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Landscape Planning Based on Microclimate With The Aim of Reducing Air Pollutants in Metropolises*
(Case Study: District 22 of Tehran)

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Abstract

Problem statement: Reducing Tehran's air pollution includes two general approaches. Firstly, it considers reducing pollution devices, which create and distribute pollutions in districts; Secondly, it emphasize the reduction of pollution rate through suction methods and transforming them naturally. It means that not only we can reduce the rate of air pollution by finding suitable solutions, but also we can adopt some policies to produce and distribute fresh air, which consequently leads to mental and physical health of the citizenry.

Research Purpose : The goal of this study is to find strategies in the planning field and designing landscape so that we can reduce air pollution and reproduce fresh air.

Research question: This study tries to answer this question that "How can we use landscape planning for reproducing climate wisdom in order to reduce air pollution?"

Research method: The present study is qualitative. It has considered explanations of principles and designing patterns of sustainable landscape architecture by the content analysis methods and has evaluated similar samples and extracted pros and cons.

Conclusion: It seems that creating climate wisdom in district 22 of Tehran can reduce Thermal Island phenomenon and consequently, it can choose to reduce air pollution. The research results showed that by reducing the thermal island intensity through improving some urban landscape elements, it would be possible to obtain a healthy environment by reducing harmful pollutions and its effects on human health.

Keywords: *Landscape, Environment, Green space, Urban district, Thermal island, Air pollution.*

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Introduction

One of the most important universal problems about the environment is the thermal island and its effects on air pollution, which is considered as a permanent and serious threat to environmental and social health, especially in big cities. Urbanization, excessive population increase, extending industrial activities and excessive consumption of fossil fuels have highly increased the rate of this pollution. Among this, regarding urban expansion, urban transportation has become more important and at the same time has got special complexities. Traffic congestion phenomenon is considered one of the biggest urban transport problems, especially in metropolises. Therefore, it is necessary to manage air pollutions to minimize its undesirable effects. For environmental Purposes, landscape planners should consider environmental effects studies and possible strategies in urban landscape plans.

Climate wisdom is used for regions that have been surrounded by a bigger region with special climate features. In some cases, the combination of a building designing and open space among them in urban areas can lead to producing urban climate wisdom. Therefore, we can use the created climate wisdom in a positive manner by planning the future landscape of an urban area.

Climate wisdom and its positive impacts on surrounded areas can be used as a tool for landscape planning. They can have a remarkable effect on residential quality and increasing citizenship satisfaction of urban environment by using some factors like the amount of solar radiation, humidity and …. Which depend on factors such as reflexive surfaces (pavements) or urban green spaces. Nature and attention to its presence in the urban landscape and various urban spaces can lead to urban health and reduce stresses and physical pressures of the citizens. So, landscape planning and designing climate wisdom are very important subjects to reduce air pollution of metropolises. The research hypothesis will be suggested in such a way that seems the climate wisdom of district 22 of Tehran has the capability to be designed for reducing thermal island phenomenon and can also have an effect on reducing air pollution.

Research methodology

In this study, the research methodology is qualitative. In this kind of research, the general goal is to observe different detailed studied dimensions and interpret the findings based on a holistic view. At first, there was an attempt to present an exact and correct definition of Thermal Island and air pollution in this study and after "within-case" studies, the issues were investigated by examining pros and cons of the examined subjects and based on scientifically validated books, the principles and designing patterns of landscape compatible with climate was explained. It has also been tried to find approaches in order to reduce air pollution based on library studies. And at last, the organizing principles and patterns used in order to reduce air pollution of metropolises for designing area 4 of district 22 of Tehran.

In the section of Theoretical Foundations, Latin and Persian articles about research subject collected by examining documents, library and internet searches and also information in the section of case sample collected by using available urban statistics, documents and field understandings and finally, proper strategies and policies were suggested. This study, attempted to apply some tools, as well as mentioned before, like urban landscape features evaluation through observation, photography, field understanding and interview with the users in order to get basic cognition and suggest better offers in the direction of research main goals.

Theoretical foundations and research background

• Climate wisdom

Urban climate wisdom has some effects on various climate elements like temperature, rainfall, humidity, and solar radiation. Population and industrial growth beside the set of natural factors

in the long term causes to change Tehran's climate. The created changes as well as urbanization in urban microclimate can affect many climate elements such as suspended particles, the average of temperature, solar radiation, ultraviolet ray, rainfall, relative humidity, the frequency of cloud cover, the frequency of smog happening, wind speed and …. Consequently, urban climate wisdom has been formed from city climate factors which are affected by the impact of urban representatives over the time.

• Understanding the effective climate elements on air pollution

Main elements comprising climate include weather, altitude, latitude, topography, and city formation. Among them, the weather is the most important element and includes some features such as solar radiation, rainfall, wind, humidity and etc. Changing any of these elements can change general situations of climate. While these changes may not be the same in all situations.

Climate changing is a natural phenomenon which happens within a period of several thousand years. External factors which can change climate include changing the rate of solar radiation, change in the earth's orbit and continental drifts.

Available evidence and documents show the undeniable human effect on the world climate. Climate changes have important effects on distributing animal, plant species and human activities such as farming and forestry.

Cities, are like containers which include both, living creatures and physical and artificial elements, have caused more changes in the climate situation of their surrounded environments than rural areas and natural spaces. Some changes have remarkable importance because they can threaten the residents of these cities because of physical and human risks and also impose a lot of costs on the cities and local economies.

Thermal islands

Thermal islands are the places of a city which are remarkably warmer than their surrounded rural areas. The temperature difference is usually more at night and it is more noticeable when the wind blowing is weak. Thermal islands are observed as seasonal situations, both in summer and in winter. The main cause of urban thermal islands is to change the land's surface because of urban developments. As the crowded centers are growing, they create bigger surfaces and it has a corresponding relationship with the average of temperature. Aside from their effect on temperature, thermal islands can also have ancillary effects on local meteorology including changes in local wind patterns, expansion of creating clouds and smog, humidity and rainfall amount. Some other bad effects of thermal islands are air pollution, increasing energy use and health risks (Mofidi & Zare Mahzabie, 2013:143).

Most cities are resources of heat, pollution and thermal structures under the effect of thermal islands at the top of (dome) the cities. The thermal island looks like a static hot weather dome at the top of regions with high urban density. The amount of heat which is taken by buildings, roads, and other urban substructures will be released again after sunset and creates a high-temperature difference between urban and rural areas (Shah Mohammadi & Che-ani, 2011:67).

Increasing temperature, especially in summer, causes the centers of Tehran to be unpleasant and hot by direct impact on energy consumption for cooling buildings and risks for urban population health. Increasing temperature at the center of Tehran results from changing in thermal balances of urban spaces such as materials and activities which happen there. Increasing a lot of buildings and constructions in Tehran has caused to eliminate trees and vegetation. So, the temperature will be increased in regions, especially with high-density places. Loss of vegetation and the amount of reflexivity in urban areas are important and the main factors for forming a thermal island in the metropolis, Tehran. Human activities have an important role in creating this phenomenon; as a

result, it causes to release heat and air pollution by human activities on cloud cover. Mixing these factors will specify the amount of heat which has been taken, stored, released and distributed in the urban environment and it will be introduced as the temperature increase in urban areas (Ibid).

Effective factors in creating thermal islands

Significant factors in forming Tehran's thermal island have been studied as follows:

• Air pollution

Tehran's air pollution problem has been announced too critical, according to the world's standards. About 65 to 70% of the total air pollution in Tehran relates to the performance of urban transportation (Zakerhaghighi, 2010). We will discuss the effective factors in air pollution in Table 1 in the summary:

• Generated heat by human

Per capita consumption of energy and high density of population increase the generated heat by the human which is a significant factor in originating the thermal island in Tehran. The amount of generated heat is different because of various human activities in the urban environment according to the characteristics of each city. The main heat generation resources in Tehran are the act of cooling and heating buildings in summer and winter; industrial activities, and finally energy consumption in transportation.

The high density of Tehran's buildings has increased energy consumption by air conditioners, accordingly more heat will be released in the environment and increase urban temperature.

Table 1. Effective factors in Tehran's air pollution.Source: Shah Mohammadi & Che Ani, 2011:132.

Factors	Descriptions	Effects on air pollution
Topography	The topography direction is towards the south The city has been surrounded by mountains from north and east. The wind often blows from the west.	-Northeast mountains avoid exiting air pollution which has been entered the city spaces by the prevailing west wind and makes air pollution especially in the central and east regions of the city. -Inversion increase in Tehran -The temperature increase in Tehran's downtown causes to generate urban thermal island. The urban thermal island will guide pollution from the countryside toward the city by wind flow.
climate	Climate controls the conditions of Tehran's air pollution by temperature difference, rain, pressure, and wind.	-Although rain will clean air, it causes to distribute pollution in air and sediments in the soil. -Setting up industrial usages in west causes to bring pollutions from the west to the center of Tehran by prevailing west winds. -In winter, when the inversion phenomenon happens, cold weather of upper layers will avoid going up the hot and polluted air and will criticize air pollution. -The high pattern of pressure in Tehran will create a stagnant air and avoids going up pollutions and makes it keep polluting.
population	The Tehran's population is about 12 million during a day and 8 million at night.	-The high population will release millions of kilocalorie energy through biological activities and will increase urban thermal temperature. Generating high energy by these activities causes to form the urban thermal island.
industry	Industrial usages have been located in the west of Tehran.	-Setting up industrial usages in inappropriate places and without caring about health rules causes to make air pollution in Tehran. -Prevailing west and southwest winds cause to guide extra materials toward the city.
Urban transportation	About 3 million motorcycles are working in very crowded streets of Tehran (According to statistical information in 2007).	-Recent air pollution, often because of heavy traffic and geographical situation of Tehran, based on the speed of winds or its loss, causes to distribute or stay them in the air.

Since Tehran has been surrounded by industrial units, all the consumed energy by these industries will be turned into heat and aids to generate urban Thermal Island. Another factor which causes Tehran's thermal island is vehicles pollution due to energy consumption, that also relates to the role of public transportation. This effect may be modified by the type of transportation system. Personal cars consume more fuels and produce more heat than buses and electric subways. Tehran has a weak public transportation system. Based on the high rate of population growth, buses and subways can't cover all parts of the city. Thus, a lot of people have to use their personal cars which causes heavy traffics and hence more fuels will be consume by cars so more heat will be generated.

• Waterproof surfaces

The existence of vegetation will adjust local climate because of changing the latent heat produced by the plants. Plants are able to generate the most cooling by evapotranspiration. As the evapotranspiration occurs, a specified amount of water will be lost through the plant's surface, energy (heat) is required to evaporate water, and it is known as latent heat. This consumed energy during evapotranspiration plays a role in reducing temperature around the plant.

Except for plant and water surfaces, porous surfaces that sucking water (e.g. soil) have also an important role in changing latent heat of the atmosphere. A lot of used materials in urban fabric are generally waterproof. Rain is often guided through the sewer in the urban system; not through latent surface change. Loss of porous materials in urban surfaces and natural vegetation in Tehran have caused the city to have less evaporation. It creates more intensity of urban thermal island. Plants and green space destruction, making new buildings instead of them, covering urban spaces with waterproof and low reflexivity materials have increased temperature. If the building surfaces – which generally play a role in increasing urban temperature- are covered by materials with high reflexivity or vegetation, it can be expected to reduce urban temperature remarkably.

• Thermal properties of the urban fabric

According to this fact that a lot of materials for urban constructions are asphalt and concrete in Tehran, these materials attract more radiation energy and store in the urban fabric. At night, the stored heat is slowly released from urban fabric while rural surfaces (soil and plants) release heat quickly.

Consequently, after the sunset, when the rural surfaces are cooled, urban surfaces are still hot; the intensity of the thermal island in the city will be maximum.

Complex geometry (urban shape) of Tehran's urban surfaces increase temperature. Increasing the created friction by uneven urban surfaces (rough) will reduce the horizontal airflow in the city. Average of annually wind speed in cities is almost 30 to 40% lower than the average of annually wind speed around the cities. Low wind speed in cities will prevent cooling through evaporation, too. The complex geometry of urban surfaces will change the rate of urban radiation.

After investigating the above cases, we will evaluate the presented strategies in other countries in order to reduce air pollution (Table 2).

According to theoretical literature and universal experiences, a sustainable city is a city in which the rate of using the car in urban transportation is minimum and per capita consumption of fossil fuels will be minimum in urban transportation. Moreover, urban planning and designing is a human-based issue and walking and biking and public transportation will be prioritized (Mehrabani Golzar, 2016). Transportation planning is a significant part of general urban planning which must be considered in a close relationship with the planning of urban land use. In fact, transportation is either constituent or Annihilator. Transportation has a close relationship with urban life: urban development will affect the available transportation options, but transportation system is also effective

Table 2. Strategies of different countries facing air pollution. Source: www.hamshahrionline.ir/news/385409.

Country	Strategies for confronting with air pollution
China	-Throwing silver ion towards clouds for generating ice crystals and creating falls as rain or snow -Applying and making very tall skyscrapers and spraying water from that height toward the sky -Applying air cleaner bikes having the capability to purify air pollution -Matching three highly polluting industries such as iron industries, petrochemical, and cement with new standards of emission gases
India	-Implementing experimental couple and individual design for improving the situation of New Delhi, the most polluted capital in the world -Establishing extra tolls for night entering of trucks into the capital
France	-Developing special directions for biking in the city within 5 years later -Assigning a cost equals to 158 million euro for building 10000 bicycle parking. -The couple and individual design for cars at downtown in some days
Mexico	-Setting up refineries for producing suitable fuels (with the low amount of sulfur) and modifying gasoline quality with an investment equals to 3.9 billion dollars and replacing small and worn out buses with "metro bus" -Setting up a fast bus system with the capability of increasing passenger volume and generating very low pollution -Obligating to take factories and industrial centers away from the countryside and installing in further regions. -Giving loans for replacing worn out cars and taxis in a regular manner -Setting up the Mexico city's subway quickly
USA	-Easy to use public transportation system and encouraging people to use less personal cars -Implementing the plan of keeping cars at homes and parking once a week -To enforce the law of obligated to use clean fuels -Not to keep on cars being switched on by the drivers more than one minute near the schools, if breaking the law, they have to pay 358 dollars -Obligating to use new fuels with low sulfur by diesel cars and school buses since 2005 -Easy to use public transportation -Using standard cars, suitable fuels (Hybrid fuels) and improving the performance of engines

on the future development of a city in its turn and therefor, urban special forms are accompanied by special transport combinations. Based on theoretical views, by comparing accumulated and centralized urban patterns with automotive-based and scattered urbanization pattern, the first subject is stable and the automobile-based pattern is not sustainable. Since the latter attract more journey with personal cars and generate more pollution due to consuming fossil fuels.

Recognition 22nd district of Tehran

• Investigating the situation of this district's green space

The area of available green space is 1967 hectares including 250 hectares of green space inside the city and 1717 hectares of forest arena.

So, according to population and mentioned numbers, per capita, green space calculated for everyone inside the city is 18 m^2 and in forest arena is 124 m^2 and totally is 142 m^2.

The surface of district 22 of Chitgar forest park can be mentioned as a major green space of the district which is considered as trans-regional land use. Per capita, green space of this region is higher than desirable per capita (Fig.1).

• Identifying environmental problems

This region must be considered as regions with large land use because its area is about 6000 hectares which have the military, green space and sports usages about 52% of the total amount. Unused lands and personal gardens have allocated about 26% of the area. Common urban pollution and related issues about disposing of them in this region are almost related to the residential part which has 8% of the area and relates more to waste collection manners and sewers which is at a critical level.

• Identifying main actual and potential centers for polluting environment

This region doesn't have polluting industrial complexes. In the region, repairing workshops (cars, oil changing and …) have been distributed in different parts which aren't considered as polluting complexes. One of the main polluting centers is Gas Pressure Reducing Station which is

Fig. 1. Map of the district 22 of Tehran. Source: Municipality district 22 of Tehran.

regarded as an air polluting factor because of its gas odor. The only residential complex which is applied sewage-treatment plant is Peykan Shahr. Some other complexes release their wastewaters into ponds outside their own areas (like Sadra). Individual houses are well-drained, although some release their wastewaters into alleys.

Main centers polluting the air

Mobile resources share in Tehran's air pollution is about 71%. This region hasn't potential pollution because the constructions haven't been completed over there and a lot of roads are still incomplete, air and noise pollutions are the consequences of highway constructions that should be considered in preventive actions from now. Various surveying plans have been offered and presented in this field.

Findings and discussion

Nowadays, no urban environment is completely healthy. Some pollution resources are in a city which makes it unhealthy; one of the most important resources is air pollution and high temperature which can affect human's health directly. Accordingly, this article suggests some main proposals from landscape approaches in this field in order to reach a healthy environment and reducing the effects of the urban thermal island:

• The suitable transportation system for reducing air pollution

This research suggests the following strategies to reach sustainable transportation and eventually reduce air pollution in a city:

1. Building desirable and beautiful ways, alleys and streets for walking (awning directions which have exclusively been designed for walking and biking) can encourage people to use these ways of transportation.
2. Installing facilities and services in a close distance for pedestrians and bikers will encourage them not to use cars.
3. Developing bus and subway networks
4. Regard bus and railways services standards
5. Encouraging people to use the public transportation system

• Making suitable views

When the vegetation is replaced in urban surfaces, heat balances can transfer to a new situation which is closer to cool weather conditions. Moreover, water levels and wind directions will reduce the effect of solar radiation in summer by natural or artificial obstacles, while they protect buildings in winter.

In addition, various kinds of trees and vegetation,

as well as ponds, must be set up in different parts of the city and buildings in order to reduce energy consumption.

• Public green spaces

Green spaces in some parts of buildings and city which generate natural ventilation or nice views in different layers or building stories can significantly reduce the required energy for cooling buildings by multipurpose performance. Horizontal green space: green spaces in roofs will attract heat and decrease air heat motion and will also filter it. Plants in horizontal and vertical surfaces can cool cities during hot months through daily evaporation cycle.

• Increasing the capability amount of building materials reflection

It's been approved that building surfaces with high reflexivity (like white surfaces) can reduce the urban temperature. It's very important for urban heat performance of building facades and thermal environments to select suitable materials. Materials with high reflexivity can reduce the obtained radiation heat during a day, hence, its surface temperature is less than materials with low reflexivity. When the urban environmental temperature depends on the temperature of a building façade surfaces, the low surface temperature will obviously help to reduce the environmental temperature. A simulation will specify that cooling load can be increased by changing façade color from bright to dark. In multi-story buildings, façade has an important role in generating the cooling load of these buildings and their roofs have also a too much important effect on especially the story under the roof.

• Introducing suitable materials

According to the mentioned subjects, suitable materials for urban areas will be introduced and their features will be mentioned as follows:

Features of suitable materials in urban areas

-Impermeable materials will allow the water to cross the surface and penetrate the lower level due to their porous features. Permeable sidewalks have a potential property for cooling surfaces, too. These surfaces allow the air, water, and steam to cross the sidewalk surface. The technology of impermeable surfaces is impermeable asphalts, impermeable concrete, impermeable sidewalk surfaces, and sidewalk networks. When these sidewalks are wet, they reduce temperature evaporation by cooling. Available humidity in the surface structures is evaporated as the surface becomes hot (Fig. 2).

- Recyclable materials help to reduce wastes. They also lessen needs to extract natural resources. Some major recyclable materials are recyclable concretes and rubber plates. Using rubber surfaces for covering sidewalks has many advantages comparing to any other materials. Rubber surfaces have stable spring property; in rainy wet days, people feel more secure while using these sidewalk surfaces. These sidewalks have been built with 100% of recyclable rubbers.

Recyclable concrete masses use the combination of mixed concrete as the lower surface of gravel-walks. Ash which is a sub-product of steel products, can be used as a part of the concrete and will reduce industrial wastes (Fig. 3).

- Materials with high albedo: Albedo or surface reflexivity is the ratio of a reflexed light from material to the radiated light on it. So, the surfaces with high albedo consume less energy and are

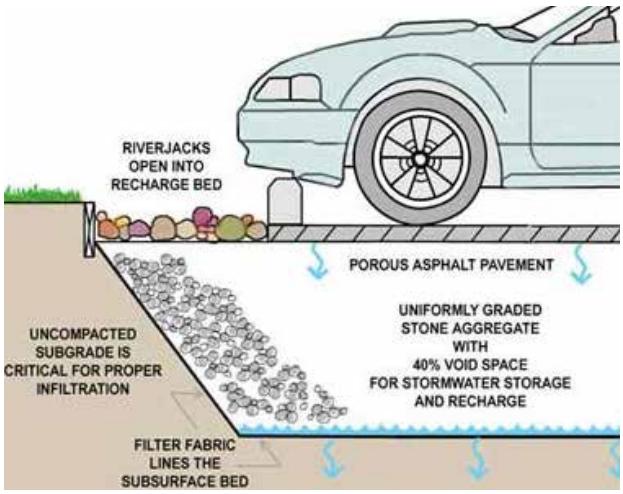

Fig. 2. Porous asphalt. Source: Jamshidi Chenari, 2013.

cooler. The materials with high albedo are bright and have the minimum light attraction, they are radiated by the minimum heat of the surface. So, high albedo of surfaces will reduce the effect of

Fig. 3. Rubber Flooring. Source: www.geranool.com.

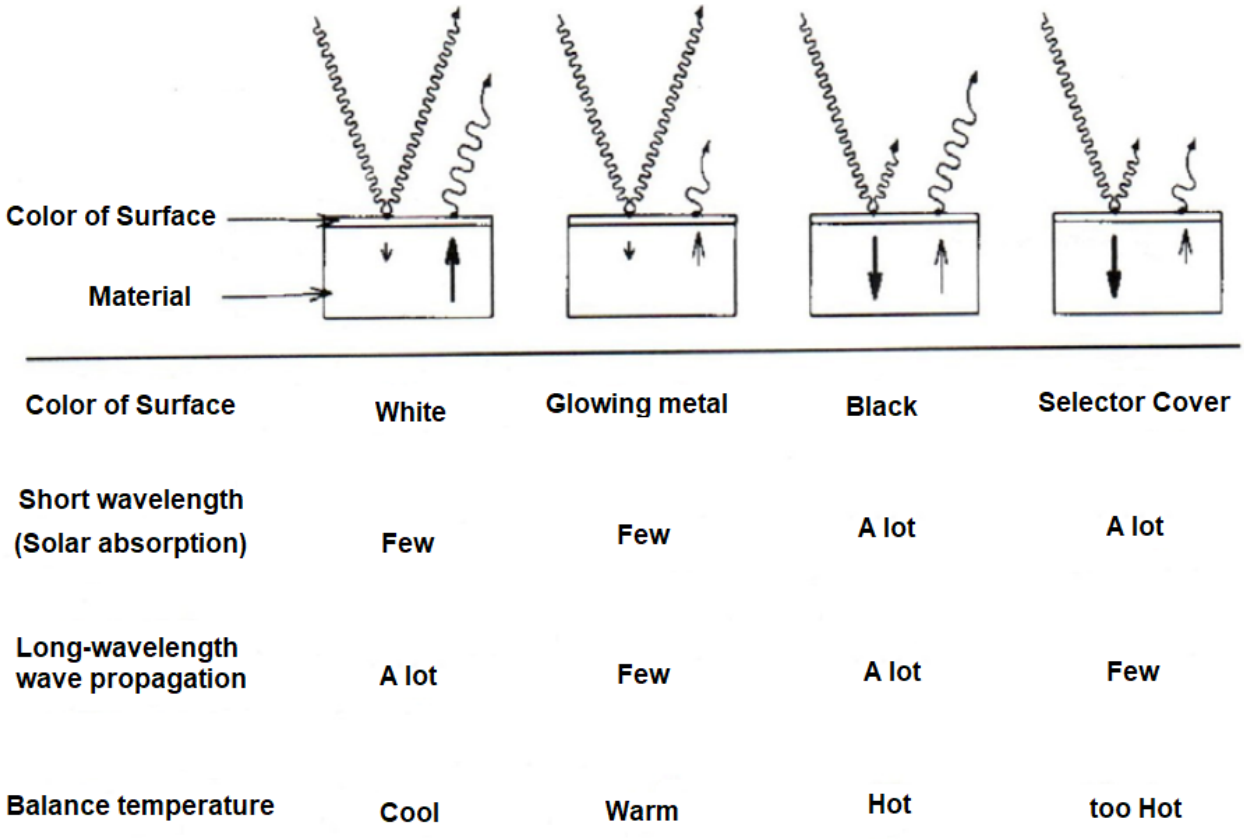

Fig. 4. Balance temperature at different levels of sunshine. Source: authors.

Table 3. introduces and examines the materials properties, their effects on the city and surface temperature and their applications.
Source: Mofidi & Mahzabieh, 2013: 118.

Applications	Effect of urban temperature	Effect of surface temperature	properties	Description of technology	Type of materials
			Introducing suitable materials		
-Applicable in all roads and streets -It can be effective in wider surfaces like parking lands.	-It can help to reduce the temperature of day and night. -Heat reflection can be attracted by tall buildings and makes hot the inside of a building.	-Reducing the temperature of surfaces because more solar energy will be reflexed and less heat will be attracted by the surface of floor covering.	-Solar radiation which is about 5% at first and can raise up to 15-20% like common asphalts. -Using bright masses with the same color, pigments for increasing the capability of recycling common asphalts -Urban geometry science can affect increasing albedo of the surfaces.	-Asphalt cover including a type of asphalt binder has been unified in combination to sand or stone	**-Modified asphalt surface with high albedo materials. It can be used after installing for increasing albedo.**
-Applicable in all roads and streets -It can be effective in wider surfaces like parking lands.	-It can help to reduce the temperature of day and night. - Heat reflection can be attracted by tall buildings and makes hot the inside of a building.	-Reducing the temperature of surfaces because the most solar energy is reflected and less heat will be attracted at the surface of floor covering	-Solar reflection can be 40%. It can be increased up to 70% by replacing white cement with gray one.	-Portland cement in combination with water have been unified. So that it can be rigid for trafficking.	**-Modified common concrete**
-Applying them depends on demanding by floor covering and generally these suggested surfaces are used for surfaces with less traffic like sidewalks, roads and parking lands. -Applicable in all roads and streets -It can be effective in wider surfaces like parking lands.	-It can help to reduce the temperature of day and night. - Heat reflection can be attracted by tall buildings and makes hot the inside of a building.	-Reducing the temperature of surfaces because the most solar energy is reflected and less heat will be attracted at the surface of floor covering.	-These suggested surfaces have different reflections based on the materials which can be used for making them. -Urban geometry can affect albedo of the surfaces.	-At the surfaces having resin, transparent gum of trees instead of cement will be used as a coherent material. -The colored asphalt or concrete with pigment which can be more reflexive than its peer. They can be used when they are fresh or in keeping period.	**-Other surfaces of reflexive sidewalk: Having resin Colored asphalt Colored concrete**
-The rubbed asphalts are used in highways and streets as well as permeable concretes. -Technology is usually used in less traffic regions like alleys, parking lands and roads. -The best choice for regions having wet summers.	-When they are wet, they can help to reduce air temperature at day and night. Through evaporation cooling. Although air temperature doesn't depend on the surface temperature directly and includes many factors. -When they are dry, they have a role in raising the temperature of surfaces during the day and also help to decrease air temperature at night.	-When they are wet, they can reduce the surface temperature. -When they are dry, they may have a hot surface but the lower surfaces have usually the same temperature with their impermeable peer.	-Generating cold situations by using evaporation -Solar reflection of these materials depends on their own properties. (for example, gravel may be white and too reflexive.) as a whole, by increasing the surface, impermeable materials have less reflexivity than their impermeable peer. -To increase transition or increasing larger surfaces helps to cool the surface.	-Permeable asphalts have more interstices than usual asphalts and they take water from the surface to the lower level. -Rubbed asphalts or crumb rubbed ones including rubber mixed with asphalt, these materials are often used for reducing noises. -Other permeable asphalts or free aggregation for friction of surfaces can also be used for reducing noises. -Permeable concrete has more interstices than	**Non Vegetated permeable (surface) pavement**

refer to Table 3.

				usual concretes and they take water to the lower levels. Brick or block has generally been filled with clay or by concrete blocks or by stone, gravel or soil.	
-Technology is usually used in less traffic regions like alleys, parking lands and roads. -The best choice for regions having wet summers.	-In most times, they help to reduce day and night temperature through evapotranspiration and natural properties of plants -The capability of humidity will mainly increase its effect.	-Reducing the grid temperature through evapotranspiration, especially in wet times. -When they are dry, comparing to other surfaces and according to natural properties, they are cooler.	-Generating cold situation of evapotranspiration -Stability of plants changes with local conditions.	-Plastic, metal or concrete networks provide a framework and make possible grow grass or other plants in interstice.	**-Vegetated permeable surfaces(pavements) Grass surfaces Concrete networks**
-White coverings are used for some parts of roads, intersections and parking lands. -They can be effective in wider surfaces like parking lands.	-It can be effective to reduce day and night temperature although air temperature doesn't depend on the surface temperature directly and many factors are involved. -Heat reflection can be attracted by surrounded buildings and makes hot the inside of a building.	-To reduce the upper and lower surfaces because more solar energy will be reflected and less heat will be attracted from the surface.	-The reflection of material light with white covering is the same as the upper concrete.	-The white covering of a thick layer having a thickness of concrete more than 10 cm, can be used in available asphalt as reconstruction. Or it can be added to the new asphalt. They usually have binders for increasing their stability. The thickness of this thin white covering is between 5 to 10 cm and is the same as white coverings.	**-Final white covering**

urban thermal islands and will balance cooling costs. In addition, the albedo above the surfaces will cool temperature more during the day (Fig. 4).

Conclusion

According to the findings, it can be concluded that the climate wisdom of district 22 has the capability to be planned and designed for reducing the thermal island phenomenon so, it has a direct impact on reducing air pollution. In response to the research question, the set of presented strategies about landscape planning for reducing air pollution are effected by generating microclimates and reducing heat effects.

Attention to reducing the effect of thermal island causes to select precisely suitable materials for urban surfaces. Reducing the temperature of surfaces will balance the negative effects of thermal islands as well as increasing the service life of sidewalks and reducing wastes. The surfaces which have 11°C lower temperature, are stable 10 times more than warmer surfaces and the surfaces which have 22°C lower temperature, are stable 100 times before encountering serious damages. The temperature of surfaces depends on different factors. Reflexive surfaces will raise the albedo of the surface for reducing heat, while in impermeable and wet surfaces, evaporation will help them to be cooled. Materials such as permeable concretes have

high albedo because of their inherent bright color and also help to decrease the surface floodwaters and consequently have effects on reducing urban temperature through evaporation. Using white covers above the current surfaces of sidewalks can also be effective on reducing day and night temperature.

All the mentioned factors in landscape planning level on the regional scale and then designing open and public spaces on the local scales can help to balance the effect of temperature by generating climate wisdom and will reduce the effects of pollutions. Whatever the rate and intensity of pollutions are decreased at the primary levels of planning for a region, the rate of success in designing, implementing and utilization will be increased in the smaller scales.

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