

## Standards for open-spaces landscape design in residential neighbourhoods with hot and dry context

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### **Abstract:**

This paper examines the architectural and landscape design strategies for, open spaces facilities and it is targeting residential neighbourhoods in hot, dry climates, and it discusses the main methods that can be used in such climates, to reach stress alleviation for its users.

The study discusses the efficient use of vegetation and landscape elements that positively affects and develops life health, and minimizes the stress level of the residential neighbourhood. And the paper investigates the role of vegetation and landscape elements in the total design of any hot dry residential neighbourhood.

Finally, At the end of the research, there is a set of recommendations to be observed with respect to the specialty of hot dry climates from different levels.

**Keywords:** Landscape elements - Environmental aspects- Open spaces- Residential neighbourhood, Hot dry context.

## 1. Introduction

Open spaces located between residential buildings within the neighbourhoods can consider as the lung and the fundamental breathing for the residence because they include a huge number of activities and movements. The importance of open spaces in neighbourhood appears in their positive effects on the users, in view of these spaces have multiple functions that can achieve the public benefits, and its role of giving the neighbourhood sort of suspense and wealthy by its different facilities and encourage meetings and social relationships, and joining the surrounding environments, also these spaces provide an aesthetic sense by their vegetation types and landscape elements which involve attractive surroundings. In view of the important role of the social interaction and environmental benefits of these open spaces within neighbourhoods, and considering the threats of the dry and hot climates. This research includes the main question: How to design open spaces using landscape elements to alleviate the dry and hot climate conditions which can affect negatively the users.

### ***1.1. Problem Statement:***

There is accumulated evidence of the influence of the landscape on people's health, (Thompson,2008), and there is a lot of researches relating to the health effects of open spaces landscape design and elements on its users, but the hot and dry climates can include a lot of threats to the landscape elements which can be added to these open spaces within any neighbourhood. Also the lack of awareness, in the importance of landscape as an infrastructure tool to enhance the climate, originally are the reason for the disappearing of the climatic landscape dimension. (El-Masry, 2014).

**The main problem the research discusses that:**

Many residential neighbourhoods in hot dry climates suffer from discomfort caused by overheating, large asphalt areas, and dusty hot winds, which affects how it can direct the designer to promote health in these spaces.

**1.2. Hypothesis:**

The methods of designing open spaces give the opportunity to provide comfortable environments within the residential neighbourhood. In order for them to provide this function, open spaces must be designed within the context of the climate conditions.

**1.3. The aim of the research.**

The aim of this research was to investigate and explore the role of landscape design methods, and its effects in hot and dry climates to achieve human healthy and comfortable spaces within the neighbourhoods, by investigating different mechanisms and theories of architecture landscape design scenarios with various types of landscape elements, which can be used in these climates to make it healthier and more usable.

**1.4. Research mythology**

The methodology of this research was mainly based on the descriptive and analytical methods, to observe, evaluate, outdoor spaces landscape design, using a literature review for the theoretical studies to determine the importance of landscape elements and its positive effects to reach healthy comfort, and to upgrade the external spaces, to become more efficient and compatible with the environmental and climatic determinants, and have a positive impact on its users

This paper will be presented in two parts: Part 1: It deals with theoretical studies to determine the importance of open spaces landscape design and its elements and its role in hot and dry climates residential neighbourhoods, Part 2: It deals with analysing the main important strategies and standards, to reach the suitable and comfortable neighbourhood's open spaces in hot and dry climates.

## 2. Part I: Literature review

### 2.1. *Definition of open spaces:*

According to the United States, Environmental Protection Agency EPA “*Open space is any open piece of land that has no buildings or other built structures and is accessible to the public. Open space can include Green space (land that is partly or completely covered with grass, trees, shrubs, or other vegetation). open space includes parks, community gardens, Playgrounds, public seating areas, public plazas*”, Public open space is usually categorized into a hierarchy of neighbourhoods, districts, and regional open spaces and can be used for either passive or active recreation (Thompson, 2008). Open space provides recreational areas for residents and helps to enhance the beauty and environmental quality of neighbourhoods, also these spaces can provide regular local use, and an identity and a sense of place, especially where it incorporates an important landscape feature or historic characteristic. The Council for Europe, identifies public open space as: “*an essential part of the human heritage, a strong element in the architectural and aesthetic form of a city*”. This definition points towards the educational role of open spaces, and its importance in fostering social interaction and promoting community development, by supporting economic objectives and activities (Montenegro, et.al,2012).

### 2.2. *Open space in residential neighbourhoods:*

Open spaces in residential neighbourhoods vary according to their location in relation to the residential and to the other commercial and services buildings, the designated activities for space, and the activities of the surrounding spaces. Besides, climatic elements are considered one of the key determinants in the design of urban spaces, as defined by (Ashihara ,1981) “*external space is a space that is configured by a framework for identifying or removing part of the extended and infinite nature, which is formed primarily by the correlation between man and the things he perceives*”.

External spaces vary from the broad to narrow, complex to simple, and from openness to closeness. The external spaces vary also, in shapes and sizes, designed to accommodate infinite spatial functions and serve various users' activities. These spaces also vary according to the functions, activities, uses, the external spaces in residential neighbourhoods, may be affected by the composition of the needs of the users. An open space network in any neighbourhood should encourage more active lifestyles by offering a variety of safe and attractive spaces that are well distributed throughout a neighbourhoods and are accessible and cater to the sporting and recreational needs of the community.

### ***2.3. The importance of open spaces in residential neighbourhoods:***

Most studies emphasize the positive effect of the green open spaces on the urban climate, and it was recognized clearly that, The absence of an efficient landscape pattern, on the planning levels, originally are the contributing factors for creating thermally uncomfortable spaces, for Human (*Toudert & Mayer, 2005*), the open spaces, is affected by many conditions such as the environmental factors, the built environment, and the building morphology, topology, native vegetation available in the site. As well as the behaviour of the users of the open spaces and their needs.

Green open spaces serve as recreation areas; they can provide climatic comfort conditions for humans inside them. These spaces have an important effect associated with residential environments and social settings, behaviour, and wellbeing, they have a big role in enhancing the overall experience of the Population. The general mission of good designed open spaces in residential neighbourhoods is to improve the quality of human life, landscape in open spaces is one branch of urban design which can be an instrument to create dynamics at the site and to ensure community interaction by providing sports and recreational facilities, playgrounds for children, leisure facilities

for the elderly. Also, it helps to improve the visual quality of housing estates and improve the accessibility of the city's natural resources and Stabilize the natural balance and improve the quality of the natural environment. (Ana Lestan. *et al*, 2014)

#### ***2.4. The importance of Landscape design and its elements in open spaces of residential neighbourhoods:***

The landscape elements are attractive elements that give the green open space sort of suspense and wealth, despite the smallness of these elements compared to the urban space, in addition to increasing aesthetic touches in the urban environment through its components.

Applying Landscape elements can provide such benefits to buildings as shielding them from the sun, protecting them against the wind, facilitating passive cooling, and providing opportunities for natural ventilation. Furthermore, landscape elements can be useful to provide recreational amenities.

According to (R. Swaffield,1991), The elements of the landscape in any space should have many requirements, which can be as following:

- Physically aesthetic requirements, which include the improvement of aesthetic quality.
- Economic requirements, which include the improvement of economic activities.
- Social requirements, which include the facilitation of the community and social interactions.
- Cultural and symbolic requirements, which include the creation of symbolic value.

Thus, landscape design in any space gives rise to a diverse range of effects in socio, cultural, and many other fields, by its elements which can be attractive for a variety of users. Landscape components are varying it may contain many variables, which may include: geology, soils, topography, land cover, hydrology, historic and

cultural development, and climatic consideration, and complex combination of physical and socio, economic influences, and their interrelationships (Tudor,2014)

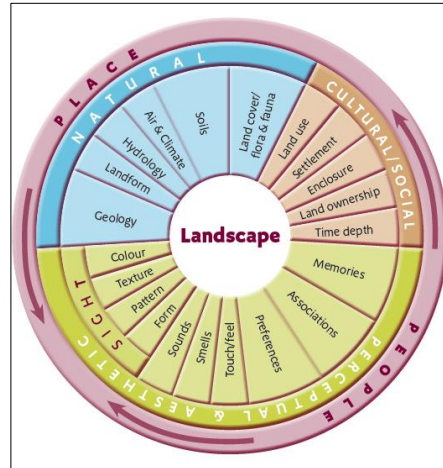


Figure 1. Landscape components" (Tudor.2014)

External landscape elements form an integral part of the built environment design because of its role in enhancing both the performance and aesthetic values of buildings, every kind of landscape has some common elements which can be both the natural elements or manmade elements.

Natural elements: which contain air, water, soil, natural vegetation, which may consist of lawn areas, hedges, vines, roses, borders, which can be planted with annual or perennial flower plants, trees, and shrubs.

Manmade elements: are made up of natural elements and artificial elements, which can be designed in different ways of fitting and decorative and utility facilities the construction decorative or functional, landscape components overlap the landscape elements.

## 2.5. challenges of open space in hot- dry climates:

Public open spaces in any complex are integral parts of the built form. These spaces have always played a big role in any climate. These open spaces are often considered to enjoy thermal conditions better than the ambient and are thought of as microclimate modifiers for the adjacent buildings. However, such spaces suffer from a lack of

microclimatic advantage in hot and dry climates, and many contradictions and ambivalence happen in these spaces especially when these spaces included in a residential neighbourhood. This is mainly the result of improper design and detailing of open space.

With the broad range of open spaces, comes a broad range of environmental issues, and challenges that affect the landscape design in hot climates, as the following:

- **Soil:** Most desert zone soils are poorly developed and characterized by a high proportion of coarse sand and gravel with only limited amounts of the finer silt and clay particles, also we don't have to forget that Soil salinity can also impose severe restrictions on plant growth. (*RICKS, 1992*).
- **Water Requirements:** No plant can survive in the absence of water; the desert and dry countries is arid environments, and all species require sufficient to satisfy their physiological needs. The demand for water has grown substantially against a scarce and dwindling water supply, in such these countries, like Saudi Arabia. (*RICKS, 1992*).
- **Wind:** Wind is a more or less constant factor in landscape and, in general, this can be an extremely important factor in exposed desert areas where the wind impact maybe by its damage on the trees such as defoliation or stunted growth, or by the dust in the desert environments. (*RICKS, 1992*)
- **Temperature:** All of the natural landscape elements which are trees, shrubs, and any other natural elements, maybe damage with the high summer temperatures found in the desert and dry areas, and also it can be damaged by frost, when the temperature goes below 10°C. in winter, and by the great difference and disparity between night and day and summer and winter. (*RICKS, 1992*)



### **3. Part II: Standards for Open-space landscape design with hot- dry climates.**

The aim of this part of the study is to present methods to improve the quality of public open spaces in neighbourhoods, in hot and dry climates.

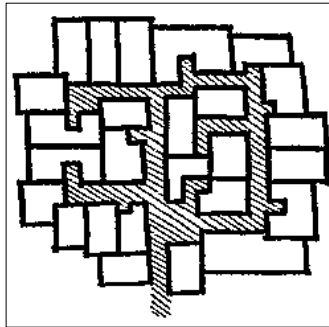
#### **3.1. Planning standards.**

##### **3.1.1. Location of public open spaces:**

It is important to define the location for the required public open spaces, by a search system, consists of searching for the best placement of different public open spaces depending on the requirements for serving a certain amount of population and a certain attraction effect, which evaluates how far a public space is from the population it serves. (Montenegro, et.al,2012). There are a set of components included in the location of the open spaces, space and population are considered the environment, and where the public open spaces are the living beings, whose goal is to adapt to the environment as best as possible. (Montenegro,et.al,2012). In selecting the location for open spaces in any residential neighbourhood, the microclimatic advantages caused by topographical features of sites should be considered. Open spaces in hot and dry climates are preferably placed on northern orientation, to avoid excessive sun exposure, using natural shade. West slopes should be avoided. (SKAT, 1993). The location of public open spaces involves a set of tasks and a number of variables that should be cover and considered. For this reason, it is difficult to reach an optimal solution, especially for climate change. However, the ultimate goal is to find an optimal solution, that can be adjusted interactively by the user to adapt to the climate conditions. The location of public open spaces involves a set of tasks and a number of variables that should be cover and considered. For this reason, it is difficult to reach an optimal solution, especially for climate change. However, the ultimate goal is to find an optimal solution, that can be adjusted interactively by the user to adapt to the climate conditions.

### 3.1.2. *Shape and urban design of the open space:*

The urban form cannot change the regional climate but can moderate and improve the conditions for the spaces and their users. So urban forms of the open spaces in any neighbourhood depend strongly on climate, in hot and dry climate the compact form is preferred. (SKAT, 1993). Basic concerns are the provision of shading and air movement by alternative means. with optimizing the size and scale of open spaces if it is too large, to reduce the heat gain. Dry climates open spaces should have optimal protection against solar radiation by mutual shading, which leads to compact settlements, narrow streets, and small squares which are shaded by tall vegetation. The influence of the hot and dry climate on the external space of traditional settlements can be illustrated by the following shape.



*Figure 2. Typical settlement for hot-dry regions. (SKAT, 1993).*

The shape and volume of the surrounding buildings have a big impact on the open spaces because the heat exchange between the building and the surroundings of the open space depends greatly on the exposed surfaces. A compact building gains less heat during the daytime and loses less heat at night. Therefore, the ratio of surface to volume is an important factor. In general, where little heat exchange between the interior and the environment is desired, the surface to volume factor should be small. (SKAT, 1993)

### 3.1.3. *Surrounding Buildings design (Buildings Siting):*

Reinforce the neighbourhood's identity and its unique setting by using its topography, and its structures and setting to create connections and spaces outside the buildings. Building siting also include control the reflection of the facades of the surrounding buildings, the Building interface is very important because it has a direct impact on

thermal comfort and energy conservation in and around buildings. (*Robinette, 1983*). The surface of the surroundings may store and reflect solar radiant heat towards the open spaces, depending on the surface's angle relative to the solar radiation and on the type of surface. Where this solar heat is not desired, the orientation of the building should be taken into consideration. To define the optimal orientation of it, three factors have to be considered for siting the buildings surround any open space: (*SKAT, 1993*)

- Solar radiation: to define the optimal orientation with regard to heat gain by solar radiation
- Prevailing wind: usually cooling by ventilation is desired, buildings and open spaces should be oriented across the prevailing breeze
- Topography: topography may also alter the prevailing wind and provide shade at a certain time of the day, the surface of the surroundings may store and reflect solar radiant heat towards the open space.

#### **3.1.4. *routs and surrounding Roads:***

*The Parking and roads zone* surrounding any open space, can be a transitional zone, it includes the roads for pedestrians and vehicles in addition to parking areas. This zone should create a safe and comfortable environment for pedestrians and vehicles.

Landscape-design should provide comfortable and shaded pedestrian and bicycle paths. Trees should be planted in the regimen for easy and efficient use, canopy production, and shade delivery, also, the earth should be shaped to block undesirable solar radiation and winds (*Robinette, 1983*). The provision of the large areas of asphalt or concrete leads to elevated surface temperatures during the summer. Preferably, parking should be located under planted roofs. Otherwise, parking lots should be broken into many small bays, small bays, parking pockets and planted with canopy trees and/or shade structures.

### **3.2. Design standards:**

The landscape-design for any open space should interrelate between the expected climatic impact and landscape design elements and methods including vegetation, so we have to use some strategies in designing any open space in hot environments, these can be as follow:

#### **3.2.1. Study the main typical spaces:**

Enrich the open spaces with a comprehensive network of spaces and functions, that reflect its mission. The typical spaces which comprise the open-space network are edges and boundaries, gateways and entrances, plazas, quadrangles, pedestrian pathways, great lawns, streetscapes, surface parking, spaces between and behind buildings. (R. JOHNSON,2012).

#### **3.2.2. Study Open spaces connection:**

Design uniform plazas which should be connected to a network of the neighbourhood spaces by employing the site landscaping standards. These plazas should be treated of paving, furnishings, and planting, these plazas are typically between buildings rather than surrounding them. In addition to that it is important to reinforce neighbourhood pedestrian connections by ensuring using covered and shaded axis to prevent the heat of the sun in the summer to optimize neighbourhood pedestrian connections, in order for the open spaces to be perceived as a cohesive, welcoming, and attractive space, also minimize the impact of vehicles, and design streetscapes, and vehicular zones for pedestrian comfort, by enhancing alternative transportation. (R. JOHNSON,2012).

#### **3.2.3. Control Solar radiation:**

There are some important parameters should be controlled in landscape design for hot climates these include Solar radiation like:(radiation control, heat control, albedo control, and glare control), Wind airflows like (dust control, soil erosion control and natural ventilated cooling) and evaporation like (evaporative, cooling and diurnal cooling) (S. Attia,2009). When considering exposure to solar radiation, the solar heat gain factor is an important criterion to be taken into account.

#### **3.2.4. Study the site paving:**

Materials have a great impact on the thermal comfort of the open space, so a reasonable selection should be taken into consideration during designing the landscape facilities cladding materials according to different needs and requirements of sun reflection and glare, to reach the moderating of the climate of the open space landscape. (Chen,2016). Both pedestrian and vehicular site paving serves a critical role in a neighbourhood organization and adds to the overall character of the landscape, and ensure that the dominant paving material for pedestrian use, with other paving materials which must be used on the open spaces to provide a hierarchy of connections. Materials used in paving and surfacing in an open space should be defined by the simplicity of design and layout as well as overall quality. There are also some criteria that you should take into consideration when choosing the appropriate materials

- Sustainability: by making it more energy and resourcing sufficient and using materials found in the area that can be replaced easily.
- Cost: Focus firstly on areas that are more significant and attract the highest public usage. Make sure they are carefully detailed and implemented to avoid extra construction and maintenance costs.
- Aesthetics: Use simple, robust, and fit to purpose materials that are multi-functional and thoughtfully designed. Respect the existing context and diversify the uses.
- When selecting the landscape materials, their thermal properties should be analysed so that materials suitable for the local climatic conditions can be chosen.

#### **3.2.5. Design Shading devices:**

Many researchers recognize the importance of solar shading in the landscape design of open spaces because they can be used to keep heat gain at minimum levels. Direct solar radiation has the largest impact on the comfort in open spaces, the enormous energy of the sunlight is generally excessive and certainly unwanted in hot and arid climates. Sun

shading, and sun protection, has been and still is, the fundamental way to improve a public space bio-climatic behaviour. Reducing the solar radiation that reaches the people or gets reflected by the ground, is the most efficient way to reduce the temperature. Adequate shading reduces the effects of glare and solar drastically when designing a shading device, various factors besides the sun's path have to be considered. The shading effect depends not only on the geometrical shape and orientation of the fixtures but also on the material used and on the surface treatment and color. In hot arid climates, shading can also be provided by placing buildings closely together, where other factors (traffic, daylight) allow that shading.

Shading devices in open spaces related to the residential neighbourhood can be provided with different shapes, Shading can be provided by building shape, facade greenery, and roof gardens shading devices as attached accessories, by the use of shading devices placed outside the facades.

Landscaping also may be useful by directly shading the building with trees, shrubs or vines, shading the area around the building to lower the temperature of its surroundings, and using ground covers to reduce sunlight reflected into the building and lower the surrounding ground temperatures (*Papatya,2018*)

The sun's path is the main criterion for shading devices design.

### **3.3. *Climatically standards:***

Climate, soil, and hydrology, and many similar aspects have to be taken into consideration, that should be balanced in terms of efficient landscape-design. Also, issues of climatic protection, thermal comfort, and energy conservation stand as the most important requirements in hot, dry climates. So some strategies can be mentioned these can be as follow:

#### **3.3.1. *Design Heavy green buffer zone:***

One of the primary functions of the buffer zone green area, is to create protected side areas, this zone should be planted with large-scale trees and shrubs that serve either as a buffer to activities on adjacent sites or to reduce wind velocity, so it forms narrow shelterbelt that allows the wind to reduce its speed but still flows over. (*Miller,1980*).

Trees, hedges, and plants can have a dramatic effect on the microclimate and help to tie down sand and dust. (SKAT, 1993)



Figure 3. Section in the green buffer zone (Attia.,2006)

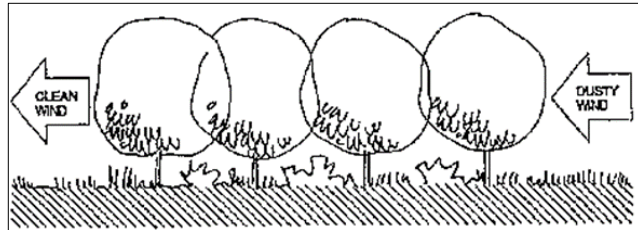


Figure 4. Trees with large scale to tie down dust(SKAT, 1993)

### 3.3.2. Design Oasis in the open spaces with hot and dry climate:

An oasis-like concentration of plant and grass-covered areas is desirable by using a grid of palm trees which provide a kind of protection by influencing the micro-climate. Palm oases are most probably famous for standing the extremes of temperature, tolerating alkaline soils and salt, resist drought, and lifting up the wind. Growing an oasis will prevent desertification and fight sandstorms besides reducing the temperature, direct radiation, and moderation of wind velocity (Potcher, et al. 2008). Another major significant role of the Oasis zone is dust control, plants prevent sand and dust from being carried away by the wind. Nevertheless, landscaping should not always imply the inclusion of very high water-consuming lawns and grassed areas.

### 3.3.3. Using water bodies:

Water bodies are natural ecological structures which are made up of a volume of water and form a physiographical feature (Muhaisen & Abed, 2008) Water bodies use in landscape design to improve the air temperature effect to be adapted to hot and dry conditions by running some fountains in the site, which help prompted water molecules with air heat ex-change, to reduce the effect of air temperature, so we can reach effectively the comfort of the human body. (Chen, 2016).

Water bodies are able to lower the atmospheric temperature; The effects of wet surfaces are increased if there is a presence of a shadow. Therefore, vegetation and water bodies are used in designing a sustainable landscape design, in order to increase the quality of outdoor thermal comfort in a hot climate. These water bodies play a crucial role in the ecological system in urban cities. This is hoped to provide a better and more comfortable human living environment, (*M. Vitousek et. al,1997*). To take advantage of air movement patterns at a local scale more trees should be planted around water bodies, to have the potential of cooling the environment is highly beneficial (*Emmanuel, 2012*).

#### **3.4. Vegetation and planting standards:**

The open spaces landscape design in hot and dry climates should modify the extremes of particular environmental conditions through increasing or decreasing the effect of prevailing conditions, by making the outdoor environment cooler, breezier, and more humid, through planting vegetation as different design elements, and the intensive or extensive use of plants materials and water elements (*Nazem,2015*). so we have to use some strategies for vegetation and planting design for any open space in hot environments, these can be as follow:

##### **3.4.1. Applying natural elements in landscape design:**

Planting completes the framework for open space by giving spaces an essential third dimension or “ceiling”, providing comfortable transitions between human-scaled spaces and buildings. It was recognized through many types of research that a high response from the residents when offered easily accessible, high quality green open areas.

Trees and other plants are the most important elements of immediate outdoor spaces. They are inexpensive elements that regulate and improve the climate. At the same time, they add to the attractiveness of this space.



Natural elements of landscape design include the meaningful use of trees, streets capping with vegetation. (SKAT, 1993).

Trees and shrubs are a very effective means of improving the climate on a larger scale. They are the simplest way of shading outdoor space and buildings. It is important to select the appropriate type of tree. One simple solution for regulating shading by trees throughout the year is the use of deciduous trees, which provide shade during the hot season and allow solar radiation in winter. Another factor that can help in the selection of the right tree is its "cooling factor". When measuring the radiation intensity in the shade of a tree the efficiency of different species varies. Many research asserts that it would be more favourable to plant trees that grow to have greater height, wider canopy, larger leaves, and thicker branch coverage to filter radiation. (SKAT, 1993).

#### ***3.4.2. Selection of plant species:***

When selecting the plant material, it is strongly advisable to use local plants. The suitability and performance of plants depend highly on the specific local conditions like the climatically factors, temperature, air humidity, soil condition, and moisture. Local desert plants as well as rock and stone garden as well as gravel coverage should also be considered as adequate design elements. (SKAT, 1993). The maximum cooling effect of open spaces containing trees can be occurred during the daytime because of the shading effect of trees that prevent heating by the solar radiation, it is clear that green open spaces with trees, will develop a cool island and therefore will be more comfortable for humans because of the high and wide-canopied trees which have the maximum cooling effect during the hottest hours of the day and have a positive effect on human climatic comfort, compared with those green open spaces which include only grass and only a few low trees. owing to increasing air temperature, also the open spaces with medium-sized trees can have a negative effect on human climatic comfort due to the reduction of wind velocity and an increase in relative humidity. Green open spaces with high and wide-canopied trees have the maximum cooling effect during the hottest hours of the day and have a positive effect on human climatic comfort. (Potcher, et. al, 2008)

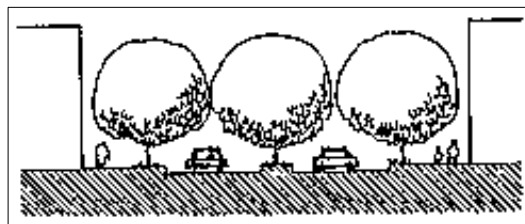
### 3.4.3. *Good design for the natural elements:*

Which have a positive effect on perception and performance of the users, trees are the landscape elements that have the largest impact on how the users perceive the size of a space and them act in, and it does influence the perception of space, in terms of its size by compartmentalizing a space or by adding the feeling of enclosure, in addition to its role of their shade which plays a big role in reducing energy consumption.

### 3.5. *Site Furnishings standards:*

There are also other elements such as benches, playgrounds, small elevations of the earth surface, benches, that play a role in Determining the urban space and do influence the perception of the space as much as the walls of the surrounding buildings do, so functional objects which can perceive border very effectively should be designed. Using Site furnishings will play an important role and helps to create a cohesive neighbourhood delivery.

The consistent neighbourhood aesthetic will be achieved in landscape design by:(site paving, site furnishings, site lighting, site signage, Plantings, and Soils Service Areas and Utilities). Also, the furnishing of space and streets capping with trees and hedges greatly improves the microclimate and quality of life. (SKAT, 1993).



*Figure. 5.Green street space (SKAT, 1993).*

#### 4. Results and Conclusions:

The residential open spaces landscapes have a big role in the lifestyles of their users, and these spaces are affected by the physical, social, and symbolic spatial variables, which reveal the invisible links between the structure of space, and the behaviour of the users. The public open spaces in residential neighbourhoods fulfil diverse functions, besides the role that green open spaces beauty plays in the psychological level, and the physiological levels So it is necessary to determine the landscape design standards, so that design gives it a strong sense of place and gives its community a sense of pride.

Poor quality and the lack of open spaces in residential neighbourhoods, lead to poor forms of spatial uses and consequently to a less healthy lifestyle. (*Potcher, et.al, 2008*). The quality of open spaces is an important factor providing quality of life of the residence in any neighbourhood, these spaces serve as recreation areas, and have a restorative influence on cognition and emotions, as well as on an individual's ability to achieve a sense of belonging. The planning profession has one of the leading roles in ensuring this quality. So it is critical that the neighbourhood planner takes steps to shape the open spaces that support its residence community, which creates a cohesive and attractive setting, and that attracts prospective users, considering the special importance of the climatic comfort conditions for humans inside them. That can be achieved by engaging the open spaces to be more positive this can be achieved by Siting buildings using topography and other local resources to enhance and shape successful open spaces and reinforcing the neighbourhood's character and strengthening the connection, with reviving the importance of the landscape elements among the society and highlight the importance of creating thermally outdoor comfortable space among researchers, landscapers, and planners according to climate conditions and resident needs, especially in hot-dry climates, using the compact planning which would minimize heat gain as well as heat loss.

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