A multifunctional building style is considered of the best investments in building in Gaza Strip. it consist often of offices and shops ,the height of the shops in the lower floor varies from 3 m up to 6 m with mezzanine level, while the upper apartments have the same layout and design of residential apartment that can be converted into offices. <sup>[10]&[3]</sup> usually a commercial (shops) in the lower levels and apartments in the upper floors, these apartments are for both residential and offices as well. It is allowed to build this building in commercial areas and main streets and industrial zones (according to the building law). A staircase leads from the main elevation to the upper floors that can be symmetrical and have two apartments or just one. This style should be developed to include different buildings materials and forms.

#### 2.2.5 Public Buildings

Public Buildings have in Gaza special climatic elements and component such as portico, lobby, complicated form, curtain walls, window's shelters, etc. and some are simple in its form and functions as a rectangular shape or the L and U shape especially in schools. Building materials are mostly concrete in Gaza Strip. <sup>[10]</sup> See Figure (9-11)



Figure (9) Alquds Hospital

A public building varies from governmental, educational, hospitals, recreation, etc. They are designed (in most cases) for special functions, with different form and spaces.



Figure (10)  
Community building style (Elevation of Khan Younis Municipality)



Symmetry **design** basic patterns Figure (11)

### 2.2.6 Religious and Cultural Buildings

When tradition plays a part in contemporary architecture it is most frequently as an aesthetic consideration in which the most obvious element is the use of some style from the past. At the other end of the spectrum is the avant-garde tendency, where the latest technology is the means architects use to achieve novel forms of expression. [9] Mosques and churches are found in each Palestinian community, they have a much specified function for a group of people, in large communities more than one religious building could be found, the orientation of such buildings is very important. Electrical fans is found in most of the Mosques to help in ventilation in summer time, because of the large number of prayers, but in winter no need for heating systems. In most of the cases special treatments for ventilation, heating and cooling systems is found. [8]

See Figure (12&13)



Figure (12)



## Contemporary Architectural Elements Saint Porphyrius Church Gaza -City



Figure (13)

Over view of omer muktar str. Residential and Religious Building (Gaza City)

### 3.0 Exterior Elements

#### 3.1 Balconies

The Gaza's Architectural concept for balconies, as a part of the building (interior space) and can be in different designs, and layouts. Balconies reduces the direct sun and heat from entering the inner spaces of the buildings, and closing a balcony turns it from a cool place in summer time (especially in west elevation) into a solar collector, while can be very comfortable indoor climate especially in autumn and spring time and reduce the heat loss in winter for the inner Spaces. Balconies were found in the traditional architecture before the new building materials and techniques took place, they were acting as an outer space element in summer time. Different Shapes of balconies can be found in contemporary architecture as followed See Figure (14&15).<sup>[6]</sup>

Figure (14) Types of Balconies



Figure (14)

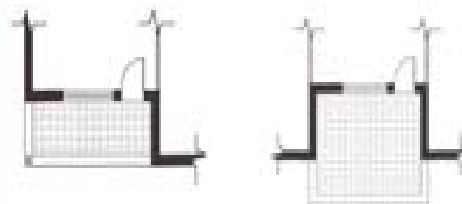


Figure (15) Types of Balconies

#### 3.2 Openings

In contemporary Palestinian architecture, Openings (doors and widows) are the main thermal openings (windows and doors) have no standardization. Sizes, shapes, proportions, heights, depths, etc. varies from one building to another, and in the same building. There have been no rules set for the minimum height of an opening or the minimum size for lighting and ventilation, no modules or molds for the Aluminum, which is the most used material for windows and doors. For these reasons and another there are no special characteristics for the contemporary Palestinian architectural openings. But there is always something in common between the same groups of buildings. Arches and lintels where used as a structural elements for openings in traditional architecture.<sup>[3]</sup>The use of reinforced concrete and steel in beams as a new

technique in the last 60 years, changed the structural behavior of the window, and the opening shape from small vertical openings in Traditional architecture into a horizontal

### **3.3 Glazing**

Windows are also the most difficult parts of the building envelope to adequately insulate. Windows, glass doors, panels and skylights play a crucial role in admitting heat and light, and can have a significant impact on energy consumption <sup>[5]</sup>. They are also the most difficult parts of the building envelope to adequately insulate. Different types of glazing are found in Gaza strip; single glass, double glass, reflected glass, and colored Glass, each one acted in different way for energy consumption. Care needs to be taken to ensure that windows are positioned, sized and protected so as to get the most benefit from winter sun while avoiding overheating in summer and heat loss in winter.

### **4.0 External Walls**

In Gaza strip there are two methods mainly for building walls, this are the most thermal conductivity elements in building, they exposed to the climatic changes and have variable thermal efficiency depends on the techniques of buildings.

#### **4.1 Concrete hollow blocks with external plaster**

The efficiency of this wall is less than the stone-walls, humidity and salt layers can be found on walls in Gaza strip area, and the plaster needs maintenance every now and then, depends on the orientation of the elevations and the exposure to the salty wind coming from the sea. This type is mainly found in Gaza Strip Cities, refugee camp and villages, hollow blocks are cheaper than stone, this type of walls can reduce the total cost up to 45% Such type of walls can be found with one layer of hollow blocks with external and internal plaster and paintings, or can be found with two layers, with insulation <sup>[1]</sup>.

#### **4.2 Colors**

In Palestinian architecture there is no calculation or scientific methods that recommended the light color but it is known spontaneously that light colors do reflect light around and can help in reducing heat gain in summer <sup>[3]</sup>. This item needs advance research to enhance the quality. In concrete hollow block walls painting for both sides of the walls is always found in Gaza Strip area, Jordan valley and refuge camps. An exceptional cases no colors on external walls that leave natural color of the plaster (concrete color), as the final layer. Light colors are most colors used in painting such as: white color is the traditional color for external and internal, it came from the color of lime, new colors are taking place last years but still in the range of light color with different reflection effects.

#### **4.3 Space and Shade**

Throughout the history of architecture we see projects where the use of light and space was the essential preoccupation of the architect. Theories have been painstakingly elaborated on its use as one of the chief characteristics in a given architectural design, where light penetrating an empty space becomes the key to sculpting this dark area through rays of light shining through cracks, or openings. Light is here being treated as a material. But it should be made clear that in architecture light can only be treated as a material element when it makes its appearance simultaneously with its opposite - shadow. Light and shadow by themselves, separated, create no references, just as one needs a cloud in the sky in order to define a limit to the sky. So it is when they act in concert that they become of interest for architecture, because then they can be an instrument used to model architectural space. This conception of a space designed around shadow effects and transparent surfaces, alternating on different planes, and

interrupted by reflections and brief flashes of brightness, has its limits defined by this play of shadow, and brightness. The challenge for the architect is to lend reality to something as tenuous as a shadow effect and to cause it to occur on different planes until he has reached a particular architectonic style-language. He is attempting to make a virtual reality into a material one, in order for perception of this reality to become the defining characteristic of the space <sup>[2]</sup>. This type of architectural design could be described as informal, not because it is not orderly, but because it does not aspire to any static or symmetrical form, or to any one interpretation, and also because the limits marked out by this design are sometimes vertical planes created by light or shadow, in other words shaded or lit areas. It is a design where space simultaneously protects from the elements and opens itself to the exterior; it is light, and at the same time darkness. It should be an attempt to create a space which joins together all the possibilities of a given environment, whilst at the same time putting these possibilities into a defined order.

## **5.0 Recommendation**

As a result, development of contemporary architecture techniques must take place in Gaza Strip by using different insulation materials depending on reducing energy consumption in the building sector.

-Due to the forced pace of modernization, the conflict between traditional values and imported ideas has been quite sharp and recently the resulting resentment gave rise to Architectural movements. Today there is a massive import of architectural language, a stereotype vocabulary of built form that is essentially Western in character. Dramatic change and innovation have been part of modernity for centuries, as has technological development and expansion.

- To achieve an acceptable level of habitability and comfort here one needs to make full use of the given environmental conditions as resources when designing a building. The problems of excess rainwater disposal, air-cooling, and decreasing relative humidity levels must all be taken into account, as well as that of reducing excessive glare from the sun.

-To cool down buildings naturally the most economic method is to lower the temperature of the air before it enters, using water or vegetation, and also by speeding up the air velocity when it enters the building using some method that makes use of differences of air pressure.

- Preference of building techniques and materials which gives protection against the extreme heat and humidity of the summer and the cold winter nights, owing to their low thermal conductivity such as wood, brick and using vaulting and arcades as a rational technique choice.

- Wide eaves, canopies and sunshades will always reduce the amount of light penetrating the interior, which means it is important to compensate for this loss by creating apertures in the roof that will allow light to enter. As is known, in the Northern Hemisphere light coming from the north is the most consistent, making smaller contrasts of light and shadow, compared to light coming from a southerly direction. This makes its use ideal for achieving an even illumination throughout interior spaces.

This should be considering for the new building design in Gaza strip and the Arab world.

- To catch up with modernity, whether intentionally or unintentionally, to lose its local image, uniqueness, and ability to meet its particular needs. It has experienced dramatic changes in cultural arenas where architecture has been characterized as culturally alienated and Westernized. This characterization, which is, ironically, publicly known as “progress,” is related to the search for national identity.

-Absorb and assimilate foreign cultural influences without losing identity. This can be implemented by encouraging designers to respect the dominant styles in the locality in order to achieve a degree of consensus.

-Traditional approaches to the new situations. Identity is dynamic; therefore, it is changing continuously in application. Architects should think “globally,” a composite term to convey looking back to the local from their global position.

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