

Garden of the Saudi Villa: Its Drawbacks and Prospects

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Abstract. Detached housing unit, called villa in Saudi Arabia, offers an open space around the house that can be utilized as a garden. Literature emphasizes three negative aspects of this space: it is generally too small for any type of activity, the harsh climate of the region makes it unusable most of the times, and, socially, its use is not very suitable because it is visually exposed by neighbors. In discussing these three aspects, the paper finds that in most studied cases the villa enjoys an acceptable size of open space sufficient for at least two activities: a sitting area and a small play area. As for climate, it is argued that there are at least five months yearly during which weather is acceptable for outdoor use. Moreover, the paper maintains that Saudis use the outdoors passively as a visual element while sitting indoors. This passive use of the garden is now accompanied by some active uses that are newly introduced to the life style of Saudis. These uses include swimming, barbequing, and playing.

Introduction

Saudi villa consists of a typically two-floor house within a fenced lot. This arrangement leaves between the house and the fence a well defined open space that runs around the whole house. The area of this space varies according to the proportion between the sizes of the house and the lot itself. However, in its basic and simplest form, this space is generated as a result of the setback regulations imposed by municipalities. Typically, a minimum of two meters is required for side setbacks; front and back setbacks are more than that. Such an open space, one would think, can have high potentials as an outdoor living area.

However, literature seems to suggest that it is a wasted space characterized by a lack of privacy and climatic discomfort. Akpınar (1992) mentions that one common criticism of the villa is its "unused outdoor areas". Eben Saleh (2001) asserts that "the setbacks created by the adoption of villas created unusable private space either in terms of dimension or in terms of visual privacy". Along the same lines, Al-Saati (1989) points out that setbacks along with the desire to use the lot to its maximum contributed to the creation of "tiny narrow yard

that surrounds the building which can hardly be used". Al-Hussayen (1995) called, along with others, the outdoor spaces of the villa "dead spaces" since they are not used due to the lack of privacy. Similarly, Alnowaiser (1996) agrees that enforced setbacks regulations made outdoor spaces visually exposed to neighbors, and thus unused. The idea that climatically the villa's open space is not suitable for use has also been long noted. For example, Akbar (1982) and Aysen and Aksugur (1993) state that because of the intense heat of the region, it is not possible to fully utilize the open space.

The Villa's Garden as an Issue by Itself

Although the villa's open space has been constantly criticized, it has not been studied as an independent issue. It is typically considered as one item of criticism to the villa as a whole. Moreover, points of criticism have been repeated in almost all studies related to the evaluation of Saudi villa to the point that they have become stereotypes. Therefore, it seems beneficial that this space is addressed in order to direct attention to its potential uses.

Goal, Objectives, Methodologies, and Limitations of the Study

Based on the earlier discussion, this study aims to one particular goal related to the use of the villa's open space through a number of objectives as stated below.

Goal of the study

The goal of the study is to examine the legitimacy of the typically claimed shortcomings of the villa's open space.

Based on the abovementioned criticism of the open space, three main shortcomings are identified. Discussing these three shortcomings are the objectives by which the main goal will be attained.

Objectives of the study

- To examine whether the currently available area of the open space according to the regulation can be sufficient to support activities.
- To identify times of year and day during which climate can support the use of outdoor spaces in the studied cities in Saudi Arabia.
- To identify actual and current uses of the villa's outdoor space.

Methodologies of the study

For the first objective, calculations are done in order to see the available area for outdoor use in five Saudi cities. Through the use of building areas and sizes of lots allocated by local municipalities, it was possible to define leftover areas in the lot. The sizes of these leftover areas were compared with areas needed for outdoor activities in order to see if they can actually be used.

For the second objective, information about annual temperature and humidity for three main cities in Saudi Arabia were examined against what is known as the comfort zone. This examination led to the identification of periods of the year when outdoor spaces are usable.

The third objective is discussed through a number of venues: historical use of outdoor spaces in Arab societies, passive use of outdoor spaces in current Saudi Arabia, and the changing active use of outdoor spaces of villas in Saudi Arabia.

Limitations of the study

The paper is limited to the study of the potential use of outdoor spaces in the Saudi villa in connection with area, climate, and socio-cultural issues. It concerns itself only with proving that this space has strong potential for use, and should not

be considered as a wasted space. The study concentrates on five cities only for the first objective and three for the second while the discussion of the third objective is general for all Saudi cities. The selected cities are representative of Saudi cities; the three used in the climate study are the crucial cities because they are located in the most difficult weather of the country. For the sake of simplification and because the studied space is open, private, and typically hosts some plant materials, it will be referred to as the villa's garden.

The paper includes three main sections to deal with its three objectives. The following section "Spatial Configuration of the Villa's Garden" addresses the first objective related to examining whether current sizes of lots can accommodate outdoor uses; following it a section titled "Climate and the Villa's Garden" finds periods of the year when the weather in the three selected cities is within the comfort zone, while the last section "Behavioral Issues Pertaining to the Use of the Villa's Garden" discusses passive and active uses of the villa's garden in response to the third objective. The paper ends with concluding remarks.

Spatial Configuration of the Villa's Garden

Spatial configuration of the garden is concerned with its size and shape, both of which are determined in accordance with the relationship between the house itself and its lot. What shape this relationship are the enforced setbacks and maximum allowable lot coverage. Municipalities in Saudi cities have devised a set of regulations that governs these two factors; these regulations are relatively similar in all cities with some minor differences (Table 1). In order to understand the influence of these regulations on the shaping and sizing of the villa's outdoor space, they are demonstrated here on lots of minimum allowable areas for five main cities: Riyadh, Jeddah, Al-Madinah Al-Mounawarah, Dammam, and Tabouk. Each table calculates the maximum allowable built-up area according to the two constrictions: maximum percentage of allowable lot coverage and enforced setbacks.

Because building of any villa should meet both constrictions, the smaller of the two figures represents the area that can actually be built. Thus, if the maximum allowable lot coverage is smaller than the area of the lot minus the area of setbacks, then the difference between the two calculated areas represents additional space that is gained to the benefit of the outdoor space since it cannot be built anyway.

Table 1. Regulations governing sizes, dimensions, maximum built areas, and minimum setbacks in five Saudi cities

	Lot Size	Site Dimension	Max. Built Area	Min. Setbacks		
				Front	Sides	Back
Riyadh	500 m ²	20 X 25 m	(60%) 300 m ²	3 m	2 m	2 m
Jeddah	600 m ²	20 X 30 m	(40%) 240 m ²	3 m	3.5 m	3 m
Madinah	750 m ²	25 X 30 m	(50%) 375 m ²	4 m	3 m	5 m
Dammam	400 m ²	16 X 25 m	(50%) 200 m ²	3 m	2.5 m	5 m
Tabouk	400 m ²	20 X 20 m	(60%) 240 m ²	4 m	2 m	2 m

Taking Riyadh as an example (Table 2), it appears that in a 500 m² lot, the built-up area of site according to enforced setbacks equals to 320 m². However, the maximum allowable lot coverage is 60%, which amounts to 300 m². Thus, there is a difference of 20 m² that can be added to the garden of the villa. At least two possibilities are present here: a 4 by 5 meter area can be added to the already applied setbacks to have a 48 m² area, or a strip of 16 by 1.25 meter to be added to the front setback to get an 85 m² area for outdoor use. Working the numbers again with a 600 m² lot gives three possibilities: a 77 m² area; or two smaller areas at both ends of lot, one is 42 m² and the other is 49 m² adding up to 91 m². The third possibility is to have a strip along the front of the building to make the front yard 110 m².

Villas in Jeddah and Madinah also enjoy good size gardens (Tables 3 and 4). In the case of Jeddah, the garden can be as big as 170 m²; and in Madinah, it reaches 156 m². In other words, a villa in Jeddah with minimum lot size according to municipality's regulations can have a garden measuring 20 by 8.5 meters; a size sufficient to introduce a sitting area (8.5 X 6 m), a children play area (8.5 X 6 m) and even a small swimming pool (8.5 X 8 m). The villa in Madinah enjoys many options (Table 4); option B shows two separate spaces, one in front measuring 9 X 7 meters and can be a good formal sitting area. The second is in the back measuring 9 X 6 meters and can be used for a number of activities such as playing, sitting, or gardening.

Dammam and Tabouk, however, do not present the villa with such a spacious area (Tables 5 and 6). According to calculations, area of lot available for building based on given setbacks is smaller than maximum built-up area in villas of both cities. Thus, the only available area as garden is that designated by setbacks. In the case of Dammam, the villa's back space is 16 X 5 meters. This is hardly an unusable space; a sitting area (7 X 5 m) and a play ground (7 X 5 m) can be easily introduced there. Even in the villa in Tabouk,

where front space measures 20 X 4 meters, one can see having a sitting area possible.

Two points should be kept in mind regarding the size of garden. First point is related to the available dimensions of the open space. The narrowest width discussed here is four meters in the case of Tabouk; this width can easily form an actual and useable "outdoor room" if combined with any length. For instance, if only half the width of the lot is used, the length of the space will be 10 meters assuming that the other half will be used as a private garage or a driver's room. Thus, the size of the available open space is four by 10 meters. Sizes of courtyards in traditional houses vary a lot; however, in a typical house in Riyadh it ranges between 3 X 4 to 4 X 6 meters (Al-Hussayen, 1995). In comparison, this makes the Tabouk space a very ample one.

The second point to be remembered here is that regulations, which are the main force behind the shaping of this garden, are not supposed to be permanent. As much as they are critical to healthy development of urban areas, they are bound to be flexible and continuously changing. In the States, building codes are reissued in three years intervals with annual publication of any intermediate changes (Packard, 1990). Regulations and codes in Britain, it is said, were meant to be "flexible and amenable to adjustment when the need was apparent" (Stephenson, 1977). Saudi regulations are supposed to be flexible also; Article 38 of the Urban Planning Regulations published by the Ministry of Municipal and Rural Affairs (1413 H, 1993 G) states that specialized agencies in the Ministry will prepare and update urban development regulations. However, it seems that not enough updating is taking place (Salagoor, 2001); the problem then is not in the regulations but in the systematic effort to apply and update them. As far as the garden of the villa is concerned, regulations of setbacks and maximum allowable built-up area should be as such that a minimum garden would always be available.

Table 2. Area available as open space in villas of Riyadh

Max. Size of Built Area Based on Setbacks	Max. Built Area of Lot	Difference between the Two Values	Types According to Possibilities	Possibilities of Utilizing the Additional Area	Total Dimensions of Open Space	Total Area of Open Space
$(25-5) \times (20-4) = 20 \times 16 = 320 \text{ m}^2$	300 m^2	$320 - 300 = 20 \text{ m}^2$	A	$4 \times 5 \text{ m}$	$6 \times 8 \text{ m}$	48 m^2
			B	16×1.25	20×4.25	85 m^2

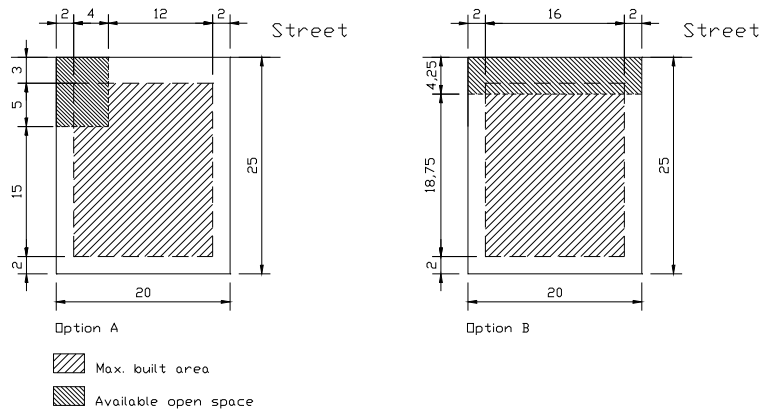


Table 3. Area available as open space in villas of Jeddah

Max. Size of Built Area Based on Setbacks	Max. Built Area of Lot	Difference between the Two Values	Types According to Possibilities	Possibilities of Utilizing the Additional Area	Total Dimensions of Open Space	Total Area of Open Space
$(30-6) \times (20-7) = 24 \times 13 = 312 \text{ m}^2$	240 m^2	$312 - 240 = 72 \text{ m}^2$	A	$8 \times 9 \text{ m}$	$11.5 \times 12 \text{ m}$	138 m^2
			B	13×5.53	20×8.53	170.6 m^2

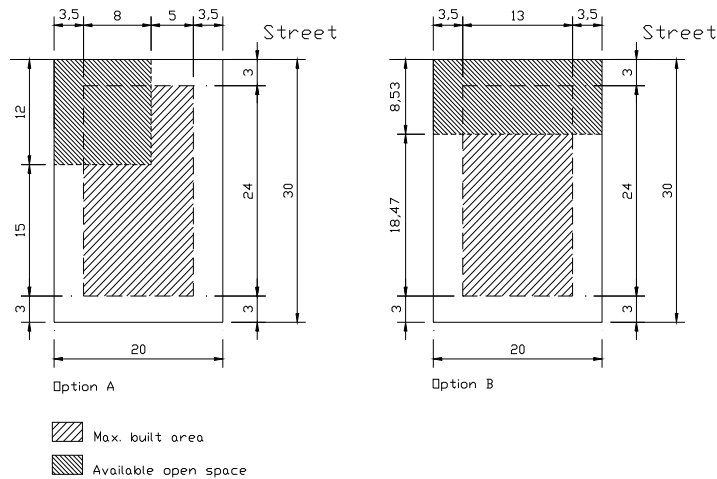
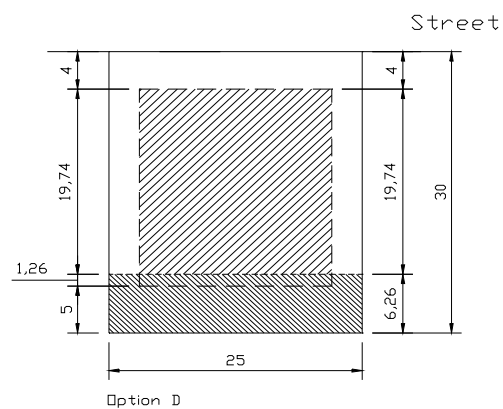
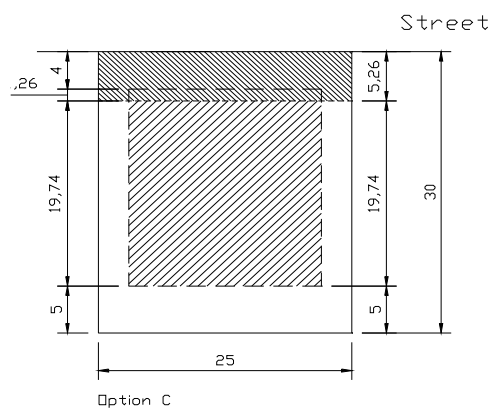
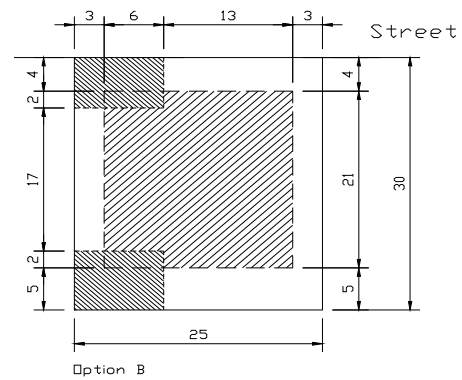
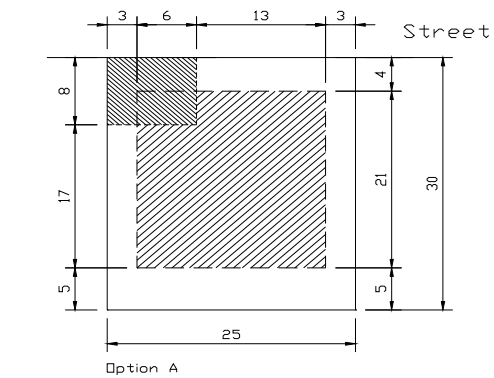


Table 4. Area Available as open space in villas of Madina

Max. Size of Built Area Based on Setbacks	Max. Built Area of Lot	Difference between the Two Values	Types According to Possibilities	Possibilities of Utilizing the Additional Area	Total Dimensions of Open Space	Total Area of Open Space
$(30-9) \times (25-6) = 21 \times 19 = 399 \text{ m}^2$	375 m^2	$399 - 375 = 24 \text{ m}^2$	A	$6 \times 4 \text{ m}$	$9 \times 8 \text{ m}$	72 m^2
			B	$(6 \times 2) + (6 \times 2)$	$(9 \times 7) + (9 \times 6)$	$63 + 54 = 117 \text{ m}^2$
			C	19×1.26	25×5.26	131.5 m^2
			D	19×1.26	25×6.26	156.8 m^2





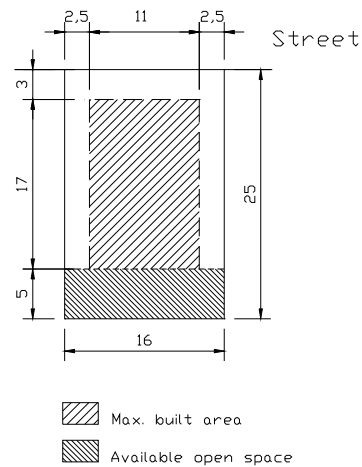
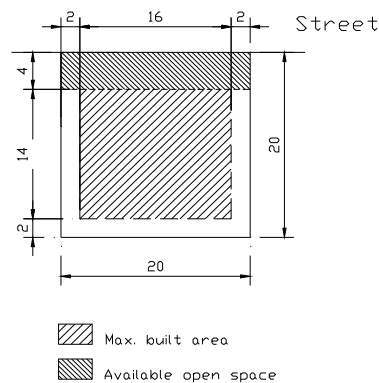
 Max. built area
 Available open space

Table 5. Area available as open space in villas of Dammam

Max. Size of Built Area Based on Setbacks	Max. Built Area of Lot	Difference between the Two Values	Types According to Possibilities	Possibilities of Utilizing the Additional Area	Total Dimensions of Open Space	Total Area of Open Space
$(25-8) \times (16-5) = 17 \times 11 = 187 \text{ m}^2$	200 m^2	$187 - 200 = -13$ Difference is negative. Max. area can be built; thus, no extra space is available				$16 \times 5 = 80 \text{ m}^2$

**Table 6. Area available as open space in villas of Tabouk**

Max. Size of Built Area Based on Setbacks	Max. Built Area of Lot	Difference between the Two Values	Types According to Possibilities	Possibilities of Utilizing the Additional Area	Total Dimensions of Open Space	Total Area of Open Space
$(20-6) \times (20-4) = 14 \times 16 = 224 \text{ m}^2$	240 m^2	$224 - 240 = -16$ Difference is negative. Max. area can be built; thus, no extra space is available				$20 \times 4 = 80 \text{ m}^2$



A concern, which municipalities should address, is that most lots granted to residents via royal decrees are square in shape (Alhathloul, 1994). Typical lot dimensions are 20 X 20 m, 25 X 25 m, and 30 X 30 m. The problem lies in the smallest lot (20 X 20 m), which is as big as that used in Tabouk. As shown in the case of Dammam, it will be more beneficial for residents in the future to have lots measuring 25 X 16 m if a 400 m² size is to be maintained in order to achieve an acceptable size of open space.

Climate and the Villa's Garden

Saudi Arabia is a large country with different climatic properties even though it is typically seen within the hot arid zone (Fig. 1). In reality, the central part of Saudi Arabia is truly hot and arid: it is very hot in the summer and relatively warm in the winter. While during the day temperature can be above 45 degrees, it drops down drastically during the night. Shorelines of the country are recognized for their very humid summers, especially during August and September.

North of Saudi Arabia is not as hot as its central area; in fact it comes closer in terms of weather to Jordan and Syria. Finally, the southwest area is mountainous and famous for its very pleasant summers. Therefore, it is not possible to generalize the effect of climate on the whole country. Climate is very appropriate for outdoor activities almost most of the year in the north and southwest. The area of concern is the middle one, which can be divided into two zones: the hot and dry inland zone and the hot and humid coastal areas in the east and west of the country.

A detailed study of climate requires a much more involved work; however, the argument here is very simple and consisting of two points. First, accepting that climate can be harsh in the middle area of the country at certain times; there are still times of the year and hours of the day when outdoors are tolerable and even pleasant. Second, microclimate can be controlled through a well-configured combination of soft and hard materials of the outdoor space. In order to validate the first point, climate in three cities located in the central part of the country is explored here. These cities are Al-Khobar located on the eastern coast, Riyadh in the main land, and Jeddah on the western coast.

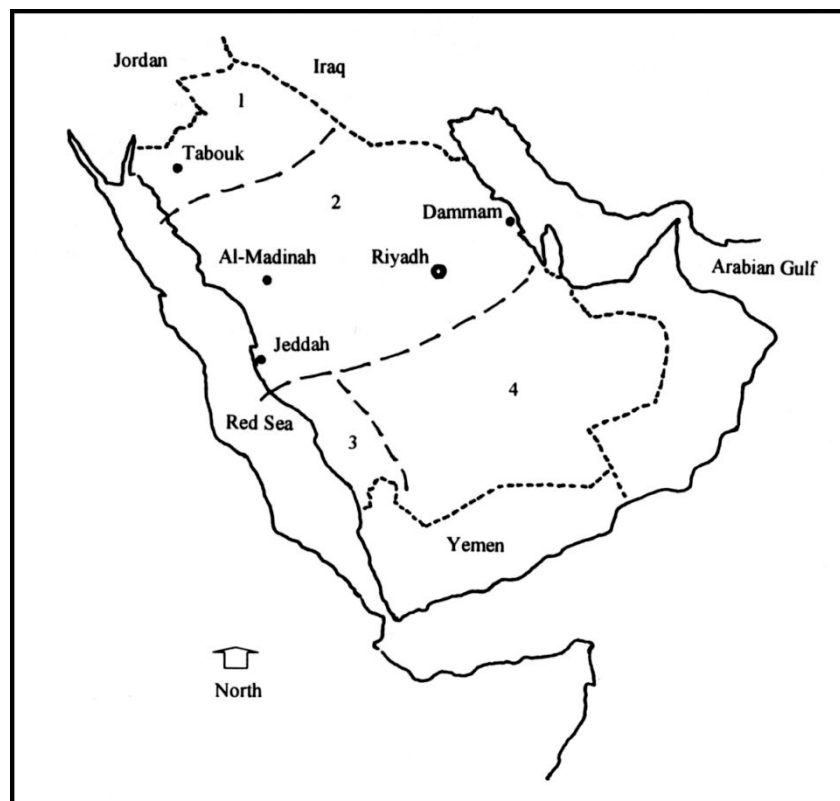


Fig. 1. Saudi Arabia showing rough climatic areas, 1. Northern part: moderate climate; 2. Central area: hot and dry in the inland and hot and humid at shorelines; 3. Mountainous areas: very pleasant climate; 4. Al-Rub' Al-Khali (the vacant quarter): severe climatic conditions, not occupied.

To assess appropriateness of climate to outdoor usage, the study relies on the concept of comfort zone as a measuring tool. According to one definition, comfort zone is “the situation in which the least extra effort is required to maintain the human body’s thermal balance” (Gut and Ackerknecht, 1993). It is basically the range of a combination of temperature and humidity where people feel comfortable without the use of any type of air conditioning. This zone has been mapped several times by different studies such as the one presented by Markus and Morris (1980) and Koenigsberger *et al.* (1980), and apparently its borders are still debatable. However, according to an early study by Victor (1963) cited by Gut and Ackerknecht (1993), the range of comfort runs between 20.5°C with relative humidity of 20-80%, to almost 30°C with relative humidity of 20-55%. It is important to note that these limits are done for indoors; outdoor spaces are usually given a larger margin on both ends (Koenigsberger *et al.*, 1980).

Figure 2 presents a chart of the comfort zone according to the above mentioned parameters. It is worth noting here that this chart is actually pretty conservative; other charts such as the one presented by Markus puts the upper limit at 35°C. Mofeez (2002) considers the highest temperature within the

comfort zone of the Eastern Province in Saudi Arabia to be 32°C with humidity ranging between 18 to 78%.

However, in order to make the argument more convincing, the most conservative limits of comfort zone are used here. Monthly average temperature and humidity are spotted on the comfort zone chart presented in Fig. 2 for the three studied cities. Two values are used for each month (Table 7): average high temperature with low humidity (typically taken around early afternoon) and average low temperature with high humidity (typically taken around the early hours of the morning before sunrise). A line is drawn connecting the two points to indicate the change between the two points. The line does not represent the actual fluctuation of temperature and humidity; however, it indicates the direction of this fluctuation. It is understandable that the two points indicating the high and low temperatures are also averages and not absolute values. Nonetheless, each line representing a month, can give an informative idea about the typical fluctuation in temperature and humidity.

Repeating the same process for all months gives a clear indication of yearly ranges of temperature and humidity for the three cities (Figs. 3, 4, 5, 6, 7 and 8). The charts can be summarized in three tables which show suitable periods for outdoor usage.

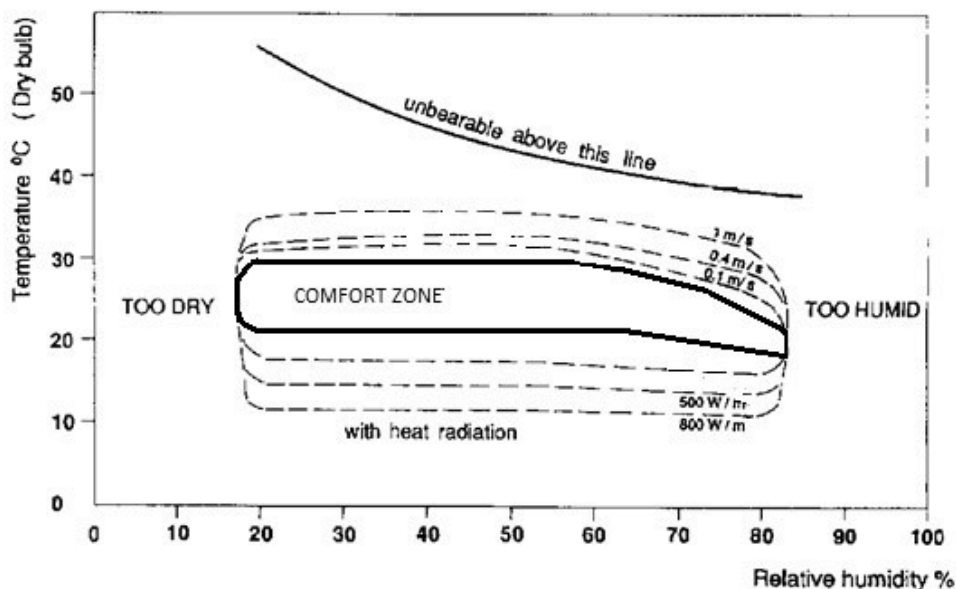


Fig. 2. Comfort zone according to Victor (1963) cited by Gut and Ackerknecht (1993).

Table 7. Average high and low temperature and humidity in three main Saudi cities

Source: <http://www.myforecast.com/bin/climate.m?city=75151&metric=false>

		Khobar		Riyadh		Jeddah	
		High Temp / Noon Humidity	Low Temp / Morning Humidity	High Temp / Noon Humidity	Low Temp / Morning Humidity	High Temp / Noon Humidity	Low Temp / Morning Humidity
January	Temp.	67	51	19	9	28	18
	Humidity	52	82	32	60	46	70
February	Temp.	71	53	23	11	28	18
	Humidity	48	82	27	52	44	72
March	Temp.	77	59	27	16	31	20
	Humidity	42	77	24	47	43	72
April	Temp.	88	68	32	20	34	22
	Humidity	34	67	19	43	42	69
May	Temp.	99	76	38	26	36	24
	Humidity	26	52	13	29	43	71
June	Temp.	105	82	41	27	37	25
	Humidity	21	41	8	19	43	76
July	Temp.	108	84	43	29	38	27
	Humidity	24	44	8	16	38	74
August	Temp.	106	83	42	28	37	27
	Humidity	27	52	8	18	43	75
September	Temp.	102	78	40	26	36	27
	Humidity	32	67	9	21	53	81
October	Temp.	94	71	34	21	35	24
	Humidity	37	74	13	31	50	80
November	Temp.	82	63	27	15	32	22
	Humidity	46	76	22	46	49	77
December	Temp.	72	55	22	11	29	20
	Humidity	52	80	33	60	47	73

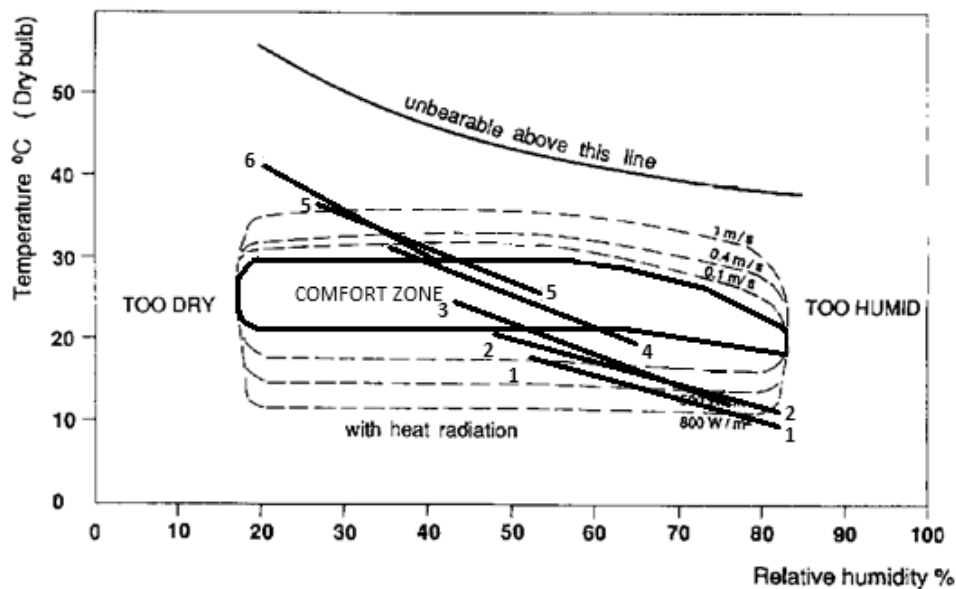


Fig. 3. Ranges of changes in temperature and humidity from January to June in Khobar.

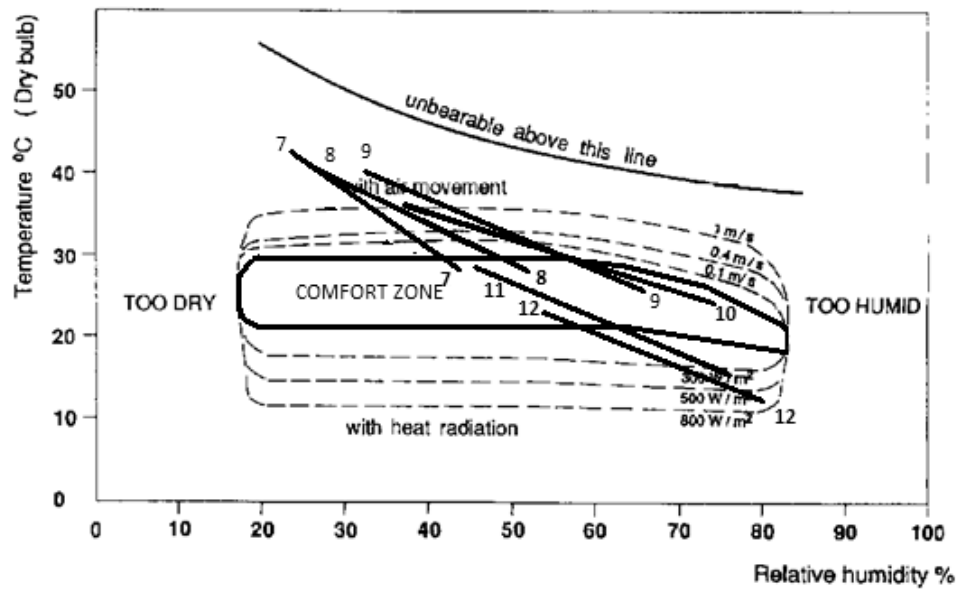


Fig. 4. Ranges of changes in temperature and humidity from July to December in Khobar.

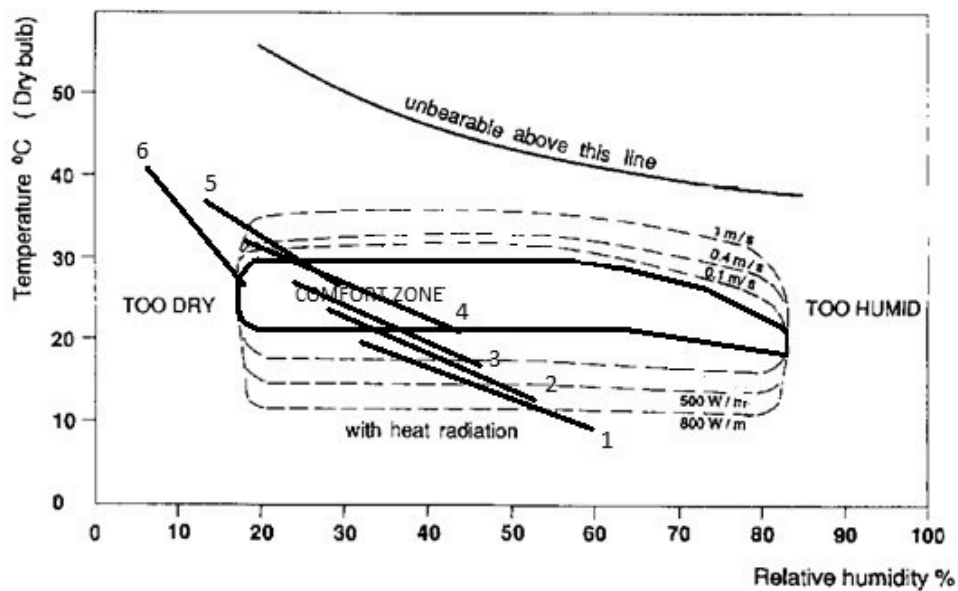


Fig. 5. Ranges of changes in temperature and humidity from January to June in Riyadh.

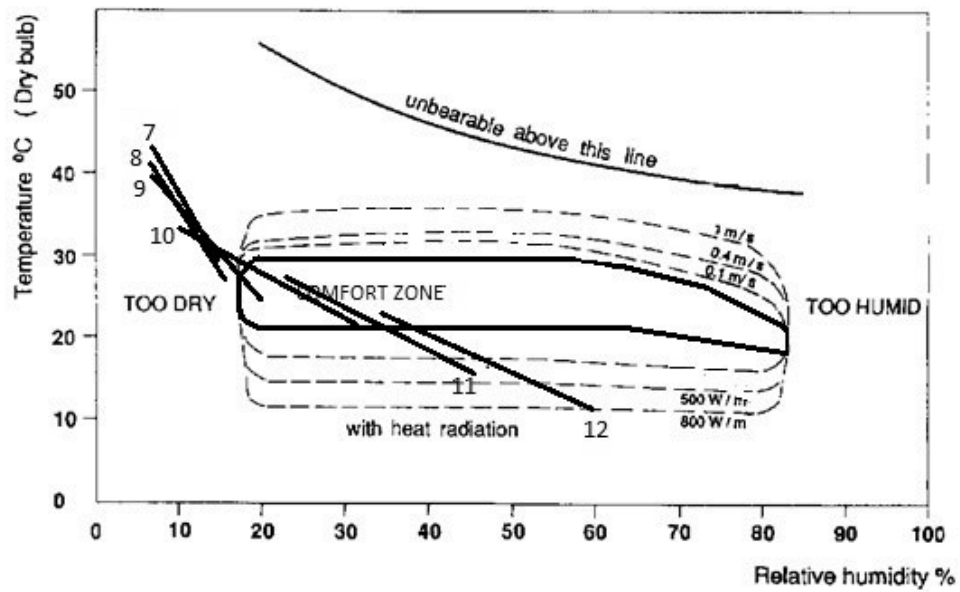


Fig. 6. Ranges of changes in temperature and humidity from July to December in Riyadh.

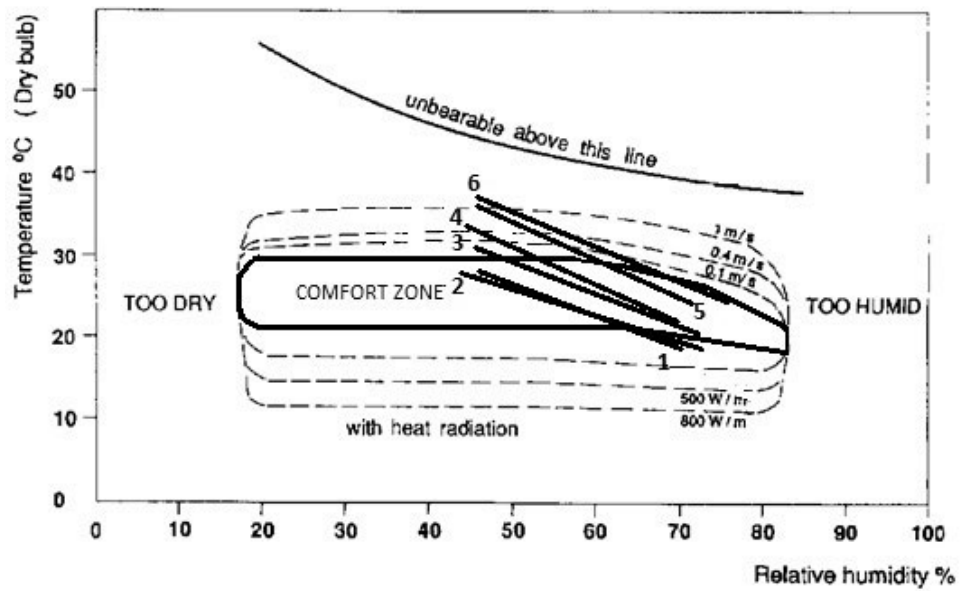


Fig. 7. Ranges of changes in temperature and humidity from January to June in Jeddah.

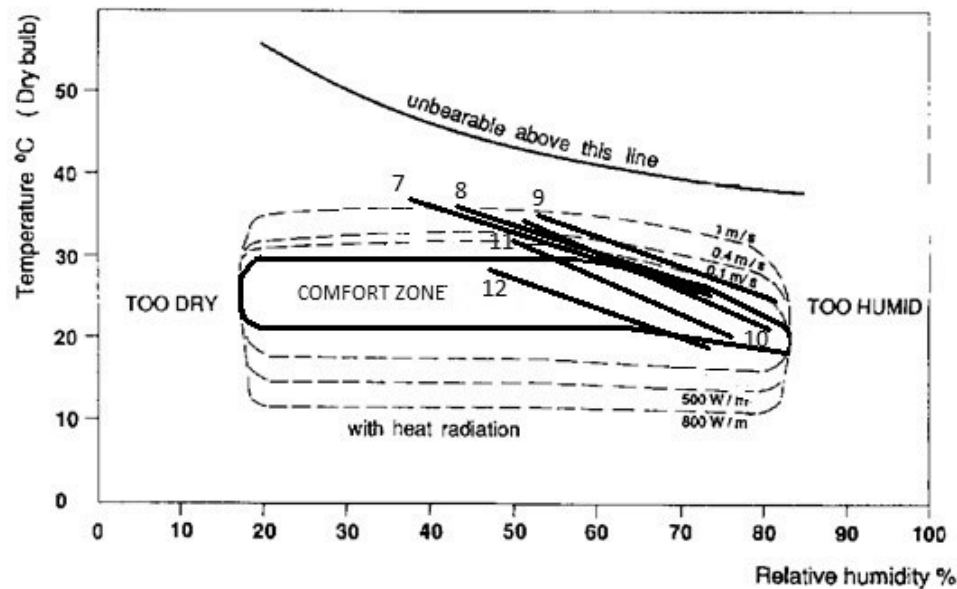


Fig. 8. Ranges of changes in temperature and humidity from July to December in Jeddah.

In the case of Khobar, Table 8 indicates that it is possible to use outdoor spaces in the afternoon in five months: March, April, September, October, and November. In addition, May is suitable for outdoor use in the evening. This is the minimum use of outdoor spaces; the table shows a number of other possibilities. Thus, the garden of the villa can be used for a minimum of six months at one time or another of the day. If one wants to be more conservative with this number, one can go down to five months. This is still ample time per year for comfortable outdoor usage.

Riyadh also enjoys six months of possible use of outdoors: February, March, April, and November in the afternoons, and May and October in the

evening. This is again not all the time that is suitable for outdoor usage. Table 9 shows all the possibilities. Jeddah enjoys up to nine months of outdoor use during the evening hours. Table 10 shows also that outdoor spaces can be used in Jeddah during the afternoons of five months starting from November all the way to March. One can be conservative and consider February and December as too cold (in addition to January), and May and August as too hot (in addition to June and July). In such a case, the villa's garden can be used for at least five months. Hence, all in all, it is possible to use outdoor spaces in the three cities for at least five months per year, and this is extremely conservative estimation.

Table 8. Suitable times for use of outdoor spaces in Khobar, Saudi Arabia

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
AM												
PM												
Eve.												

Suitable		Relatively Suitable		Not Suitable	
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January: Too cold
 February: Possibly afternoon; other times, cold
 March: Afternoon and possibly morning
 April: All day
 May: Evening and possible morning
 June: Too hot
 July: Too hot
 August: Possibly late evening
 September: Afternoon and possibly the rest of the day
 October: Afternoon and evening, and possibly morning
 November: Afternoon and possibly the rest of the day
 December: Possibly afternoon; other times, cold

Table 9. Suitable times for use of outdoor spaces in Riyadh, Saudi Arabia

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
AM												
PM												
Eve.												

Suitable		Relatively Suitable		Not Suitable	
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January: Cold
 February: Afternoon; other times, cold
 March: Afternoon, possibly morning
 April: All day
 May: Evening, possibly morning
 June: Possibly evening
 July: Hot and dry
 August: Hot and dry
 September: Possibly late evening
 October: Evening and morning, possibly afternoon
 November: All morning until late afternoon, possibly evening
 December: Early afternoon, then cold

Table 10. Suitable times for use of outdoor spaces in Jeddah, Saudi Arabia

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
AM												
PM												
Eve.												

Suitable		Relatively Suitable		Not Suitable	
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January: All day except early morning
 February: All day except early morning
 March: All day
 April: All day except noon
 May: Evening, possibly morning and afternoon
 June: Evening, possibly morning and afternoon
 July: Possibly evening
 August: Possibly evening
 September: Too hot, not usable
 October: Evening, possibly morning
 November: Afternoon and evening, possibly morning
 December: All day

This conclusion is strongly supported by direct observation; people in the three cities heavily use parks, open desert areas, urban spaces, and waterfront developments during the abovementioned periods. Although this figure is more than conservative and does not actually present reality, one has to admit that almost five months of outdoor use make the idea of benefiting from the villa's garden very tempting and realistic.

Improving climatic conditions in outdoor spaces for additional comfort has been discussed widely in the literature (Al-Awais, 1991; Schmid, 1975; Robinette, 1972). Methods that are typically mentioned and proven to be effective include the use of trees, ground cover, shading devices, water elements, and construction materials that are good heat and humidity absorbents. In other words, the issue is purely a design one. The intelligent designer can start by selecting the appropriate area of the lot for a main outdoor space based on a sensitive study of

shade and air movement. These two elements alone can provide any space with a comfortable microclimate. The designer can then improve on any space's climatic comfort through the proper use of additional shading devices, as well as soft and hard materials.

Behavioral Issues Pertaining to the Use of the Villa's Garden

Rapaport thinks that: "the extreme differences in urban pattern and house types within one area (...) to be much more related to culture than to climate" (Rapaport, 1969). In other words, although climate can have an influence on the shape of the villa's garden and thus its use, what is more critical is how users see this space culturally that influences their use of it. Cultural views and beliefs change with time, the Saudi culture is a witness of this fact; issues like privacy and use of public outdoor spaces are two

examples which show constant change in their concept and actual applications.

The privacy issue has been extensively discussed and the argument against the use of the garden on the ground that it is visually exposed has been refuted in recent studies and solutions for the issue has been advanced (Idris, 1995; Hakky, 2012). Therefore, the paper will not look into this particular issue. However, one can conclude from the previous discussion that the villa's garden is actually used by residents, and that the three typically portrayed reasons for not using the garden; namely, its size, privacy concerns, and local climate, are not detrimental to the use of the garden.

In order to understand the use of villa's garden in the Saudi society from a cultural perspective, one can observe traditional local use of outdoor spaces. As a starting point, one goes back to the Bedouin tent and observes that it was always divided into two sections: one for the family and the other for men where guests were entertained. The men's section was open at least from one side providing strong and immediate connection with the outside. Men would sit under shade and sip their coffee while conversing; they would enjoy from their sitting area the surrounding scenery of the desert.

As a concept, this passive use of open spaces is long rooted in the Arabs' behavior. In urban areas, "Majles", which means sitting area, "Nadi", which means meeting area, and "Saqifa", which means a roofed area, are all terms denoting spaces allocated for groups of people to sit and converse with some sort of strong visual connection with the surrounding outdoors. These spaces were used in Makkah and other cities of Arabia long before Islam.

The visual function of the outdoor space can be seen also in the design of the courtyard house where a three-wall space with the fourth side completely open to the courtyard is considered a main element of the design of such a house (Fig. 9). This space is used as a main sitting area since it is oriented in such a way that it enjoys shade most of the day. It gains its uniqueness because of its visual connection with the courtyard. Families spend hours in there enjoying its thermal comfort and the views. This strong visual relationship between indoors and outdoors continues to exist in the modern Saudi villa through huge window-doors opened between the main rooms in the villa and its garden (Fig. 10). Thus, the garden is critical for the welfare of the house from a visual standpoint even if it would not actually physically be used.



Fig. 9. Iwan facing the courtyard with its fountain and plant materials.



Fig. 10. Large windows visually connecting the inside with the outdoors.

Using the outdoors in a visual capacity continues today in Saudi Arabia in two more situations: first by erecting a tent in the villa's garden. This is a practice which is repeatedly seen in many villas where men, or members of the family, would sit informally for coffee and talks. The tent, which nowadays is fully equipped with all sorts of comfortable commodities such as air-conditioning and television, exhibits the same relationship between inside and outside. The second situation is also seen in what is called "istiraha" or a rest area. An "istiraha" is a piece of land defined by mounds of sand; a tent is erected on one side of it with one side completely open to the outdoors in a very similar way to a traditional tent. A family would own or rent an "istiraha" where adults would sit in the tent and enjoy the outdoor views while children play in the defined space.

To obtain visual connection between indoors and outdoors seems to be very crucial for a healthy environment within well defined and enclosed spaces. According to Kaplan and Kaplan (1989), even one single window through which one can get in touch with the outside world is very essential. Thus, in addition to the typically emphasized relationship between the main sitting rooms of the villa and the garden, other rooms such as bedrooms and the kitchen should enjoy some sort of visual relationship with the outdoors. Typically side setbacks provide

roughly two meters of open space between the house and the fence. This space, while narrow and may have minimum physical use, is very valuable as a visual extension of the indoors. Large windows can be used at these sides so that people can see the outside without being exposed by trespassers.

On a different note, continuous changes in the Saudi society because of social and economic development resulted in changes in its people's behavior in outdoor spaces. Nowadays, a typical Saudi family owning a villa prefers to have all or a good number of the following functions in its garden: a barbecue, a playground for children, a sitting area, and a swimming pool. These requirements mean two things: first, villa owners are getting more interested in using their gardens, and therefore, secondly, these gardens will have to accommodate these requirements.

In conclusion, the villa's garden invites two types of functions: passive function where the garden is to be enjoyed visually from different rooms of the villa, and active functions such as playing and swimming. Both functions are well rooted in the Saudi behavior in previous types of housing, but are gaining new forms in the villa. It is important to understand though that because of climate and social issues such as privacy, active functions may sometimes be jeopardized, designers should

accommodate these functions through more intelligent design solutions. On the other hand, the garden will always act very appropriately as a visual element. This function should not be underestimated and should be seen as a sufficient reason to emphasize the existence of the garden.

Concluding Remarks

The main negative aspects of the villa's garden as emphasized by literature are its small size, lack of privacy, and uncomfortable weather. The paper claimed that although these aspects are legitimate, they are exaggerated and can be remedied. The paper argued that available garden space is sufficient for at least two separate activities: sitting and children play area. It was also argued that the privacy issue is not as critical as it is typically portrayed by literature. Thirdly, climatic discomfort cannot be ignored; however, it was indicated that there are sufficient times of appropriate weather conditions for outdoor use during the course of the year. Moreover, weather conditions can be improved through the careful utilization of hard and soft materials in outdoor spaces.

The fourth aspect in connection with the garden use and presented as vital in this paper was related to social behavior. The argument here is that outdoor spaces were always used in a passive way. These spaces were, and still are, very important as a visual extension of indoor spaces. It goes without saying that this particular use is independent from all previous limitations; namely, size, privacy, and climate. This use by itself is sufficient to merit the existence of the garden and the necessity of its well keeping. Furthermore, changes in social behavior in Saudi Arabia has introduced new uses in the garden that are slowly emerging and will definitely require certain modifications to the garden's design to better accommodate them.

The bottom line, thus, is that problems related to the villa's garden are not inherited in it as a physical element in the composition of the Saudi villa. They are issues that can be dealt with to enhance the garden's ability to accommodate different uses. Therefore, it is in the hands of planners and designers to work out certain guidelines to solve the present problems and allow room for new uses. In a way of directing attention to pressing issues, the following points should be taken into consideration:

1. At a planning level, all land parcels for detached housing units should be of a size that guarantees minimum size of garden to accommodate at least a sitting area and a small play area for

children. This can be done through the careful study of the size of the lot, total built area, and setbacks.

2. The privacy issue should be dealt with at both the planning and architectural levels in order to address it as a solvable issue and not as a phobia.
3. Architecturally speaking, the garden's design should be based on two objectives: to accommodate the needed activities and to improve the garden's micro climate through the proper utilization of hard and soft materials in its design.
4. Finally, the role of landscape architect should be profited from in this regard. The whole profession of landscape architecture is new to the Middle East. Saudi Arabia is the first and only Arab country to have two undergraduate programs offering degrees in landscape architecture; however, the profession is far from being understood and appreciated by the public. A landscape architect is qualified to deal and solve all the aforementioned problems and concerns related to the villa's garden. It is the role of responsible governmental agencies, such as municipalities, to enforce the role of landscape architect in the planning and designing of detached housing projects.

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إمكانات حدائق الفيلا السعودية وسليتها

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ملخص البحث. يحيط بالأطراف الأربعة للفيلا السعودية فراغ مفتوح يمكن أن يستخدم كحديقة خاصة. تركز الأدبيات المتعلقة بالفيلا على نقاط سلبية ثلاثة تتعلق بهذا الفراغ: أولها أن هذا الفراغ صغير وبالتالي لا يصلح لأي نشاط اجتماعي. وثانيها أن المناخ القاسي يجعل استخدامه أمراً غير ممكن. وثالثها أن عدم توفر الخصوصية التامة في هذا الفراغ يجعله غير مناسب للاستخدام. ولكن الدراسة التفصيلية للمساحات المتوفرة لهذا الفراغ المحيط بالفيلا في مجموعة من المدن السعودية تؤكد أن هذا الفراغ يستطيع استيعاب وظيفتين على الأقل وهما: منطقة للجلوس ومنطقة للعب الأطفال. أما بالنسبة للمناخ فقد وصلت هذه الدراسة إلى أنه وفقاً لمبدأ مجال الراحة المناخية فإنه يمكن استخدام حديقة الفيلا على مدى خمسة أشهر على الأقل سنوياً. وعلى صعيد آخر تؤكد الدراسة أن هذا الفراغ يستخدم من قبل السعوديين كخلفية بصرية بينما هم جالسون في داخل المنزل. وقد تطور هذا الاستخدام ليتضمن نشاطات فعالة بدأت تنتشر في المجتمع السعودي مثل السباحة والشواء ولعب الأطفال.