

# Architecture Heritage in the United Arab Emirates as a springboard to the sustainability of local architecture

Dr. Mohammed Abbas  
Abu Dhabi Municipality  
Administration of Building Permits  
Abu Dhabi - UAE  
Tel :00971 050 6682931  
Email: [mo.abbas@adm.abudhabi.ae](mailto:mo.abbas@adm.abudhabi.ae)

## INTRODUCTION

The research aims to try to link the vocabulary upon which the extent of the enrollment of any architecture modern methodology for green architecture-compliant and environmentally between the vocabulary upon which our inherited architecture and which are also keen heavily on environmental compatibility are beyond the ability and dedication of many models nearby modern and surpassed that stems from our environment we are with all its uniqueness severe on many levels, which is considered here suit to refer to understand and accommodate those architecture in order to get out methodology helps us to innovate architecture concern us and fits our circumstances environmental and innovation architecture for Emirates belongs to what is known and called architecture green by reference to our inherited architecture orientation systematic anatomical order to accommodate the vocabulary of their own and which belong to the methodology of green architecture and studied in order to maintain or developed and then integrated into the vocabulary contemporary architecture that emerged from the data the moment the current environmental and thus access to the contemporary architectural compatible with the environmental situation Al-amaratyah contemporary with her particularity very special .

And by discussing the concepts of thermal comfort and thermal conditions that are supposed to be out of the building to bring it up to his inhabitants conditions thermal comfort, as well as factors affecting the sense of comfort and thermal comfort those standards and how to express them .

And also paper discusses climatic factors such as the intensity of solar energy and ambient temperature and wind speed and direction, relative humidity, and the factors of construction, including the specifications of thermal physics of building materials, which enabled us to choose that article without other operations thermal design, as well as how to use them and thus the ability to infer the thermal behavior of the building.

In the latter conclusion a small program on the computer proved the paper from which the extent of affiliation architecture inherited to green architecture, through study and

conclude the amount of heat flowing into those models and compare the rates of humanity, and thus infer the thermal behavior of the building and its application to modeling the traditional and modern.

## RESEARCH PROBLEMATIC

The balanced architecture expressed for personal users and connected between man and architecture relations complementary Perhaps this integration physiological and spiritual is the one who made us look at the architecture Gulf old as a form of investigation of human in this region that they contain several elements of positive architectural appeared in the configuration outside as well as a single dwelling Wahid. These distinctive features appeared at the destruction and partial of it.

The architecture of meditation in Abu Dhabi and here urbanism makes us aware that we have inadvertently created the reality of all that value and the vocabulary and sincerity and makes us look at the reality of urban anatomical current outlook for some time and other analytical time ... Where this reality of that legacy? And where this actually supposed environmental? Is there a connection that may link the supposed inheritance without passing on this fact?

What we have achieved Abu Dhabi from mutations architecture is impressive and comes his successor a huge effort to try to keep up with the times has made it the most beautiful cities in the world, but wow this actually makes us look and analyze as if they were part of those attempts may take the legacy of architectural inspiring position in such mechanisms would actually do not shop more beautiful and fascinating.

## GREEN ARCHITECTURE

The green color is the energy of life which is a clear indication of the production's most vital to the movement of the plant, green architecture is vital that the system that accommodates them all the processes of human existence.

Green architecture is shelter find where human activity haven and Hama, building reconcile with the given adjacent to announce a new beginning for the start of intimate with the environment without dispute and without hostility, and if we pretend that there is a presence traditionally Heritage Green Building, we must place that Ngiz briefly what this term and its definition, and his being, not to prove the importance of history of green architecture is much larger than just put up this important but only to define and agree on a formula and then we are entitled to refer to this architecture as green or so and thus put our architectural heritage within this list.

The green architecture is known as an organization that we design for saving to us the climatic elements compassionate and compassionate, and natural all its positives, free to the farthest extent of pollution in all its forms, saving us the social networking among family and community, and communication and self-cultural communication. It also mentions that green architecture is designed to deal with nature better, and they provide a vital mechanism to communicate between human society and nature.

And the concept of green architecture designed to achieve compatibility and harmony between human needs and the data from his surroundings through hubs interconnected include the efficient use of resources and good-employed and optimal handling with environmental variables and climatic conditions and different geographical conditions and social development in order to achieve the comfort of the individual and provide the needs of the physical and the spiritual.

The process of the buildings formation environmentally responsible manner taking into account all the factors at the lowest consumption of energy, materials and resources, and less effects, including the establishment, use and disposal of waste, and maximum compatibility with nature.

The green Architecture have humanitarian objectives in the first place those goals that give validity and permit to stay in the range of friendship and tying humanitarian, and those goals are not beyond the scope of creating an environment architectural and urban working on integration with the resources and the characteristics of the natural environment through the identification and implementation of a number of tasks massive humanitarian through several strategies which constitute an important content and accomplish its goals.

HERITAGE OF ABU DHABI AS AN ENVIRONMENT FERTILE FOR  
STONE TOWARDS THE SUSTAINABILITY OF CONMEMPORARY :

ABU DHABI ARCHITECTURE BEFORE HALF A CENTURY AGO:



*Qasr Al-hosn in 1960, and it appears in the picture the main tower vaulted, At home, a defense towers topped aware of Abu Dhabi white and red, which was adopted in 1820 and replaced with the knowledge of the United Arab Emirates later, as the image shows, pictures majestic that surrounded the palace, and the fence additional external low, and to the far right look outside gate surmounted by a dome tower guarded by a defensive square .*

In the context of diving deep to try to find out the roots of our civilization humanity, which was formed through a series of innovations related human consciously environmental instinctive for problematic development physiological and spiritual, which helped to achieve a good deal of the absorption capacity of organic and thus structural innovation architecture overlap easily inside the bowels of the place and hugging



*Had access to Abu Dhabi in the early fifties of the last century during the crossing is of primitive temporary, built by oil exploration Creek section above. It appears in the center of the image customs that existed at the entrance to the land bridge section, guarded by soldiers in 1961, but was demolished this building later.*



*Abudhabi in 1959 and shows Qasr AL-Hosn and the old corniche .*

honestly with the moment without costing're looking at this situation around a branch of our Arabian extensions of Abu Dhabi architecture by more than half a century and where the entrance to the rooting of this ancient architecture will be through the know-how and the objective of which stand on the external influences surrounding by man that period.

And that influenced the decisions of the architectural where I have rights concepts positive in the systems and the

relationship of the blanks Ocean external with respect to the climate and the land where he was directing the openings in the direction of the movement of air to get as much of it as possible to minimize the severity of the heat and also could be performed by moving the air inside his realm he established Almlaagaf and Alohawwac Interior and also the building blocks for a suitable corridors in terms of length, width and height to make aerial tracks between home and also inside the house per.

We also find in the mind of this man of affairs, social and religious, which began also constitute its decisions architecture, we find, for example, separate space for the reception of the rest of the elements of the unit has a direct contact abroad, and there is no connection between the housing units internally through the courtyards of the units of the relevant family as well as make all openings overlooking Ali yard internal and providing space cooking near the sleeping area in the unit and we also find that each region or trail Privacy clan in the right dialogue and housing and areas of public services - shops - markets - regions of concerts and entertainment) occupy Partyaa to come into residential therefore were castles and forts at the entrance residential communities and castles were representing the governor housing.

Thus becomes a public place frequented by members of the Tribe this to the side of the castle used to represent a place of protection and defense of the tribe where the mosque is located near the castle in the general area has been characterized Building Abu Dhabi ancient using natural materials in the construction and building where the use of stone and plaster in areas affecting the stones either in agricultural areas were used material silt or clay.



*The old Abu Dhabi in 1952*



*The control tower in the old Creek section was protects the access road to the island of Abu Dhabi, before the construction of the bridge. The construction of the tower date back to the mid-nineteenth century.*



*AL Maqtaa Road is the first road in ABU DHABI in 1953*

In coastal areas used light materials such as wood and woven mats for walls and ceilings where natural materials have a recipe absorption temperatures and stored them condensed water from the humidity is working to reduce temperatures as it kept low temperatures inside the space and numerous building materials, according to affiliation to the Centers for settlement at the time and that represented in the coastal settlement where used exclusively and palm trees.

And rural settlements where mud and used exclusively and settlement unstable to the shepherds in the desert where the tents used mobile, either public buildings of religious and defense was the adoption of thick stones, whether coastal or rural or desert.

The study population activity and the quality of the buildings located in that period, notes that it was containing the residential areas that basis the economic fishing has Seen palace Amiri governor's residence, a large fortress also contained on the General Board of the Government, in addition to those of religious buildings and the Great Mosque and look to the residential area, we find that it took nature particularly in

terms of the shape and construction materials, where the idea of assembling housing units projected in the horizontal plane separation or relationship and configuration

And the region a special character with touches the line of the horizon where the horizontal buildings and solidarity with the emergence of Towers Mlaagaf high air and piercing line sky gave her a unique character for Building Arabic and also had a residential unit distinctive character was for the building of religious distinctive character RPR simplicity and good order in terms of system hallway Arab in the composition of projected where Open yard and the front lobby, then shaded yard covered with prayer (porch direction).

It also features distinctive architecture in Abu Dhabi that the old commercial areas that impressed by the features, especially in the projected horizontal and vertical.

Where the market was made up of small shops scales depends on the movement of man sitting where she was such a feature deal at the time, and that some of the characteristics of life architecture in that period is noticeable is the direct translation and assignment of clear every single architect for his environmental, social and completeness of origination to the context of the movement with the questionnaire synonym of the unconscious human which was referred to the entire original encroachment by non-aggressor and intimate deep between the earth and are satisfied that the absorbing above was that architecture is the emergence of a natural or embryo was deferred until that moment.

Although the research on ancient history of the UAE generally limited, but it is sufficient to confirm that the region is known as the stability and civilization since time immemorial, since the effects that have been found for Khadeed mountainous areas show that the population may did people land the UAE during the period of climatic wet which lasted between 6000 - 9000 years preceding. Has worked Centers urbanization in the UAE as centers of important commercial connection between Sindh and Persia, has excelled people riding in the sea as well, and see each other that area or fire may be one of the commercial stations of old, which was carrying the copper old from the mountains of Oman on camels, and notes that the effects of beauty in the settlement of Umm Al Nar oldest traces the domestication of the camel in the world. However, the emergence of the latest oil changes a lot of social, economic and cultural, which greatly affected the UAE society.

## BARAGIL – WIND TOWER

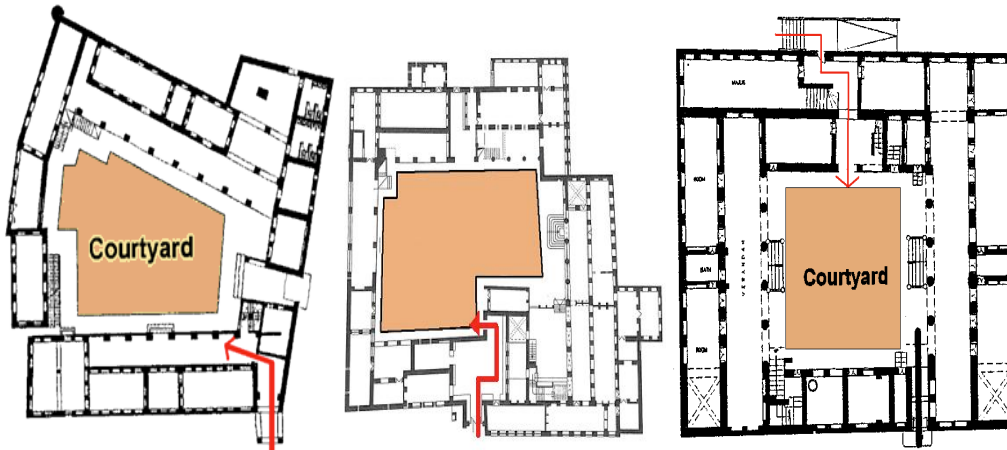
Barjeel is a tower above the residential buildings typically used to capture the wind into the building through the openings of the four positions are determined by the design of the building. It is a word of Persian origin Bedkir.

Barjeel take different forms and unite in the box and the cross-section perpendicular diagonal resulting in the presence of four holes to capture the air.

Barjeel is seen in the main rooms, councils, ranging from the simple binary designed openings to type multi-slots sometimes up to six slots finished scrolls corner.

The status of Barjeel above the buildings gives the property to capture the cold air on the high levels worked to change the path of the wind vertically to the inside of the building, as that cover the walls of national Barjeel in white limestone works to purify the air inside of the moisture lingering in which I have been using a measure called al-fter It ranges between 15 to 20 cm and the ratio between length and width 1: 2 in most cases.

A vacuum supervised by the interfaces internal to the building, also gives room for expansion when needed for different activities are allowed to change status Additions such as reforestation and cultivation of parts of it, and as we mentioned in the previous chapters that the yard and although it is a traditional heritage thoroughbred in architecture the Abu Dhabi and the United Arab Emirates, but he faces several problems on the level of climate especially when used in hot and humid climate.



*The use of the courtyard houses in the Sheikh Said, Sultan of scientists and Sheikh Obaid Al Maktoum .*

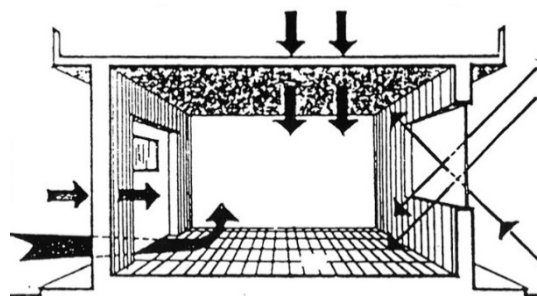
## COURT YARD:

Is a vacuum Central may be mostly exposed, regular shape often distributed around the elements of the building interior and works as a link between them the primary purpose of the inner courtyard is to achieve privacy for the owners of the building to engage in daily activities and private housing, and has another purpose is the treatment of climate, where he works on the introduction of the light and the air may be partly exposed or fully exposed determination is not subject to a formal base or fixed rates, but a pivotal presence within the building, whether centrally or laterally regular or irregular shape the building contains more than one vacuum.

MECHANICS AND PROCESSORS ABOUT ARCHITECTURAL THEORY IN THE ARCHITECTURE AND URBANISM SUSTAINABLE IN ABU DHABI: -

THERMAL COMFORT<sup>(1)</sup>

When considering the design of the building belongs to the Green Building at the heat it needs to be a study of the thermal prong, which determines whether this building thermally successful or not. Defines thermal comfort as those conditions that make human able to keep fixed temperature through a series of exchanges heat from the human body and the surrounding environmental conditions, so the human body is considered in the case of thermal equilibrium between the heat produced and the heat is missing.



The movement of temperature from outside into inside.

AMONG THOSE THAT CONTRIBUTE TO CLIMATE VOCABULARY IN PROVIDING THERMAL COMFORT:

THE PHENOMENON OF RISING TEMPERATURES IN CITIES WITH STRUCTURAL DENSITY THAN IN PARTIES:

This phenomenon is one of the repercussions of the heat island phenomenon that arise in cities with high densities constructivism.

- One of the causes of this phenomenon surge in buildings which leads to a small area of the sky dome and therefore less than the amount of radiation to be emitted into the night sky after the absorption of different surfaces.

- less than the process of replacing the hot air between buildings as a result of low air velocity resulting from the increase of the intensity of the structural and therefore increases the impact of this phenomenon at night and in hot

1- Mohammad Abbas, *Inherited Architecture as a Basis to the Contemporary Green Architecture*, Master Thesis Ain Shams University, 2005.

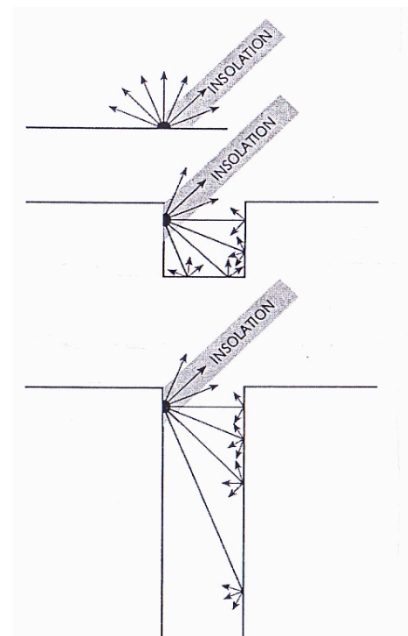
and humid areas such as Abu Dhabi, the increase in density construction may lead to undesirable increase of night temperatures.

- contribute floors, which are often in Abu Dhabi from the black asphalt to increase the absorption of solar radiation and thus contribute to an increase in high temperatures.

- and thus the greater the perversion of those street or change the color of asphalt will lead to another light so as to minimize the effect of radiation absorbed thus reducing temperatures.

In an important experience in this regard concerning the relationship of the building into a high proportion of horizontal distances between them carried out by (Ludwig 1970) and the effect of solar radiation reflected at temperatures indicate the following:

In areas where building heights equal to the horizontal distances, including many of the reflected rays collide with other buildings and land and thus absorbs these rays at the Earth's surface or near it.



The collision of solar radiation surfaces in different regions vary in density constructivism, (Ludwig. 1970).

- In the case of areas where the ratio of building height to the horizontal dimension in sector 4 to 1, most of the absorption of radiation occurs at high altitude far from the surface of the earth (after the occurrence of reflections mutual radiation between buildings), which dramatically reduces the amount of radiation that is absorbed when the Earth's surface.
- Therefore, the amount of radiation that reaches the Earth's surface and lead to heat the air near it be less in areas with high structural density for areas with medium density constructivist (LUWDIG 1970).

#### RELATIONSHIP BETWEEN THE BUILDING AND THE LAND WHICH BASED ON IT:

##### BUILDINGS AREA FOR THE LAND:

Increasing the stability of flat land with a flat outer shell of the building to raise the proportion of non-shaded surfaces of the kidney flat raising the temperature of the air, and vice versa. Because solar design needs for large surfaces exposed to the sun it means that the increase in density construction may hinder the arrival of the sun quantity necessary for the building, but he directed the streets east - west and study the relationship blocks of buildings to each other can avoid this issue.

##### BUILDING BLOCKS:

Increasing amount shade whenever shape of the building has become more complex and it is certainly desirable in the case of protection from the sun and in the case of Abu Dhabi as one of the hot and humid areas always preferred to be spaced buildings scattered.



*Urban fabric may allow through the guidance of the east-west streets throwing amount of shadows on the facades and streets*

##### DIRECTING OF BUILDINGS:

So as to obtain the maximum amount of energy, and for Abu Dhabi, the maximum solar radiation throughout the year, is located on the surface and then on the interfaces of East and West, and receive interfaces South radiant solar limited in the summer, but the share of the solar radiation in the winter be great either North interfaces are at the lowest share of solar radiation throughout the year and in the study about the relationship between the different geometric shapes and their relationship with knives acquisition of solar radiation showed.

1. rectangular ratio of 1: 2 is better than the square shape and square shape better than an L-shape and so in proportion for any steady-state area where the design has achieved thermal loads of \$ 291.48 k. Watt represents less thermal loads when compared to the rest of the geometric shapes that.

2. Not improving the thermal performance of the shape of a rectangle increase the proportion of engineering for 1: 2 but decreases the thermal efficiency of this increase. And in the case of guidance, who faces the biggest rib toward the north.
3. for the L-shaped, the thermal efficiency of this form decreases also increase the proportion of engineering and note that by comparing the thermal loads where it is clear that the total thermal loads required for the L-shaped ratio of 1: 3 = 298.87 K. Watt and represents the largest value of the thermal loads for geometric shapes studied.
4. The shape L ratio of 1: 1 better than rectangular ratio of 1: 5, because the total thermal loads for the first 249.85 k. Watt and the second as 249.11. Watt.
5. Directive (zero 0.180), where the rib is facing the biggest North is the best guide for all horizontal projections of geometric shapes either square or rectangular or L-shaped and so for any geometric proportion.
6. not improving the thermal performance of any building with a geometric shape, whether square or rectangular or letter L ratios increased dimensions Engineering in any direction except rectangular ratio of 1: 2 with zero any guidance that the rib is facing the biggest North is better than the box and better than any ratio the shape of a rectangle, as well as the best of shape L.
7. graded routing optimization of geometrical shapes of



*Direct east-west buildings allows increasing the amount of shadows on the facades*

the birthplaces horizontal engineering guidance North-South followed by the oblique angle of 45 followed by oblique angle 90 with the exception of rectangular ratio of 1: 2 and the form letter L ratio of 1: 2, the thermal efficiency, ranging from the highest

value in the case of routing North South followed by oblique makes 90 followed by oblique angle of 45.

8. Generally converge total efficiency geometric shapes in the case of directives oblique angle 45.90 while having a noticeable improvement in thermal performance between this guidance and direction north - south side, which faces the direction of the Great North.



*Direction of the Building and the effect in summer and winter*

9. avoid attach buildings where the advantage of Abu Dhabi temperature high up in the summer months to 45 ° C and high relative humidity, reaching in some summer months, to 85% and therefore, the fight against relative humidity comes in first class even before addressing the high temperatures and including the increase in rates of speed change the amount of air inside the vacuum wall of the dam is the first in the face of humidity, the fragmentation of the blocks and the spacing helps the process of loosening the air house blocks and helps to create areas of different pressure working on the speed of air flow rates and thus reduce the sense of relative humidity.

10. The best guide of the building is that exploits less solar radiation in summer and the highest solar radiation winter, and prefer to take the focus of the building longitudinal direction east-west, and the front longitudinal is the North, and thus the sunlight falling on the front and one long is the southern facade to be the lateral distance between the buildings to allow the survival of the eastern and western facades in the shade.

#### SHAPE OF THE BUILDING:

And have the shape of the building and the mass of great importance in determining the amount of shades where vary this amount of a building with a surface level where noted that less amount of shades belonging to the building box and increase the amount of shadows whenever the building became more complex, as well as increases in the building with a yard, especially if the increased height of the role one.

It also must be given all the living spaces with two external holes at least, also placed all of the kitchens and bathrooms, stores, and on the rear facade of the building is the confrontation to the direction of the wind. And takes into account the pull hot air from the kitchen chimneys or hoods by air in order to ease the convection.



*Shadows one of the models with the yard in Abu Dhabi*

#### DETERMINE THE PERCENTAGE OF OPEN SPACES AND THEIR RELATIONSHIP TO THE BUILDING:

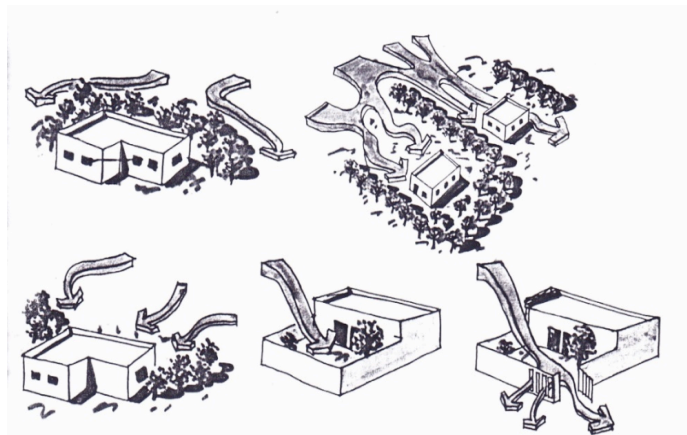
Shows the influence of design landscaping to control the wind depending on the different steering open spaces both internal and external, and by exploiting the characteristics of aerodynamics in the formation of a relationship landscaping of the building, and this directive is linked to the nature to be achieved for the winds to allow entry or protection of them, knowing the impact of the natural characteristics of the wind and the size and shape the building, as well as items in the same position, in addition to the possibility of controlling the proportions and dimensions of the vacuum itself by changing the distribution of the elements of landscaping.





*The design of open spaces climaticall*

And show the possibility of control in determining the relationship of open space and guidance and accounted for the building, when the largest dimension of the outer vacuum in the direction of the prevailing winds, it allows air to enter inside Vacuum, unlike the case of a smaller dimension of the outer vacuum in the direction of the prevailing wind.



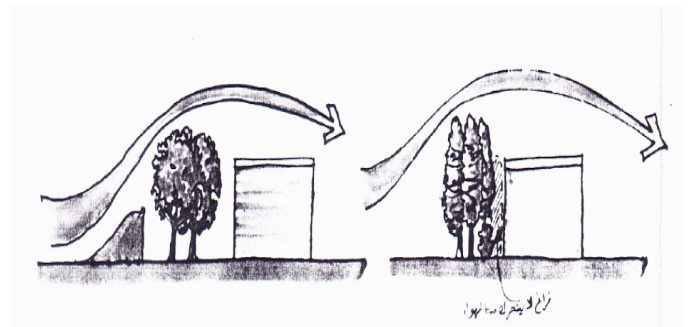
*Control in the form of a vacuum to direct wind around the building or keep it away him*

In the case of inner emptiness must take into account the area and accounted for the building, it was found that inner emptiness box shape to achieve the protection of savvy sand by the wind, regardless of the direction of the wind, while the inner emptiness rectangle granted a good protection to not exceed the length of the vacuum for three times the display and the longitudinal axis of the building perpendicular to the wind direction. The open spaces have the benefit of climatic important aspect function in forming the visual elements of the city they allow to permeate the breeze and wind undesirable and distributed to the spaces smaller with protection from the wind-laden dust by adding elements of air purifiers such as trees and fences in confronting this wind also helps the diversity of the size of these blanks and contrast ratios spaces exposed them to radiation direct solar Ali create areas different compression which would lead to facilitate the rush of air inside the backyard residential communities and are affected by the movement of air heights of buildings and the distances between them (properties aero blocks constructivism) and the degree of containment vacuum of introversion and their relationship. Trends in wind and natural elements such as trees and plantings, as well as additional elements as sunshade arcade-style and are also affected by the movement of air voids this relationship to surrounding areas and height (topography of the site).

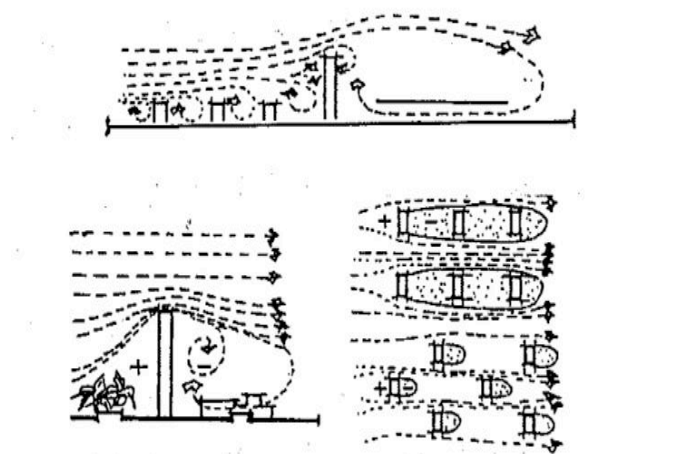
It can determine the function of the vacuum in the control of the movement of air and space exposed to solar radiation in residential areas as follows:

Avoid large air velocities in excess of 5 m / s wind speed and such rarely occur in Abu Dhabi.

- Encourage permeated the breeze and humid winds through the site in warm periods and protection from cold winds in winter.
- prevent hot winds carrying dust from the site permeation.
- Work on tempering temperature by controlling the horizontal and vertical spaces exposed to solar radiation in each of the peak hours, the excess heat and cold to a study by the thermal properties when choosing materials finishing for these spaces degree of absorption and reflectivity.



*Create spaces between the trees and the interfacial building*



*The influence of the overall composition of the buildings  
 Costume air movement inside spaces*

There are no spaces between the trees and the interface of the building to create a climate of middle area between it and the building,

- For example, when the cultivation of the dense undergrowth within walking distance of the outer wall of the building to be a vacuum of air static, where reduce those shrubs air movement near the wall, so the planting evergreen shrubs dense, such as near the building operates efficiently to protect

him from the wind, while if you use trees evergreen with a wall or fence or ramp land line, then can prevent or alter the course of the wind to reflect the top of the building.

PROCESSORS: - SURFACE TREATMENT:

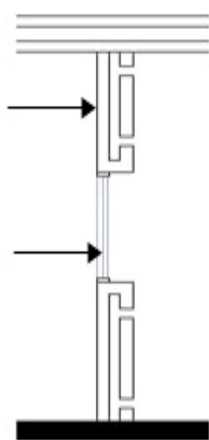


*The use of coverages in a shaded pedestrian streets makes it shaded*

Exposed upper surface of the building to direct solar rays throughout the day, and here was thinking of finding some means of protection from the results of this exposure, such as:

1. cover the surface of the reflective materials to reduce the radiation energy absorbed from the fall of radiation treatment and these precautions should be taken into account such as the reflection of those rays on neighboring buildings using such treatment is recommended in high-rise buildings.
2. The Two slabs system use a method to separate from each other between the two creates a shaded area move relatively cool air.
3. to resort to the formation of these surfaces so that less space with them prone areas under the self-creation to mitigate exposure to radiation such as direct Inclined sunlight ceilings, volts, and domes.

WALLS TREATMENT:



*Double-Wall 10 cm + antenna cavity 6 cm + 10 cm wall*

Walls are exposed to a smaller amount of the bishop of solar radiation due to the different angle of inclination rays with different seasons of the year, and is the wall or the building envelope is the first line of defense for the building, which bears a responsibility to resist the various elements of the climate.

DOUBLE WALL:

It Works on the work of a buffer zone between the

vacuum internal and external warm and that the work of the wall double their vacuum air 6 cm and works in the outer wall two narrow slots at the top and bottom are working on the exit of hot air to enter the air cooler Secondly, and so that by the difference in pressure.

THE DESIGN OF THE HOLES:

The large high openings which may extend from floor to ceiling help in the movement of the air flow, due to the length of the summer in Abu Dhabi to be the upper windows animation that facilitates the process of ventilation desirable taking into account the protection from the sun's rays.

OPENINGS TREATMENT:

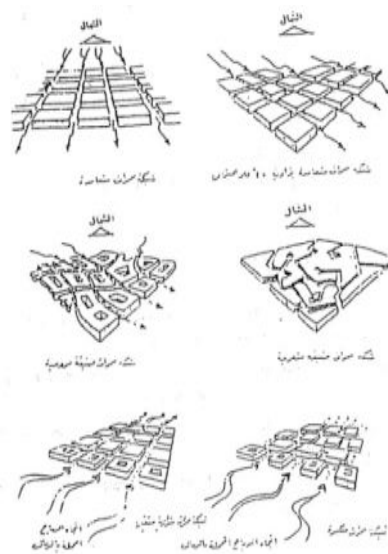
Gaining treatment slots great importance source of it related to a major entry into force of the heat into the building addition to the importance of directing those openings, the shadowed considered one of the most important factors in processed so we resort to the use of so-called sun breakers which is about the elements specifically designed to prevent the sun's rays and take directions vertical and horizontal or one of them.

NATURAL VENTILATION: -

AIR MOVEMENT:-

The movement of air around and inside residential areas Affect in the thermal behavior around the building, or a total of buildings, where arising out of the pockets of hot air or cold help or hinder the process of adapting the building negatively and are affected by the movement of air by several factors, the most important development of the buildings on the site and their relationship to each other as well as the elements of the other site.

VENTILATION INSIDE THE BUILDINGS HAS FOUR BASIC FUNCTIONS:



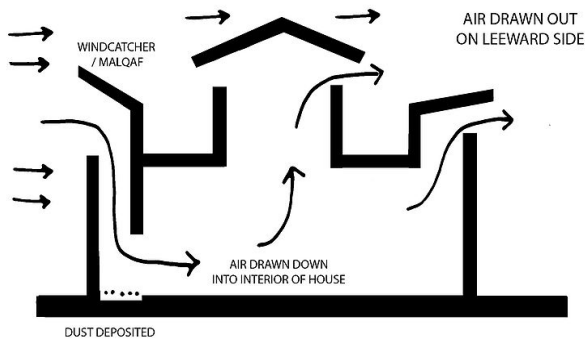
*The impact of aisles on air movement*

1. bring fresh air replace the bad air and air renewal rate differs from the vacuum that holds rights depending on his job in the living room, for example, needs air to the renewal of 1-1.5 times per hour while in the kitchen where the smells and the high proportion of carbon dioxide increase this rate to 4-5mrat in time.

2. Cooling the human body when you need to control the speed of air movement because it

increased the speed of the air rising rate of heat transfer from the body to the surrounding environment.

PREVAILING WIND



*Air movement through prevailing wind*

3. Cooling of origin, as the outside air is mixed with the inside through the air vents transfer internal heat between them according to the difference between their master's heats.

4. To get rid of excess moisture inside the building and in the warm humid areas such as Abu Dhabi, to provide the speed and persistence of the ventilation air that carry moisture out of the building.

The need for natural ventilation and to increase the volume of air change rates in a vacuum directly proportional to the increase of moisture in any location, especially in an environment such as Abu Dhabi, with a high relative humidity in this regard is important that we recognize some of the points, including the special ventilation.

Several experiments have been conducted to see the minimum fresh air for the person inside the interior spaces where he found that he needed to 4 m<sup>3</sup> / h in a resting state in the case of light work, it needs to 12 m<sup>3</sup> / h. In order to provide these quantities found that it needs to renew the air space occupied by the human and which varies according to the type of activity for example, in the living room needs air to renew at a rate of 1: 1.5 volume of room air per hour while increasing the rate in the kitchens of up to 4-5 size air / hours.

Natural ventilation inside the building is done through openings as a result of air pressure prevailing at the site around the building or as a result of the pressure difference caused by the temperature difference between inside and outside the building.

In the case of ventilation rates low, the internal temperature increases up flat openings.

- Increase the ventilation rate has tripled in time leads to a decrease in the internal temperature to 5.4 x the amount of up to 7.5 h in the case of increasing the ventilation rate to 10 times per hour.

VENTILATION IN HOT AND HUMID AREAS:

- Takes into account the buildings to be scattered and spaced so as not to impede the movement of air.
- The protection of footpaths and spaces between buildings from the sun and rain, but taking into account not impede the movement of air.
- For an area in the center of urban agglomeration takes into account not be building heights by high because of good natural ventilation lead to dispense with the air-conditioning industry.
- The streets are long and straight to help the air movement with interest rainwater harvesting system in the event of use or disposal of the excess of them.
- And helps coordinate location in directing the movement of air and cooled before reaching the building. And stops the required rate of fresh air to the vacuum function and the number of occupants of the building and personal factors:

The size is measured ventilation, air limits change per hour (ft. 3 / hr.).

ENVIRONMENTAL REHABILITATION:

Is defined as the stage of rehabilitation of energy in existing buildings environmentally and are either upgrading or adjustment of the level of environmental performance of a building or addition or termination or dispensed for some services and parts of the building to be reformulated from an environmental perspective can also be defined rehabilitation of environmental destruction: that he is the one who makes the building a renewed way that it humanly acceptable in performance over time, in a cycle that starts when the survival of its construction and continue during the performance and ends restart it again and make it a more permanent health benefit from the next generation and meets the environmental requirements and changing needs with the rationalization of energy.

IN TERMS OF ENVIRONMENTAL REHABILITATION AND  
ENERGY:

1. Rehabilitation includes maintaining the old fabric with values and social identity.
2. To maintain the character of the area Legislative like as heights, colors, and contrasts with free unless contradicted processors climatic and environmental.
3. Must achieve ecological modernization of the building in lower operating expenditure. And the abundance of alternatives and appropriate solutions to the building and climate of the ocean.
4. Choose a treatment climatic or climate component of appropriate environmental conditions in the appropriate place in the ecological modernization to be exploited.

CONCLUSION:

"OUR BUILDINGS AFFECT OUR BEHAVIOR"

- This sentence, the thinker (Renew Dobo), winner of the Nobel Prize in science put a title for one of the chapters of his book (b human rights critique of scientific material civilization), where he says that the myth that man has the ability to adapt in environments that are constantly changing incorrect and that the existence of the limits of biological - membership - and are determined by psychological coping and this alignment and therefore must be appropriate to change these variables.
- He also says that there is a sheep says he must identify the environment have properties like me to human life and that undoubtedly is impossible because the tastes of different people and walks of life are diverse and aspirations mixed therefore must figure out a way to guide the strong surrounding it so that nourishes appearances diverse happiness and creativity and should be the most important goals of technology innovation environments where the potential for human bloom on a wider scale.
- Thinker touches to the difficulty of determining the impact of the environment on humans with it existed, because ordinary life is full of problems of complex and non-specific in addition to the members of the human are various significantly, especially as the standards of health and well-being, comfort and happiness is not an easy selection in a scientific framework and that they are not things objectively, but are the feelings of individual affected by social conditions.
- Urban sectors in this day and age cannot get away from the pressing environmental issues that began to threaten the world was the lookout in the last few years, and that trend environment in the way of sustainable city is a necessity in light of the explosion is expected to the world in the coming periods as a result of pollution levels huge and limited traditional sources energy and also weariness rights of urban and architectural models that take away from the comfort capabilities of the environment and a sense of belonging, whether culturally or environmentally.
- Estimates suggest that the construction industries worldwide consume about 40% of the total raw materials (Raw Materials) estimated that consumption of about (3 billion) tons per year, makes us aware that we are going to face the inevitable adaptation of the sector environmentally commensurate with the amount of consumer of energy through and commensurate with the aspirations of the human dwelling and Maui architect comfortable.
- Abu Dhabi, despite the economic boom huge that prevailed despite the abundance of traditional energy sources are also not immune from that risk society and Abu Dhabi people are threatened like all other societies of the world several dangerous phenomena, including the phenomenon of the island warm and syndromes buildings diseased and other phenomena contamination of major cities as well as the community and the human in Abu Dhabi, suffering severely from the alienation of their buildings, their environmentally and go to the buildings reflect their identity and take into account the environmental aspects severe privacy in their community to its applications different become a necessity I had to those generations in the search for a way out clear and true to those crises, and the definition of sincere and systematic approach to the concepts of identity for the secretion product architect keep for posterity He pointed out that rooting identity and community.
- The experience of program sustainability in Abu Dhabi is and in spite of all the differences pioneering experiment at the level of Arab societies and that the levels of decision and intentions and desire as well as many of the terms of that program-oriented environmental good and desperately needs to confirm the concepts of green architecture and needs to be closer to reality the local also be applied needs to continue many of the bodies and the circles of local society.
- The importance of the place when you embark on the experience of the city's environmental study that characterize the city on all levels and the starting of these determinants and try away from the stereotypes and which also did not prove significant successes abroad.
- in order to do an experiment sustainable city on the architectural level must return to several foundations and processors, and the mechanics of physical and urban and architectural flying from the apprehensive nature of the land and the specificities of the climatic and topographic and geological and natural, such as how to deal sketch with the earth - to address some of the phenomena of climatic and environmental urban - relationship building land on which the climate - coordination sites - processors surfaces, walls and openings - construction materials - colors - ventilation - glass surfaces - environmental rehabilitation - alternative energy.

REFERENCES

- [1] Lutfi Abdulwahab (1978), Sociology- Dar Almaaref, Cairo.
- [2] Monet (1949), Introduction to Sociology- Dar Alnasher publishing House, Alexandria, Egypt.
- [3] Eng. Nabeel Al Hamadi, Modern Trends to Environmental Design- Master Thesis- Cairo University- 2007.
- [4] Ali Asawi , Public and Official Construction Dynamics , PhD Thesis- Faculty of Engineering- Cairo University -1994.
- [5] Metaphysics: all outside the sense and vision.
- [6] Chadirji. R, A Dialogue on the Structure of Art and Architecture (1995)- Reyad Alrayes Publishing House, London.
- [7] Abu Hayan Altawhidi's works, Al-Isharat al-Ilahiyya, Al- Hawamil wa al-Shawamil, Muqabasat, Al-Sadaqa wa al-Sadiq , and others.
- [8] Abu Hayan Altawhidi's, Al-Isharat al-Ilahiyya, Verification by Wedad Alqadi- Beirut 1973.
- [9] Abdulla Aladawi, Arabs and Historical Thought.
- [10] Chadirji. R, A Dialogue on the Structure Architecture (1995)- Reyad Alrayes Publishing House, London.
- [11] Yanar Jido Hasan, Modern Doctrines of Thought and Architecture- Dar Altalea, Beirut.
- [12] Tareq Abdul Ra'uf, Postmodernism Architecture- Master Thesis- Cairo university- 1996.
- [13] Sawsan Helmi, Lectures on History of Thought (Included in Higher Education Curriculum) Department of Architecture, Faculty of Engineering, Cairo University, 1994-1995.
- [14] [Dsouqi. Sh, The Reflection of Social Factors on Residential Buildings in Egypt During the 20th Century- Master Thesis, Department of Architecture, Faculty of Engineering, Ain Shams University, Cairo.
- [15] Genzir (N.D) Sociology, Dar Saad egypt for publishing, Cairo.
- [16] Obaid. M, (1989) Social Development in Egypt and Its Effect on The Modern Residence, Studies on the Development of Horizontal Plane, PhD Thesis, Department of Architecture, Faculty of Engineering, Cairo University, Cairo.
- [17] Abdul Rahmen Haj Ibraheem, The Concept of Renewal, Islam Web, Media Thought, Culture and Thought.
- [18] Saif Aldeen Abdul Fattah, Renewal, Published Research.
- [19] Brenton : Origin of Modern Thought.
- [20] Albahi, Islamic Thought in Relation to Western Colonization.
- [21] Ali Asawi , Public and Official Construction Dynamics , PhD Thesis- Faculty of Engineering- Cairo University -1994. P. 14
- [22] Mohammad Abbas, Inherited Architecture as a Basis to the Contemporary Green Architecture, Master Thesis Ain Shams University, 2005.
- [23] Mohammad Abbas, Dialectic of Modernism and Environment in Abu Dhabi Architecture, PhD Thesis, Cairo University.
- [24] R. Nicole, "Title of paper with only first word capitalized," J. Name Stand. Abbrev., in press.
- [25] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, "Electron spectroscopy studies on magneto-optical media and plastic substrate interface," IEEE Transl. J. Magn. Japan, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].
- [26] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.