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Evaluation systems and their indicators in Legislations Constructivist as a standard In Shaping the urban environment in the regions of southern Algeria Through Executive Decree No. 14/27 of February 01, 2014. The city of a thousand domes and domes - Oued Souf - a model

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Abstract. One of the reasons for the failure of urban development in the desert city in Algeria is the stability of construction legislation and its inability to change to keep pace with the requirements of the environment and society and the data of the times, In light of this legislative default, the desert city in Algeria today suffers from the loss of its identity and its urban and architectural specificity, Which leads to an increasing need to adopt trends to achieve a positive relationship between the quality of residential programs and the desert environment , From this point of view, Algeria has Strengthened this legislative orientation by issuing Executive Decree No. 14/27 of February 01, 2014, which defines the urban, architectural and technical specifications applicable to buildings in the states of the south, With the advent of the concept of sustainability and its evaluation systems, Then Algeria has adopted this approach as an orientation in shaping the urban environment, Through the directive law of the city in the Framework Territory initialization and sustainable development Dated February 20, 2006, To become Sustainability becomes an approach to any development process, so research in its relationship to building legislation is a starting point for sustainable design , Therefore, our study came to search first the extent to which the specifications of this executive decree and the idea of sustainability are compatible through the terms of the LEED-NC evaluation system, which includes a set of criteria that must be met to achieve the sustainability of the building, Then review he features of its applications Through the project of 100 residences in Oued Souf city, And the results of the study showed us That there is a compatibility between the idea of sustainability and what the executive decree poses in terms of urban, architectural and technical specifications , So It came he compatibility With the items of the evaluation system LEED-NC was 56.14%,,despite the lack of he embed For many system standards , This means That executive decree Can be used as a reference for achieving sustainable Algerian architecture If it is adapted to sustainability criteria, And because the analytical study of the 100 housing project in Oued Souf city It excreted in shortcomings in implementing the requirements of its his specifications by 12.28%,As it includes the standards of the system, the matter summons for the creation of legal oversight mechanisms that work to implement the specifications approved by any proposed legislative methodology in the production of buildings that achieve the foundations of sustainable design in the desert environment in Algeria.

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Keywords. Legislations Constructivist, sustainable design, LEED Environmental Assessment System, Executive Decree No. 14/27 of February 1, 2014, Oued Souf (the city of a thousand domes and a dome)

Introduction

The designer's achievement of the foundations of sustainable designis linked to the existence of building laws and legislation, They are the basic tools Influencing in developmental goals , for organizational charts and their continuity, Because of the controls and standards it imposes , organizes the urban resource as a physical product, promotes its beauty, and determines the level of urbanization of urban communities (Asaad, Matouk,2014,p141) From all directions (planning, design, environmental and humanitarian standards) to reach a better life that maintains the level of public health, aesthetic aspects and urban character of the environment, « particularly the urban legislation and structural requirements affecting the formation of the built environment » (Ahmed Mahmoud saber Mohamed,2021,p42), Therefore, legislation is considered the cornerstone for achieving sustainable architecture, as it provides a binding legal framework for the designer to understand the idea of sustainability. (Ammar S. Dahlan1 and Ahmed Helal Mohamed,2010, p286), whose environmental standards Play an important role in determining the level of building performance through its multiple evaluation systems.

The desert city in Algeria over the past decades has become a large urban project. And that is after it went beyond its traditional character to her witness an important transformation ,This was manifested in the emergence of different urban patterns "without taking into account the appropriate urban and climatic standards, This was manifested in the emergence of different and divergent urban patterns "without taking into account the appropriate urban and climatic standards for them , Nor the social and economic idiosyncrasies and cultural values of society»(Djamila, Douar, 2021,p435).

This urban and architectural output of the desert city is due to the lack of building legislation that mimics this specificity to her, Therefore, there were premises to rearrange the priorities of ustainable urban development in desert environments, Determining the mechanisms for their inclusion within the urban laws

And regulations in a specific and clear manner within a balanced framework that secures an appropriate means that is considered a basis through which effective sustainable development is shove offlaunched, helps in achieving ecological balance in desert areas « (Samir N. LWATTAR ,2010, p 476).

All this was necessary for the competent authorities in Algeria to control the urban output in the southern regions in line with its local conditions, By issuing building legislation that contributes to shaping the features of the residential environment in it They are within the urban regulations and legislation, and not are secondary items, The issuance of Decree No. 14/27 of February 01, 2014 directed the reconstruction process in it through the urban, architectural and technical specifications it contained, This means that each site has its own distinctive character, and the building must harmonize with it" (Ahmed Ali, Ahmed Jaber, 2021, p. 85).

Oued Souf, the city of a thousand domes and a dome with distinctive traditional architecture Which has proven its suitability for the desert environment based on many studies, In accordance with the decision issued on March 31, 2014, through which the respective states

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were identified Applying urban, architectural and technical specifications Applicable to buildings built on its soil are among the cities covered by this decree.

and In light of these starting points aiming at the necessity of valuing the desert environment in its urban and architectural products and from a sustainable perspective, And the city of Oued Souf is a model for this type of reference in housing projects, with the aim of identifying the legislative points located within and outside the framework of sustainability in the decree and in its applications, and monitoring its shortcomings as building legislation in the embodiment of a sustainable residential environment in the desert environment, through the system of leadership in energy and environmental design of buildings new LEED -NC . Which is one of the systems used To measure the sustainability of the building, given that the link of sustainability with building legislation is the base from which the designer starts to embody the sustainable building.

2- Leadership in Energy and Environmental Design (LEED)

« The LEED rating system was established by the United State Green Building Council (USGBC), which is the primarily green building organization in the US, as a voluntary rating system to evaluate the environment performance of a building over almost the entire life cycle. The first version of LEED (V1.0) was released in the 1998 » (M, Essam Shaawat, Rehan Jamil,2014, p49),

« USGBC Iaunched LEED 2009 (prevously named LEED NC V.3) which consists of a new continuous devlopment process a new version of LEED Online. A revised third – party certification program and new of rating systems and in November 2013. LEED V.4 was allowed to choose between LEED 2009 and LEED V.4 October 2016 and after that date new prijects should be registered to the new one (LEED V.4) » ((Rasha A. Mousa, Alshomaa A. Farag, 2006.p574), « However, the rating system for new construction is the most popular grading guidelines in LEED certification. According to the last revision of LEED guideline » (IAlireza Ahankoob, S. Reza Morshedi. E, Kiyanoosh Golchin Rad ,2013, p 33)،

Table 1 : LEED 2009 for New Construction and Major Renovations Rating

The Number		Standard Objectives	items	percentage	points	percentage
01	**Sustainable Sites (SS)**	- Choosing environmentally friendly sites and design strategies. - Distance from nature reserves and pristine sites. - Keeping away from sources of pollution, and encouraging the cultivation of green spaces.	**14**	**28.6%**	**26**	**23.6 %**
02	**Water Efficiency (WE)**	- Rational use and conservation of water. - Optimal use of water inside and outside the building to reduce drinking water consumption.	**3**	**6.1 %**	**10**	**9 %**
03	**Energy and Atmosphere (EA)**	- Achieving better energy efficiency for the entire building.	**6**	**12.2 %**	**35**	**31.8 %**
04	**Materials and Resources (MR)**	- Use of sustainable building materials.	**8**	**16.4 %**	**14**	**12.6%**

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05	**Indoor Environmental Quality (IEQ)**	- Use of materials with low environmental impact throughout their life cycle. - Improving the indoor environment through a comfortable and healthy dwelling - Provide thermal comfort, air velocity, sound level and lighting.	**15**	**30.6 %**	**15**	**13.6 %**
		Additional doors				
06	**Innovation in Design (ID)**	- Creativity in design and creating new ideas in environmental design.	**2**	**4.1 %**	**4.5 %**	**6**
07	**Regional Priority (RP)**	Achieving credits that address geographically defined environmental priorities.	**1**	**2 %**	**4**	**3.5 %**
	The Total		**49**		**110**	

Source : LEED 2009 for New Construction and Major Renovations Rating System.

3 - Presentation of Executive Decree No. 14/27 historian in 01 February 2014 and its

Objectives :

On the basis of what is included in Article 46 of Law No. 90/29 the historian On December 01, 1990, amended and supplemented, relating to initialization and reconstruction « Which is the framework for all laws related to urbanization, especially in the context of mentioning the phrase geographical, climatic and geological location » (Ibrahim, Zerrouki,2016, p59), Executive Decree No. 14/27 of February 01, Is Specifier for is urban, architectural and technical specifications applicable to buildings in the states of the South (Decree, No. 6, p. 3), Which is considered a legal framework in the construction of buildings subject to ns that the buildings must have, if they are completed, in conformity with the plans prepared by the regional bodies, which are in line with the climatic, natural and social conditions in the desert areas. » (Soltan, Zenkkila ,2018,p78) , The southern states concerned were identified in accordance with the decision dated March 31, 2014 (‘The Official Gazette, No. 44, p. 13), including the city of Oued Souf is she Study model.

4- LEED-NC system standards and its her indicators in Executive Decree No. 14/27 of February 01, 2014 :

The executive decree contained for LEED-NC items By adopting some standards, which are as follows :

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4-1- Sustainable Site

Table 2 : Site sustainability Items included in Decree No. 14/27 of February 01, 2014

Item No	Sustainability Assessment Program Criteria	Credit Points	Objectives of applying the standard				Executive Decree No. 14/27 of February 1, 2014		
			environmental	resources	economic	social	Existing Good	Existing Weak	not existing
			Sustainable Sites						
01	Construction Activity Pollution Prevention	**Required**	*					✓	
02	Site Selection	**1**	*	*			✓		
03	Development Density and Community Connectivity	**5**	*	*	*	*	✓		
04	Brownfield Redevelopment	**1**	*					✓	
05 (2item)	lternative Transportation Public Transportation Access	**6**	*	*	*	*		✓	
	Use of bicycles	**1**	*	*	*				✓
	Low-Emitting and Fuel Efficient Vehicles	**3**	*	*					✓
	Parking Capacity	**2**	*	*			✓		
06 (2item)	Protect or Restore Habitat	**2**	*	*	*		✓		
	Maximize Open Space								
07	Tormwater Design-Quantity Control S tormwater Design Quality Control	**2**	*	*	*				✓
08 (2 (items)	Heat Island Effect-Nonroof Heat Island Effect-Roof	**2**	*	*	*		✓		
09	Light Pollution Reduction	**1**	*	*			✓		
Total number of items (15 items)		**26**	**15**	**12**	**9**	**2**	**8**	**3**	4

4-2- Water Efficiency

Table 3: Water Efficiency Items included in Decree No. 14/27 of February 01, 2014

Item No	Sustainability Assessment Program Criteria	Credit Points	Objectives of applying the standard				Executive Decree No. 14/27 of February 1, 2014		
			environmental	resources	economic	social	Existing Good	Existing Weak	not existing
			Water Efficiency						
01	water Use Reduction	**Required**	*	*	*	*			✓

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02	water Efficient Landscaping	4	*	*	*	*			✓
03	nnovative Wastewater Technologies	2	*	*	*	*			✓
04	ater Use Reduction	4	*	*	*	*			✓
Total number of items (04 items)		**10**	**4**	**4**	**4**	**4**	**.**	**.**	**4**

4- 3 - Energy and Atmosphere

Table 4 : Energy and Atmosphere Items included in Decree No. 14/27 of February 01, 2014

Item No	Sustainability Assessment Program Criteria	Credit Points	Objectives of applying the standard				Executive Decree No. 14/27 of February 1, 2014		
			environmental	resources	economic	social	Existing Good	Existing Weak	not existing
	Energy and Atmosphere								
01	fundamental Commissioning of Building Energy Systems	**Required**	*	*	*		✓		✓
02	Minimum Energy Performance	**Required**	*	*	*		✓		✓
03	fundamental Refrigerant Management	**Required**	*						✓
04	Optimize Energy Performance	**19**	*	*	*				✓
05	On-site Renewable Energy	**7**	*	*	*				✓
06	Enhanced Commissioning	**2**	*	*	*			✓	
07	Enhanced Refrigerant Management	**2**	*					✓	
08	Measurement and Verification	**3**	*	*	*				✓
09	Green Power	**2**	*	*					✓
Total number of items (09 items)		**35**	**9**	**7**	**6**	**.**	**2**	**2**	**5**

Table 5 : Materials and Resources Items included in Decree No. 14/27 of February 01, 2014

Item No	Sustainability Assessment Program Criteria	Credit Points	Objectives of applying the standard				Executive Decree No. 14/27 of February 1, 2014		
			environmental	resources	economic	social	Existing Good	Existing Weak	not existing
	Materials and Resources								
01	Storage and Collection of Recyclables	**Required**	*	*	*				✓
02	Building Reuse - Maintain Existing Walls, Floors and Roof	**4**	*	*	*				✓

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	Building Reuse- Maintain Existing Interior Nonstructural Elements								
03	Construction Waste Management	**2**	*						✓
04	Materials Reuse	**2**	*	*	*				✓
05	Recycled Content	**2**	*	*	*				✓
06	Regional Materials	**2**	*	*	*		✓		
07	Rapidly Renewable Materials	**1**		*			✓		
08									
Total number of items (08 items)		**14**	**8**	**5**	**7**	**.**	**3**		**6**

4-4 - Materials and Resources

4 – 5 - Indoor Environmental Quality

Table 6 : Indoor Environmental Quality Items included in Decree No. 14/27 of February 01, 2014

Item No	**Sustainability Assessment Program Criteria**	**Credit Points**	**Objectives of applying the standard**				**Executive Decree No. 14/27 of February 1, 2014**		
			environmental	resources	economic	social	**Existing** Good	**Weak**	not **existing**
			Indoor Environmental Quality						
01	Minimum Indoor Air Quality Performance	**Required**	*	*	*	*	✓		
02	Environmental Tobacco Smoke (ETS) Control	**Required**	*	*	*	*			✓
03 (2 items)	Outdoor Air Delivery Monitoring Increased Ventilation	**1**	*	*	*	*		✓	
04 (3 items)		**3**	*	*	*	*			✓
05 (5 items)	Indoor Chemical and Pollutant Source Control	**5**	*	*	*	*	✓		
06	Controllability of Systems-Lighting Controllability of Systems—Thermal Comfort	**1**	*	*	*	*			✓
07 (2 items)	Thermal Comfort-Design Thermal Comfort-Verification	**3**	*	*	*	*	✓		
08 (2 items)	Daylight and Views - Daylight Daylight and Views - Views	**2**	*	*	*	*	✓		
Total number of items (17 items)		**15**	**17**	**17**	**17**	**17**	**10**	**02**	**05**

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4 – 6 - Innovation in Design

Table 7 : Innovation in Design Items included in Decree No. 14/27 of February 01, 2014

Item No	Sustainability Assessment Program Criteria	Credit Points	Objectives of applying the standard				Executive Decree No. 14/27 of February 1, 2014		
			environmental	resources	economic	social	Existing Good	Existing Weak	not existing
			Innovation in Design						
01	Innovation in Design	**3**	*	*	*	*			
02	LEED Accredited Professional	**3**	*	*	*	*			✓
Total number of items (02 items)		**06**	**2**	**2**	**2**	**2**	**1**	**.**	**1**

4 – 7 -Regional Priority

Table 8 : Regional Priority Items included in Decree No. 14/27 of February 01, 2014

Item No	Sustainability Assessment Program Criteria	Credit Points	Objectives of applying the standard				Executive Decree No. 14/27 of February 1, 2014		
			environmental	resources	economic	social	Existing Good	Existing Weak	not existing
			Regional Priority						
01	Innovation in Design	**4**	*	*	*	*	✓		
Total number of items (one item)		**04**	**1**	**1**	**1**	**1**	**1**	**.**	**.**

5 - The results and their discussion at the level of the decree No. 14/27 of February 1, 2014 :

According to the evaluation specification of the Decree based on evaluation system, LEED-NC, The number of its Existing in the executive decree, and The non-Existing ones are as follows :

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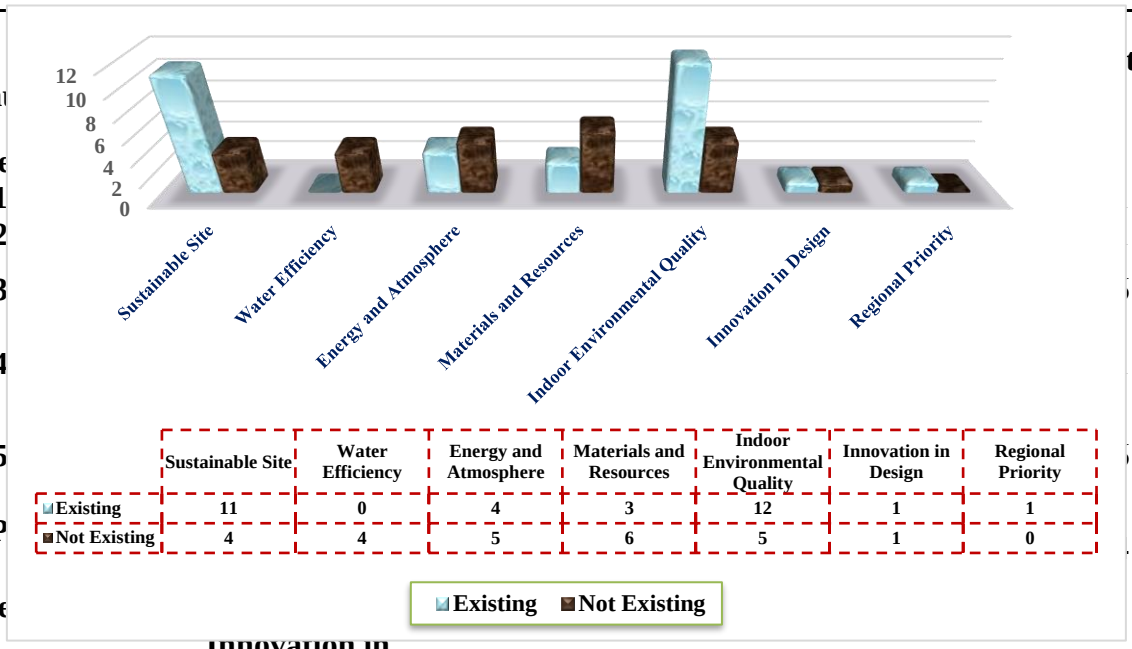
Table 9 : The results of the simulation of the specifications of Executive Decree No 14/27 Of February 1, 2014 For the items of the system LEED - NC



	Sustainable Site	Water Efficiency	Energy and Atmosphere	Materials and Resources	Indoor Environmental Quality	Innovation in Design	Regional Priority
Existing	11	0	4	3	12	1	1
Not Existing	4	4	5	6	5	1	0

06	Innovation in Design	01			01
07	Regional Priority	01			.
Total items for all chapters (57)		items Existing 32	Good	05	25 items not existing
			Weak	07	
Percentage of the total items of basic chapters (57)		56.14%	Good	46.86 %	43.86%
			Weak	12.28 %	

Figure (1). Graphic representation For the simulation results of the decree To the system LEED - NC

In light of these statistical results of Executive Decree No. 14/27 of February 1, 2014 By Simulating its legislative texts For the terms of the Environmental Assessment System LEED-NC, It shows us the following :

1- Attain Decree No. 14/27 has been to some extent compatible with the provisions of the Environmental Assessment System LEED-NC by 56.14%, what refers This decree includes in its urban, architectural and technical specifications What allows the drafting of legislation Be a reference for the designer in the constructivist product In the desert city in Algeria, Albeit limit for lowest.

2 - executive decree included indicators of the terms of the system LEED-NC First the internal environment quality item ,Where the item included a percentage of 22.22% of the total items It guarantees a comfortable indoor environment in the dwelling Provide good ventilation for the space and light it naturally, Reducing light pollution by reducing lighting and reducing

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glare , And that to be This is to ensure that the buildings are attached to each other as closely as possible (The principle of Neighborhood according to Article 10 in the appendix of the decree).

3 - Secondly, the site's sustainability Come Where it achieved percentage of 20.37%, and in embed of this item within the LEED-NC system through site selection, The necessity of adopting the executive specifications related to determining the buildable sites, and integrate perennial spaces and get away from pristine and undeveloped sites in advance, And open the area to the site with multiple design options (Articles 11 and 12 of the appendix to the decree).

4 - came into In third place the terms the energy efficiency itema percentage of 07.41% ، Where the decree noted the preference for the principle of closed space organization, This is to reduce energy needs. (Article 8 of the appendix to the decree).

5 - As for the efficiency of materials and resources, it came in the fourth place of the decree's concerns according to the system LEED-NC a percentage of 05.55 %, Because sustainability means the Necessity to use building materials that respond to the character of the region and its historical conditions, And that By using building materials that have a low impact on the environment to ensure security, stability, resistance, durability, and thermal and acoustic comfort conditions. This is what Article 33 refers to The first and second paragraphs of the appendix to the decree, And the advocate for the use of what is known as al-Taboot in the southern region, This is due to its ability to provide rigidity and intensity for construction And help it achieve the energy efficiency of the wall covering in a balanced way.

6 - As for water efficiency, the executive decree showed ignoring the inclusion of the item, So the decree did not concern itself with reducing water consumption, and He did not develop strategies minute to apply it, And He also did not care about the problems that might lead to the loss and leakage of potable water inside and outside the building.

7 - As for the secondary sections, the design innovation clause emphasized the necessity of the proposed urban and engineering forms combining traditional forms with contemporary requirements. As well as taking into account the application of architectural and technical regulations inspired by the local heritage when designing spaces, It also allowed the possibility of allocating comfortable spaces to add touches that would improve the view and preserve the aesthetics and cleanliness of the environment, which is included in Article 13, Paragraph 10 of the Decree.

8 - The executive decree indicated the priority of the region on the optimal utilization of the advantages and resources of each region of the south. And work on its development and endeavor to adopt projects of environmental and geographical priority for the region.

6 - Case study : Applications of the executive decree in residential projects (Oued Souf city as a model) :

6-1-Geographical location : The city of Oued Souf (Image.1) is located in the far north-southeast of Algeria, « Geographically, it is that region deep in the great eastern race that extends from the Shattout south of the Aures Mountains, especially Chott Melghigh to the northern edges of the Tassili - n'Ajjer plateau, confined between southern Tunisia and northwestern Libya in the east and Righ and warjalan in the west and south » (abdelaziz, abdelaziz,2015, p129) (Figure 2).

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Image (1). A general view of the city of Oued Souf

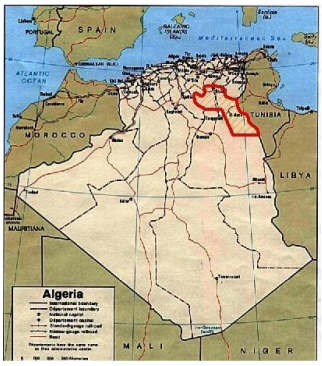

Figure (2). The geographical location of the city of Oued Souf

6 – 2 - Characteristics of traditional urbanization in Oued Souf in the past :

The city of Oued Souf was distinguished in the past by its architectural character, which differs from all desert cities and villages, The presence of an engineering character consisting of domes, (Image.2) ,arches (Image.3), and derived from nature, Where "the residents of the region invented the roofing technique with domes and developed it until it was widely used in all buildings It was not limited to religious facilities only, but it became the most prominent element in Oued **Souf** architecture until Isabelle Eberhardt called it in 1900 AD (the city of a thousand domes)(Eberhardt I. 1985, p.88.)

For this type of dome Intentional advantages imposed by the nature of the area, This is because the shape of the dome helps to scatter The sun's rays are shining on it, and mitigate it And to prevent the accumulation of dust that the wind brings above it , as that The cavity of the dome inside the house provides more air and cools the temperature in it, « And the hot air inside the building rises to the top of the dome and is replaced by cold air » (Housseyn Sadd Drissi , Adad Med Cherif,2016,p 22).

Image (2). The dome in Oued Souf Traditional architecture

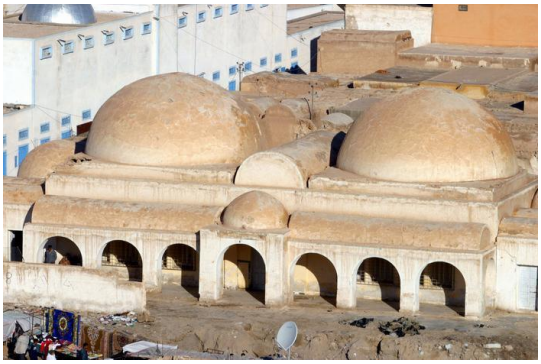

Image (3). The arches in Oued Souf Traditional architecture

The climate had a direct impact on the planning of the architectural formations of the city in the past, and in determining its direction, It was her built in line with the nature of the hot climate in the region, The local architecture took the yard as a basic unit of the house, which is an open courtyard(Image.4), surrounded by rooms and walls (Nadjah, Ahmed. 1971, p 92), Its his

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function is to provide a good proportion of lighting and ventilation, and to cool the atmosphere and lower the temperature, It also acts as a filter for air that carries dust.
One of the elements that make up the dwelling in the traditional Oued Souf architecture is what is known as : the 'sabat ’facing north, so we find that the sun does not enter it throughout the year, and on this his basis it is used in the summer to avoid heat (Image.5)

Image (4). The courtyard in the traditional Dwelling in Oued Souf

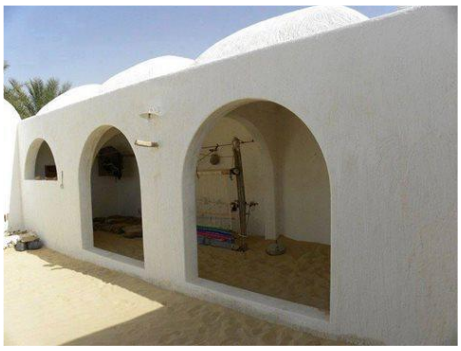

Image (5). Sabat in the traditional Dwelling in Oued Souf

As for the alleys in Oued Souf, we find that they are narrow in an organized, contiguous and successive manner, opening the doors to alleys branching off the main street, so that the width of the alley ranges between 2 to 2.5 m, and it is often sharp (with a closed end) (Image.6), and the streets have taken the character of narrow in response to the hot climate, and therefore the narrowness of the streets has caused an increase in the shade area in the roads (djebari, Otmani,2016, p30).
And there is what is called the ’derb' (Image.7) It is similar to the alleys, except that it has a single outlet and is considered the most private area And it represents a gathering of a group of families linked by kinship, and it is usually narrower than the alleys.

Image (6). Alleys in the traditional Dwelling in Oued Souf

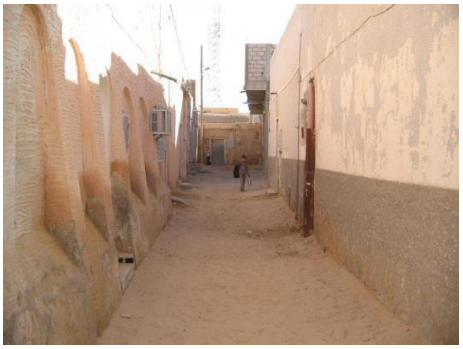

Image (7). Derb in the traditional Dwelling in Oued Souf

As for the building materials that were adopted in the construction of this traditional architecture, they are natural local building materials with a good environmental impact Made of sand And the desert earth layers that produce gypsum and its accessories, Which is prepared in traditional kilns through several stages, in addition to the stones known locally as “loess” (Image.8), which is a type of hard stone extracted from the layers of the earth in the region that resists water and moisture, the topography of nature and climate variables. These materials have

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a high thermal capacity, they are resistant to the great heat load imposed by the nature of the region. In addition to wood, which was used as columns, supports and axes for domes and arches, and in the formation and in doors, windows and small openings (Image.9).

Image (8). Building material 'loess' stone

Image (9). The Traditional building Materials in Oued Souf City

6-3 - Presenting a project of 100 housing units in Oued Souf City By reference to Executive Decree No. 14/27 of February 1, 2014 :

The city of Oued Souf will is concerned with the implementation of the executive decree In accordance with the decision dated March 31, 2014, On this basis and in accordance with this decision, the project of 100 housing units (Figure.3) in Oued Souf city came according to the reference of the executive decree, which is an individual housing, The total area of the project is estimated at 29100 m^2, The inhabited area is estimated at 68.90 m^2 (F3).

Figure (3). 100 residences project In the city of Oued Souf

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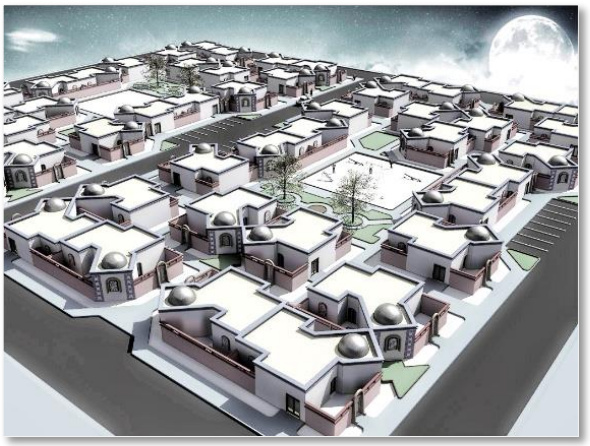
6-4 - The results and their its discussion of the 100 housing project in Oued Souf according To Executive Decree No. 14/27 historian in February 1, 2014 :

The project of 100 residences in Oued Souf city, according to the reference of the executive decree, and the sustainability criteria has been characterized by the following :

1- The site of the 100 housing project was chosen in an area targeted for development and urban expansion, which is lands capable of being built, which indicates compliance with what was stipulated in the decree in its first and third articles of choosing buildable lands. (Image.10)
2 - Connecting the project to the city's road hubs, And the configuration networks in the existing networks at the site (Image.11).


Image (10.11). The location of the 100 residences
Project in an urban expansion area

3 - The use of the architectural element of the dome(Image.12) in an attempt to embody the local architectural character and ensure its continuity, which the executive decree referred to in the necessity of deriving structural elements from local references, And taking into account the materials for its she construction (Article 30 and 31 of the Decree), But the dome in the 100 housing project (Image.13)Was completely diferent in terms of its building materials and its

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presence in the dwelling, This is contrary to what was stated in the decree in accordance with Article 39,Which indicates that it does not have any function at her in the traditional housing.

4 - Exploiting natural lighting directly to reduce energy consumption used through the architectural element (the courtyard) (Image.14), but is differs in its design and location in the house, as is does not achieve the principle of openness to the interior compared to the yard of the old house Including his lack of climatic role in palliating the dwelling it was in the past, And his sufficiency in the role of lighting. This contradicts Article 20 of the annex to the decree.
5 - The lack of open spaces designed to enhance social and human relations, The project was limited to the design of spaces with limited functionality and configuration for play and entertainment For children category without other categories (Figure 5)., This is in contravention of what the decree indicated in Articles 11 and 12 of the Appendix.

Image (12). The dome in the 100 residences project

Image (13). The shape of the dome in The 100 residences project

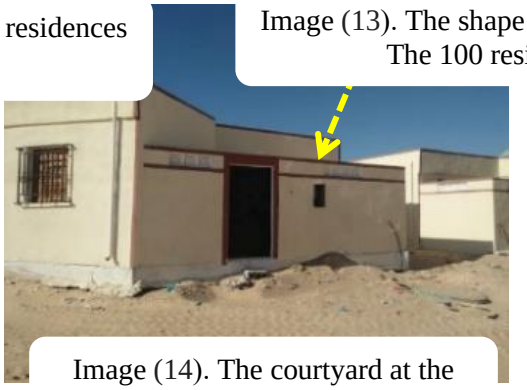

Image (14). The courtyard at the Entrance to the dwelling

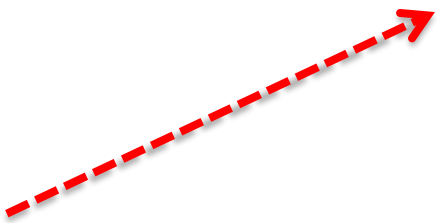

Figure (5). Play and ente **Additional doors** rtainment arenas in the 100 housing project In Oued Souf City

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6 - The project did not include any suitable environmental treatments from a suitable afforestation structure(Image.15),And green spaces as an urban element for the harsh environment that characterizes the city of Oued Souf to reduce the heat, The project also lacked any process of merging the urban area with the natural plant botanical field ,In order to avoid the accumulation of sand at the level of the edges of the Streets (Image.16),And at the entrances to the dwellings and beside the walls ,Which would have a role in forming a wall against dust and flying sand brought by winds and sandstorms.

7 - The project is not planned in the style of the closed space organization principle, This is to reduce lighting and reduce glare, According to the specifications of Article 8 of the annex to the decree, Shade was not taken care of in the project, with no Shading elements that completely reduce heat leakage, Such as not roofing the internal movement corridors, which is an important specification of the executive decree.


Image (15.16). A Complete absence of green spaces
In the 100 housing project

8 - Not fully using local building materials (Image.17.18), Recycled building materials are also absent, which contributes to the lack of building efficiency and rationalization of energy consumption, As materials were used that do not respond to security, stability, stability, resistance, Thermal and acoustic well-being conditions.

9 - The conservative role of the building envelope has not been enhanced, In order to raise the thermal resistance of the walls by laying an insulator outside To remove linear leakage and protect the walls from thermal shock (Article 27 paragraph 5 of the Annex), The decree indicated the need to use building materials that allow building stability, self-regulating heat insulation, storing calories in building and maintaining stored coolness through night ventilation in summer.

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Image (17.18). Non-domestic construction materials
Used in project

10 - The carpentry did not respond to the technical requirements (resistance, sustainability, thermal and acoustic performance), The decree indicated that the wooden structures used in the openings and entrances of buildings, such as wooden windows and doors, should be of a quality characterized by solidity and resistance to the climatic conditions prevailing in the region, especially those that insulate heat and external sounds. (Articles 25 and 26 of the Appendix).
11 - Not allocating appropriate coatings for floors Road and entrances Reflect and the characteristics of the natural environment of the area(Image.19.20)
12 - The natural color of the materials used was used as paint, Using a light color between white and red clay (Image.21), while not using low-emission paints for harmful pollutants. And the paint used does not constitute an insulating material to the its outside fro building envelope (Article 13 of the Appendix) and (Article 30 of the Appendix).

Image (19.20). The quality of the tiling in
The 100 housing project

Image (21). The Carpentry and painting
In the project of 100 residences

The 100 housing project in Oued Souf came far in its implementation of the specifications of the executive decree, Although it isobligatory to impose specifications when preparing and reviewing construction tools, also applied when changing, restoring and expanding them, And The delivery of the building permit shall be refused if the buildings and their dimensions do not comply with the provisions and specifications of this decree.

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6 – 5 -The project of 100 housing units in Oued Souf and its applications approach to the Standards of the LEED-CN system :

The absorption of LEED-NC standards by the 100 housing project in Oued Souf city was weak, as it was estimated that it absorbed 12.28% of the doors standards, which means that the project was far from the idea of sustainability and its orientations.

Table 10 : LEED - NC standards included in the project of 100 dwellings in Oued Souf

The criteria applied in the 100 housing project in Oued Souf city			
The number	**Standards**	**Good**	**weak**
Sustainable Sites			
01	Site Selection	✓	
02	Site Redevelopment	✓	
03	the parking lots		✓
Energy and Atmosphere			
04	Minimum Energy Performance	✓	
Materials and Resources			
05	Use of local materials		✓
Indoor Environmental Quality			
06	Achieving thermal comfort in ventilation	✓	
07	Enhance natural lighting and outdoor vision	✓	
Percentage of criteria			**12.28 %**

Conclusions

The desert city has its own environmental specificity, which imposes planning directions and strategies to create sustainable urban environments in it, For this purpose, Algeria adopted This trend in its building legislation Through Executive Decree No. 14/27 of February 01, 2014,and studying The relationship of its urban, architectural and technical specifications Sustainability criteria in the evaluation system LEED-NC, And because sustainability and its evaluation criteria became of Important strategies in shaping sustainable Urban environments , It has been shown to us through this study That there is an implicit compatibility of the specifications of the Decree with the terms of the evaluation system LEED-NC, However, despite this positivity of the decree, there are shortcomings in its lack of many criteria are included the sustainability assessment systems, However, according to this research paper, this decree is one of the legislative texts calling for the necessity of embodying the appropriate architectural character for the characteristics of the desert environment in Algeria , Which means that it can constitute a base and a basic reference in strengthening any legislative formulation in order to dedicate desert architecture with a sustainable dimension in the future.

Although this decree is binding on residential projects in the southern regions, However, the reality of these residential projects is far from those urban, architectural and technical specifications which he underlined the necessity of their implementing, not to mention the

standards of sustainability , Including the 100 housing project in Oued Souf - the case of our study -who came Contrary to many requirements of the decree, which indicates the gap between the legislative text and the reality of implementation of these projects Which contradict the nature of the desert environment and the spirit of the decree Although it The delivery of the building permit will be refused if the buildings and their dimensions do not comply with the provisions of this decree (Article 10 of the decree), Which requires Finding legal oversight mechanisms , To guarantee implement it on the ground so that its effectiveness is reflected on contemporary architecture in the desert environment in Algeria.

That Re-prioritizing sustainable urban development in the desert environments in Algeria is linked to the availability of effective laws and legislation for sustainable design, and Determining the mechanisms of control over construction tools They are the only guarantee for achieving a sustainable built environment In the constructivist product of contemporary desert architecture in Algeria.

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