

## The flexibility of the constructional legislation as one of the factors promoting the architectural innovation environment

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### Abstract:

Communities need the organizing laws for all aspects of life, and through these laws, the community rises and proceed toward the development and prosperity, particularly the urban legislation and structural requirements affecting the formation of the built environment, but the stalemate is that some of such legislation has turned the new constructed cities into identical copies, which leads to negative effects on the built environment and architectural identity of these cities, where the importance of the research is to raise the efficiency and environmental design of buildings, through the flexibility of the architectural legislation, the freedom of thought, in order to reflect the visions of architects and the requirements of users, and not to lose the sustainability and continuity, and construction legislation shouldn't be such strict restrictions, without abandoning a structured framework, which makes a positive impact on the form of construction and the constructed environment in the city, and the study aims at improving the characteristics of the built environment and the form of the city through the design flexibility granted by the structural requirements and the legislation which organize the Construction of residential areas in new cities in Egypt, through a study and evaluation of some building requirements that would impose some design restrictions on the architect, and thus this is reflected in the built environment aesthetically, environmentally and functionally, where the study adopted the analytical descriptive approach to stand on some of the negative aspects of the legislative problems and new urban communities, and because of the importance of the research to raise the efficiency and environmental design of buildings, the flexibility of the building legislations, freedom of thought, in order to reflect the visions of architects and the requirements of the users.

### Key words:

Construction legislation, structural requirements, flexible construction legislation, upgrading architectural innovation environment, design restrictions.

### ملخص البحث:

تحتاج المجتمعات الي القوانين المنظمة لجميع مناحي الحياة ، التي من شأنها وضع أطر و محددات تسير عليها تلك المجتمعات ، و بهذه القوانين يرقى المجتمع و يمضي نحو التطور و الإزدهار ، و لا سيما أن التشريعات العمرانية و الإشتراطات البنائية المنظمة لحركة العمران هي التي تؤثر في تشكيل البيئة المبنية من حولنا و تضع قواعدها المنظمة ، إلا أن الجمود و القصور في بعض تلك التشريعات جعلت من عمران المدن الجديدة نسخ متطابقة ، الأمر الذي يؤدي إلى آثار سلبية على البيئة العمرانية و الهوية المعمارية لهذه المدن ، حيث تكمن المشكلة البحثية هنا في أن القيود و المحددات التي تفرضها بعض الإشتراطات البنائية و القوانين المنظمة لعملية البناء و خاصة بالمدن الجديدة ، و التي لا تخضع أحيانا لدراسات المؤسسات العلمية المختصة ، لا تعطي المصمم المرونة التصميمية الكافية التي من شأنها رفع الكفاءة التصميمية و البيئية للمباني و تحسين وجه المدينة و الطابع المعماري لها ، و تجعل الفكر المعماري ينحصر داخل أطر أكثر نمطية

و رتابة و تكرارية تصل لحد الملل و غالبا ما تنتج عمارة متشابهة لا تعبر أحيانا عن رؤية مصممها ، حيث تهدف الدراسة إلى تحسين خصائص البيئة العمرانية و شكل المدينة من خلال المرونة التصميمية التي تمنحها الإشتراطات البنائية و التشريعات المنظمة للعمران بالمناطق السكنية بالمدن الجديدة بمصر ، من خلال دراسة و تقييم لبعض اشتراطات البناء التي من شأنها فرض بعض القيود التصميمية على المهندس المعماري ، و بالتالي ينعكس هذا على البيئة المبنية جماليا و بيئيا و وظيفيا ، حيث إعتمدت الدراسة منهج وصفي تحليلي للوقوف على بعض السلبيات و المشاكل التشريعية بالمجتمعات العمرانية الجديدة ، و ترجع أهمية البحث الى رفع الكفاءة التصميمية و البيئية للمباني ، من خلال مرونة التشريعات البنائية وحرية الفكر المعماري ، كي تعبر عن رؤى مصممها و متطلبات مستخدميها ، و لا تفقد صفة الاستدامة والاستمرارية ، و لا تكون قيود صارمة ، بل تكون دافع نحو إطلاق الابداع المعماري ، دون أن تتخلى عن كونها إطار منظم ، مما يجعل لها مردود إيجابي على شكل العمران و البيئة المبنية بالمدينة.

### الكلمات المفتاحية:

التشريعات البنائية ، الاشتراطات البنائية ، مرونة التشريعات البنائية ، الارتقاء ببيئة الابداع المعماري ، القيود التصميمية.

## 1. Introduction

Requirements for construction in new cities include a group of important controls, such as determining the structural and maximum height and responses and large skylights and courtyards and elements of the movement and other frames ,cornices and vents etc. Although those requirements are important and necessary for the organization of the movement of construction, but that the restrictions and limitations imposed by some of these requirements do not give adequate design flexibility designed to raise the efficiency and environmental design of buildings and make architectural thought confined within the frameworks more typical and monotony, to produce similar architecture often are not subjected to the conditions of the building environment and did not reflect the visions of architects and perhaps the owners, despite different environmental requirements, customs and traditions of the population, i.e. that the architecture lost sustainability and continuity, and created a sense of isolation sometimes and lack of satisfaction in other times. From here, the research paper discussed how to make the most use of those requirements without imposing severe restrictions on the designer and that the legislative framework is marked by flexibility without abandoning a structured framework, which makes a positive impact on the form of construction and the constructed environment in the city.

### 1.1. Research hypothesis:

The research raises an important question for all designers, the public opinion and legislative decision. The questions are ; Do structural requirements and current urban legislation lead to adequate design flexibility that help the designer to achieve architectural creativity? Or to the restrictions imposed by the typical trends and specific design?.

### 1.2. Research problem:

The research problem here is that the restrictions and limitations imposed by some structural requirements and laws governing the construction process and especially good cities, which sometimes are not subjected to scientific studies of the competent institutions which don't give

the designer adequate design flexibility, which would raise the efficiency and environmental design of buildings and the improvement of the city and the architectural character, and make architectural thought confined within more traditional frameworks and the monotonous and repetitive up to boredom and often produce similar architecture that sometimes do not reflect the vision of its designers.

### **1.3. Research objective:**

The research aims to improve the characteristics of the physical environment and the form of the city, through the design flexibility granted by the structural requirements and the legislation which organize the construction of residential areas in new cities in Egypt, and through the study and evaluation of some construction requirements that would impose some restrictions on the design of the architect, and therefore this is reflected on the constructed environment environmentally, aesthetically and functionally.

### **1.4. The research importance:**

The importance of the research is to raise the efficiency and environmental design of buildings, through the flexibility of the architectural legislation, the freedom of thought, in order to reflect the visions of architects and the requirements of the users, and not lose the sustainability and continuity, and the construction legislation shouldn't be such strict restrictions, without abandoning a structured framework, which makes a positive impact on the form of construction and the constructed environment in the city.

### **1.5. Research Methodology:**

The study adopted the analytical descriptive approach to stand on some of the negative aspects of the legislative problems and new urban communities, through the following axis;

- Legislation and environment of architectural creativity as one of the important factors to improve the environment of architectural creativity.
- The validity of the requirements of the current structural and social factors.
- The Flexible structural legislation applied to some requirements affecting the formation of the constructed Environment in the new cities.

### **1.6. Area and limits of the Search:**

It is confined to the area of research on the assessment and examining some of the structural requirements, organizing the construction of residential areas in new cities and how to develop them and make them more flexible, which have a direct impact on improving the constructed environment and the form of construction and the general feature of the city, which gives the architect a designing flexibility for creativity away from the module in the design

## **2. Legislation and improving the urban environment and architectural innovation:**

Attention must be given to some of the important factors affecting the form of architecture and construction, so as to identify some of the aspects of the problem holistically and not confined to the points of the study only, where they hit in one direction, which is how to improve the urban environment representing the legislation and where construction is an essential part.

### **2.1. Current practices:**

The negative manifestations of Egyptian architecture and construction vary from random buildings that lack many of the cultural values, leading to a distortion of the visual and physical

buildings, to the attempts of the cities and localities under the name of improving conditions or aesthetics, which resulted in the quality of the third term of physical mutilation, legalized, all this is possible to understand its causes and its motives and attributed to the economic conditions or the absence of physical culture or civilization and lack of awareness, but what happen from architects, planners, decision makers and of specialists and policy makers and urban legislation that contribute to add significantly to this chaos, architectural and urban communities, which is worthy of discussion. [3].

### **2.2. Legislation and the present architecture and construction:**

It is Possible to rate the vast majority which is currently produced from architects and planners in several types or perhaps it is the most important, spatial and environmental conditions of the indifference and disregard for consistency with the physical environment or climatic or social requirements, so that the buildings and a mere formal schemes in response to the web customer requirements and a surrender to the negative impact of legislation and the consequent sterile from buildings and construction which were not consciously or presence of architectural values or social or cultural, and create an atmosphere of stagnation and the present architecture and construction, and annual ritual without discretion or awareness of the existence of values. [8]

### **2.3. The research preface for the criteria of upgrading:**

Perhaps the question that needs to be answered when considering criteria for upgrading the responsibility? Is it the criteria of the doers and those influencing or is the criteria of architects? Investors? Or users? Or intellectuals? Or specialists and technicians? Or a vision of resolution through legislation that they are working? Or try to find a collective point of view of the balance between these various perspectives?

The theoretical difficulties in finding a vision and common criteria between all doers and influential ones in the architectural arena to determine the criteria for upgrading is part of the pivotal issue of multiple theoretical and practical dimensions that have not been resolved in evaluating procedural concepts or applications until now. [3]

### **2.4. The innovation environment:**

It is stable to gross architect and urban designer is the result of capacities and its values, on the one hand, and psychotropic and external constraints on the other hand, the capabilities of the architecture and its values that are formed under the influence of the circumstances and community values prevailing in the physical environment and realized the denial and educational methods, which makes it highly exceeding the effects of negative societal conditions, and driven by innovation and competition, but that which occurs after the low stream performance and the dimension of technical creativity , and the erosion of cultural values and physical infrastructure, it is an act of the Psychotropic and external constraints, which must be improved and upgraded and that it was not enough to improve the architecture and construction, but the least will increase the prospects for achieving the desired improvement. [9]

### **2.5. The legislation and mechanisms for improving the environment of urban and architectural innovation:**

Special mechanisms and ways to improve the urban environment architectural creativity and many factors such as raising community awareness of the values of architecture and urban

development, stimulate innovation environment, activating the urban and architectural coordination mechanisms specialized scientific contacts, community participation, raise the level of graduates and the validity of the practice of the profession, and other things, but the legislation and laws of deliberate construction of others is an important factor in the deterioration of the environment or the upgrading of the urban, architectural creativity and lie to find a lot of negatives that need assessment and study the reality of architecture and construction, gross under the umbrella of these laws. [3]

### **2.5.1. Legislative restrictions on Creativity:**

There are many restrictions in the construction and planning legislation which limit not only the ability to artistic creativity, but also on the capacity to respond to the functional requirements and architecture of the building, social and can be pointed out that the restrictions on the proportions of construction and height, replies and keys which become in fact a profile to form construction, flagrant example not only to hinder the architectural innovation, but their impact on the social and environmental requirements of the building, the former was found in the texts of the Construction Law allows building the base sizes or structural density and determine the allowable construction surfaces and not kitchens or formed, it was abolished in the legislation in force, despite the existence of similar legislation in most countries, whether developed or developing countries, therefore, should be actively pursued to develop These texts and fold, to freedom of creativity and urban architecture. [8]

As upgrading of architecture and construction in Egypt will not be achieved through the identification of elements of the upgrade or dialog among schools and the intellectual property only, but require improvement of the environment of architectural and planning practice and ease restrictions and trigger creativity.

## **3. The validity of the requirements of the current structural and social factors:**

### **3.1.The current Urban legislation and the absence of the concept of privacy policy:**

Privacy needs of individuals and groups are of the requirements of daily life, this requirement varies depending on the milieu in which they live, and with different degrees of privacy in the community, in order to illustrate this need has been identified as an acquired right to privacy of the individual who decides what information can come up to others, so we find that privacy is a fundamental requirement must be taken into account when designing any space, and determine if this vacuum appropriate to its nature or not, [5] and here the question imposes itself, the current legislation will be of help for privacy?

#### **3.1.1. Construction laws, one of the factors that affected the concept of privacy:**

There are many factors that affected the loss of privacy in the contemporary building housing, which greatly helped the current building laws that came to Egypt from abroad and was applied. Historicity of the contemporary city noted that the urban fabric of the character is not suited to the traditions and the culture of our society, pickled fabric carries a separate building and design for exterior, giving a sense of disintegration and isolationism, and these laws bad have effects on a residential housing, both in terms of form or function represented in the following.[1]

- These laws gave the largest number of interfaces.
- Separation of some of the buildings with specific ratios leading to the opening of the

residence to the outside.

- The dimensions of the pieces have almost equal percentages of the responses, and heights and thus the similarities of the designs were characterized by monotony and boredom which are not compatible with the social environment and privacy of the population.

**As for the architectural aspects,** we find that characteristics that should be available in the housing units, most notably the value of privacy, were not found as a result of the transfer of these laws, where they were free from the presence of the organized requirements of the places of holes or frames to achieve privacy, and also not to identify and ensure surfaces skylights Privacy, audio Policy and the number of units that may be involved in the vertical and horizontal elements of the movement, as well as the laws of the defections force designed in most cases to the orientation of the building exterior, leading to the loss of visual and audio privacy.[4]

Here we must note that achieving privacy in architecture does not mean a complete separation or full isolation of man inside a closed vacuum, because this would lead to the opposite result, as well as the bad psychological effects, human beings cannot live in isolation from others, and here the difficulty in achieving the required degree of privacy, which achieves the required isolation as well as reasonable contact with various environmental elements. [2]

### **3.2. The current structural requirements and the disappearance of the inner courtyards:**

Urban planning and architecture adopted Arab city old religious legislation as a basis, around that the life of the city was created, the Arab city characterized with many features and characteristics that embodied the ideology of the Islamic religion, which is formed of physical reconstruction in the Arab city, but the urban alienation of the Arab cities since the end of the 19th century and beginning of the twentieth century was carrying the western urban legislation, laws of the organization of the new building is not compatible with the customs and traditions of the Arab community, this legislation has continued until the present time without the occurrence of radical changes in spite of the lack of proven validity of environmental, social and economic circumstances of the community. [7]

This legislation has worked to identify the relationship between the heights of the buildings and streets as well as determining the amount of structures prominence on the street space and high constructed buildings, in addition to the determination of the conditions of the replies, reversals, spaces, extensions and celestial vents, which are determined by the region, real estate,[6]. Therefore, the identification of the construction laws and legislation in most of the cities and regions of the construction and the high proportion of the building, and distances of lined ups are affecting the climate of the concept of the inner courtyard, especially that these laws did not provide or encourage the existence of such courtyards inside buildings, such legislation that has led to the following: [10].

- They did not help collect the open surfaces in the yards, but they were distributed in small surfaces on the pretext for providing full access to the benefits of indigenous merits of the original directions and achieve the architecture individuality for each building.
- Identifying some of the space-saving design built by legislation in some areas 50 : 60% of the total area of the property does not allow the creation of the internal courtyard, because it constitutes a burden on other areas of the house.

- It reduced the size bounces for construction, and thus would constitute the inner courtyard if it is a burden on other areas of the house, which has to be replaced by a small apertures for lighting and ventilation services.
- They worked as rebounds to the departure of some buildings and did not weld on extra, allowing the work of the corresponding slots in the external walls of the Lich King Cinematic Trailer, and thus they lost the inner courtyards, which one of the causes of its presence is to act as a source of lighting and ventilation inside the buildings, as well as what caused by these holes from the loss of privacy.

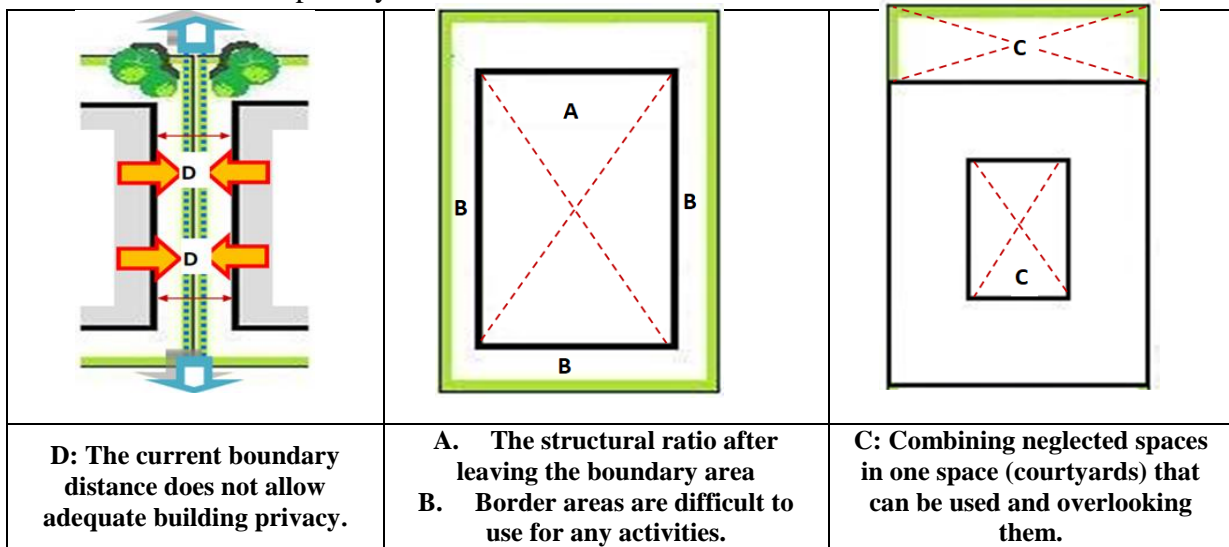


Fig. (1) The negative aspects of the current conditions and their effect on the disappearance of the yard

#### 4. Regional examples towards greater flexibility in the constructional legislation:

Some States have taken in regional surroundings, such as Saudi Arabia, these are important steps toward the amendment of some of the legislation that would release the architectural innovation and change in the form of legislative environment, have urban communities, where similar structural legislation with the Egyptian legislation and learned a lot of construction laws, where the Ministry of Municipal and Rural Affairs pointed out that the amendments was based on a comprehensive study of the development of building systems for construction in the defections of residential buildings - Villas - (separate and / or adjacent) to the ground floor, where during the study, it identified several queries and complaints from citizens and the various information media, the loss of large unexploited areas in residential buildings (villas) in rebounds and what is the feasibility and creating large voids and wasted areas of properly. The Ministry of Municipal and Rural Affairs have confirmed the development of regulations with respect to the defections of residential buildings (villas) to develop solutions and alternatives to address the current situation, the principle of justice has come to realize the existence of violations of construction in the rebounds, and ensuring access to natural lighting and ventilation of the buildings when allowing building in rebounds according to specific conditions, the establishment of appropriate buildings and giving technical architect flexibility and creativity in design and achieve the highest gains to the citizen to take advantage of its land in a positive manner and thus achieve a qualitative leap in the design of housing solutions for creative architecture (yards, semiconductors yards..).[12]

#### **4.1 The features of the amendment:**

The amendment limited the system rebounds on residential units (villas) of residential schemes adopted, up construction rate from 60% to 70% by allowing the expansion of more defections to the ground floor, where the ministry explained this system through a number of models that have been enclosed to the illustrative examples, , and it was allowed to connect external supplement to the main building but not to exceed 70% of the land area, also it was allowed to adopt the new system employing side courtyard on the ground floor with the possibility of emerging to a distance of 2m from the border fence, in the upper floor, the most important point is to oblige the owner with that the wall does not exceed 3.5m in part adjacent, which means the need to consider the internal vacuum at the design, and the system also pointed out that the internal courtyard should not be less than 2\*2m in any way.

#### **4.2 The views of the specialists after the amendments to the laws:**

With the issuance of new defections adjustment system of the Ministry of Municipal and Rural Affairs, many of the votes, welcoming these amendments which came late, according to a lot of specialists, the system that long overdue has cast a shadow over hopes for the development of the Saudi housing for too many long years, out of which the form of the identity of the form that absorbs the identical housing environment of Saudi Arabia, generally, it can be argued that the amendments are positive amendments in favor of the citizen, but this is limited to a certain category of residential pattern (villas) and not to all types of residential patterns, and maybe the opportunity was also favorable to offer solutions and amendments include other patterns. [13]

### **5. Flexible structural legislation and improving the built environment:**

Under this part to assess and examine some of the structural requirements of the organization for the construction of residential areas in new cities and how to develop it, and that would give a greater creativity and flexibility to improve the design of the Built Environment, and the dimensions of the stereotypes, through:

- A description of the problem posed by those requirements.
- Proposed solutions "The pros and benefits"

#### **5.1. The flexible requirements of the replies to the neighbor:**

##### **5.1.1. Problem description:**

The special requirements of the emerges to the neighbor, which are established by the legislative authorities in cities and new urban communities which vary from one city to another and from one neighborhood to another, and from one economic level to another, not less than 1.5 m distance of the replies from the border of the neighbor without any OUTCROPS and select the possibility of emerging cornices by 25 cm of the interface, and in some cases economic housing be responses from only one or two.

This law, however, limited the design flexibility to these interfaces, where the limit of the architectural configuration, and that it was the right of the owner and the designer responses more than the allowed limit, but that the replies will be at the expense of built-up area, so does the owner want to leave any space or additional replies to reduce the allowable building area? which restricts the movement of the designer to this limit of the desire of the owner, which makes the neighbor strict limits are similar and untapped, in addition to causing a lot of problems and waste a lot of benefits, including the following problems:



❖ **Environmental problems:**

- The integrity of the interfaces along with neighbors to help the airflow without the benefit of the inside blanks of the building.
- Do not allow good views for the specific replies.

❖ **Social problems:**

- Lack of audio and visual Privacy as a result of direct ruins on the neighbor and the near distance between them.
- Not taking advantage of the area of the existing responses to exercise any social activities despite the abandoned areas, but the length of the introduced vacuum hamper the exercise of any activity.

❖ **Aesthetic problems:**

- Limited restructuring on those interfaces, where the formation of a minor to outcrops does not exceed 30cm.
- The limited vision of the interface where the only opposite neighbor.

**5.1.2. Proposed solution:**

Flexible requirements to the proportion of replies to the neighbor to allow the designer to move in a more flexible, and not be a constant distance along the neighbor, and the extent of compensation size taken him/her behind the extent of allowable responses, which encourages the owner to give the designer the freedom and more flexibility in design, and creates diversity and difference in the formation and design of those destinations, hence; allow views and good ventilation, and the validity of exercise of different activities, in addition to the contrast works on the dynamics of air movement between the blocs and the building and increase the shadows, not the RUINS or open any windows toward the neighbor in case of entry in a permissible responses to them, and the ruins in the direction of the main interface or internal vacuum, raising the value of privacy of this limit.

❖ **Environmental benefits:**

- The percentage of airy blank faceplate interior and foreign affairs, as a neighbor as a result of variations in the rates of responses through the sponsorship of the movement of the air where they work lined up surfaces conditioned especially if the helicopter, wind direction, and the spaces problem for the replies whirlpool bike increase air movement compared to the current situation, where the air is going out of the building.
- A high proportion of blank faceplate interior lighting.
- Allowing the ruins at larger and different directions, whether inside or outside.
- Reducing the heat on those destinations as a result of good ventilation and overlapping shadows of restructuring and contrast of the surfaces of the wall of the neighbor.
- The possibility of planting and forestation of those blanks to become more attractive as a result of the creation of additional areas with the percentages of the responses.

❖ **Social benefits:**

- The blanks foregone resulting from the responses in a vacuum or several blanks grouped make it more spaciousness and allow the capacity to exercise social activities by a bit of the current situation.
- It allows the blank faceplate supreme court to participate in with more positive views

through the sense of near and communication between those in the blanks.

❖ **Aesthetic benefits:**

- The variance in the form of grants, and space for responses to the neighbor greater possibility of restructuring on those destinations, both with blocks or surfaces or shadows as a result of the availability of the prominence and more positive responses from the current situation.
- Giving that flexibility to emphasize the general nature and selected identity building, improving the form and mass of the building and therefore reflected in improving the general nature and form of the city.

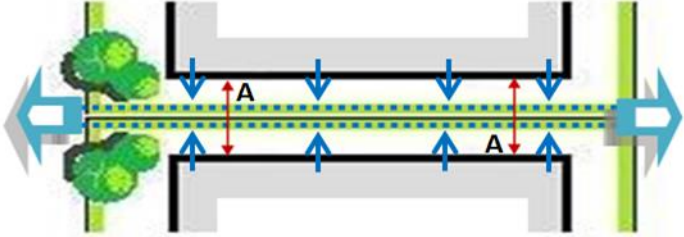
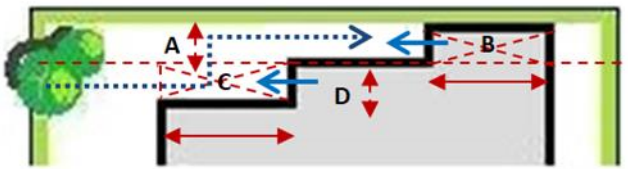
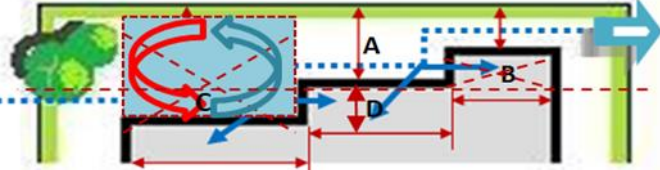
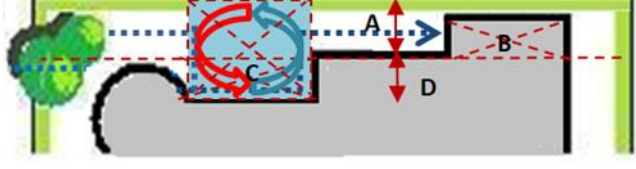

<b>Flexible alternatives proposed for the current situation</b>	
<b>The current situation</b>	<ul style="list-style-type: none"> <li>• Air path outside the space and building rooms.</li> <li>• The area of the border does not allow the establishment of activities on it.</li> <li>• The elongation of the space gives poor optical formation.</li> <li>• There is no privacy for the openings between the buildings, as they are directly overlooking some of them.                             <ul style="list-style-type: none"> <li>• The views are on the neighbor directly, except in rare cases.</li> </ul> </li> </ul> 
<b>Flexible proposals on the borders of the neighbor</b>	<ul style="list-style-type: none"> <li>A. The distance allowed by law.</li> <li>B. Built area in the permissible ratio of limits.</li> <li>C. Compensatory space equal to the border area.</li> <li>D. A compensating distance is equal to the boundary distance.</li> </ul> 
	
	<ul style="list-style-type: none"> <li>• Air path inside the space and rooms of the building.</li> <li>• Direct view towards the main façade.</li> <li>• Provide a great deal of privacy.</li> <li>• Variation information on the neighbor façade.</li> <li>• Creating usable spaces.</li> </ul> 
	

Fig. (2) Flexible legislative proposal for building conditions at the neighbor's borders

## 5.2. Flexibility in the essential building blocks:

### 5.2.1. Problem description:

The law permitted structural ratios, that vary from one neighborhood to another and from one economic level to another, with the percentage difference in the ground floor in the recurring roles after an increase in the proportion of specific and special prominence of balconies and towers on the interfaces, but this law causes a lot of negatives with a steady percentage of construction, the owner often force the designer to exploit fully the percentage of allowable building blocks without leaving any space for the exercise of any activities, especially on the ground floor, in the presence of the ratios of current responses which reduce the flexibility of the design to spread more space from the earth, and leaving holes open to the outside or the inside that can also be used, which restricts the movement of the designer down to the desire of the owner to take full advantage of the allowable building area, causing the following problems.

#### ❖ Environmental problems:

- The structural stability does not encourage unique designs or leave any blanks of the non-permissible responses leading to the advanced centrifuge designs similar modules.
- Lack of flexibility in the banks do not encourage to leave large areas and voids which can be used as green or shaded areas that are working to improve the thermal comfort or provide good ventilation.

#### ❖ Social problems:

- The current structural laws do not encourage to leave any blanks that can be used in social activities.

#### ❖ Aesthetic problems:

- Not leaving any blanks of the non-allowable areas leading to advanced centrifuge designs that are being typical and similar, reflected negatively on the general nature of the building and therefore the form of the city.

### 5.2.2. Proposed solution:

A compensation for the owner of the building, in the case that his desire cause the loss of the increase in open spaces and the compilation of these areas left from the constructivist ratio on the level of roles and to be compensated in the role of the additional surface area equivalent to the same size left, adding to the percentage stipulated by the current law of 25% of the essential building blocks, or increase the height to cover the same percentage of compensatory structural, which encourages the owner to give the designer more freedom and flexibility in the design and creation of internal and external gaps that can be exploited, without wasting the right of the owner in the allowable building area, or in the strict sense of the use of the theory of sizes instead of the current requirements that impose similar designs, which creates diversity and difference in the designs on the level of the district and the city. In addition to many of the following benefits:

#### ❖ Environmental benefits:

- Flexibility in compensation for the Structuralist encourages the owner for leaving spaces and voids that can be used as green and shaded areas, also give a lot of comfort and good ventilation, thermal blank faceplate adjacent or overlapping top with them.

❖ **Social benefits:**

- Encouraging the process of compensation for the essential building blocks to create voids or inner courtyards from which the practice of many social activities. As well as the blanks privacy with high foreign blanks of the prominences.

❖ **Aesthetic benefits:**

- The flexibility in the design and construction encourage the owner in the dimension of the appealing templates similar stereotypes.
- Considerable variation in designs between closed and opened for the ground floor gives a lot of positive restructuring of the form of blanks and blocks, improving the form and mass of the building and therefore reflected on improving the general nature and form of the city.

		<b>Illustration before and after the proposal</b>			
<b>Current situation</b>	<ul style="list-style-type: none"> <li>A. Permissible boundary distance.</li> <li>B. Permissible structural ratio.</li> <li>• Disclosure of privacy.</li> <li>• Missing space that is difficult to exploit.</li> <li>• Difficulty of seeing.</li> <li>• Poor ventilation.</li> <li>• Monotonous designs.</li> </ul>				
	<ul style="list-style-type: none"> <li>A. The Distance allowed by law.</li> <li>B. Built space less than the ratio of building permitted.</li> <li>C. An area left from the structural ratio as voids that are being compensated for by increasing the surface or height ratio.</li> <li>D. The boundary distance is greater than the permissible.</li> </ul>				
<b>Proposed advantages</b>	<ul style="list-style-type: none"> <li>• Convert unused spaces into groups, spaces that can be exploited.</li> <li>• Increasing the external spaces, especially the ground floor, from the structural ratio, raising the value of the building environmentally, socially and aesthetically.</li> <li>• Dimension of typical similar designs.</li> <li>• High privacy spaces.</li> </ul>				
		Assembling neglected spaces can be used in gradient voids.	Assembling neglected spaces that can be used semi-internal in a vacuum.	Assembling neglected spaces that can be used in an internal vacuum.	Neglected spaces are difficult to be used in the current situation.

Figure (3) Shows the flexible legislative proposal related to building percentage.

### 5.3. Prominences to the front destinations:

#### 5.3.1. Problem description:

The proportion of replies that are allowed on the front destinations greatly affect the external restructuring of the building also is associated with the formation of the foreign destinations by keys authorized buildings facades and defined by law that does not exceed the maximum emergence of passed out on the coupe 10%, and towers 5: 10% of the street with a maximum of 1.25 m, as required not exceed the length of the towers of half the length of the interface, [106] and often for everyone to commit , the allowable percentages of balconies prominences or towers, and the fallback of the building or the terraces of this limit as a result of the desire of the owner of the maximum benefit of the allowable building blocks, either to utilize financial or the high price of land or in some rare cases, as limited in size or nature of the form of the land. The designer, often yield in this case for the desire of the owner, thus limiting the flexibility in the design and production of stereotyped views with foreign destinations similar in their general and plastic characteristics, which can cause the following problems:

#### ❖ Environmental problems:

- The integrity of the front interfaces along the street gives a typical image which is visually boring, especially if it helped urban planning, the result of the division of plots of land to one route, there is no semi-public spaces of land that produce a rearward echo.
- Offering a large area of the interface of the sun as a result of the lack of the shaded areas due to limiting the emergence of terraces or wainscoting.

#### ❖ Social problems:

- Injury of privacy policy for lower floors.
- Limited access of the area of the front to exercise social activities or for appropriate green space.

#### ❖ Aesthetic problems:

- Restructuring on those interfaces, limited to the terraces and the roof of the towers as a result of the difficulty of productive restructuring, any space with blocks that can be used economically.

#### 5.3.2. Proposed solution:

Flexible requirements to the proportion of the responses to the front destinations allow the designer to move in with more flexibility, to encourage the owner to leave the response rate greater if it requires determination, as it will be environmentally, aesthetically and socially beneficial to the building, in order to do so without hesitation from the owner as a result of compromising a larger percentage of the allowable building blocks, can be compensated for those spaces, to leave additional space parallel to the same size left at the level of all floors, and offset the increase in the height limit, with the note of the response rate back to 1:1 or 1:2 or 2:3, according to the site or social level 33, which encourages the owner to give the designer greater flexibility in the formation of the destinations, without wasting the right of the owner in total floor space permitted by all floors, which provide the following benefits:

#### ❖ Environmental benefits:

- The percentage of AIRY and lights blank faceplate interior as a result of increasing space blanks, open foreign and voids help the problem with the work of the whirlpool, bike, it increases air movement and the possibility of opening up to the outside more than the direction.
- Allowing the ruins at larger and different directions, whether inside or outside.

- Reducing the heat on those destinations as a result of good ventilation and overlapping shadows as a result of the contrast of the surfaces and the possibility of the emergence of **the largest lawned terraces with further back replies.**
- The possibility of planting and afforestation of those blanks to be more attractive and beautiful as a result of the creation of additional areas, the largest of the allowable responses, at the level of all the floors and the hanging gardens.
- ❖ **Social benefits:**
  - Providing more space for the exercise of the social activities for the current situation.
  - It can be through those different replies to allow the blank faceplate supreme court and the ruins of it to participate in a more positive way through the sense of near and the communication between the upper and the blanks.
- ❖ **Aesthetic benefits:**
  - The variance in the form of grants, and space for responses to the interface, greater possibility of restructuring, both with blocks or surfaces or shadows, more positive about the current situation.
  - Improving the form and the building block for foreign destinations in turn lead to the improvement of the general nature and form of the city.

Drawings illustrating the proposed idea	
	<ul style="list-style-type: none"> <li>• <math>A+B = A</math> reduced area of the structural ratio on the facade is used as blanks. <ul style="list-style-type: none"> <li>• <math>C =</math> Compensatory area for the structural ratio.</li> </ul> </li> <li>• <math>C : D =</math> The percentages of the increase over the permissible height are between 1 : 1, 1 : 2 or 2 : 3 depending on the location or social level of the population.</li> </ul>
	<ul style="list-style-type: none"> <li>• <math>A+B = A</math> reduced area of the structural ratio on the facade is used as blanks. <ul style="list-style-type: none"> <li>• <math>C =</math> Compensatory area for the structural ratio.</li> </ul> </li> </ul>

Fig. (4) Shows the flexible solution on the front elevation.

#### 5.4. Proportion of massive corals and open front destinations (balconies and towers):

##### 5.4.1. Problem description:

Construction Law defines the proportion of balconies and towers (the massive corals and open) are allowed on the front destinations 50% each, for the length of the interfaces, both overlooking the streets or gardens, and the interrelation of these percentage along the interface limits the design thought in specific directions, giving a similar modular interfaces, where these

affect the requirements on the outside of the building, the composition and the beauty of the design and the general character of the urban environment as a whole.

**5.4.2. Proposed solution:**

The proposed amendment that allows the law to make the proportion of balconies and towers (the massive corals and open) allowed on interfaces by 50% on the interface area as a whole and not to the length of the interface, so that the proportion of closed and open distributed on an area of the interface in full, according to the vision of the designer, and not restricted to the length of the interface only, allowing greater flexibility for the designer creativity.

❖ **Environmental benefits:**

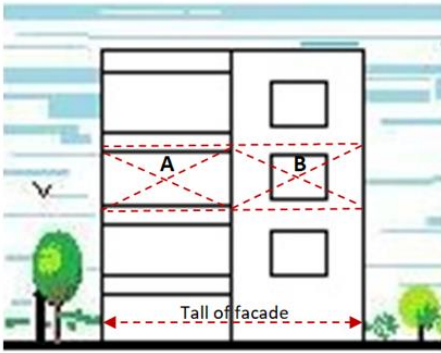
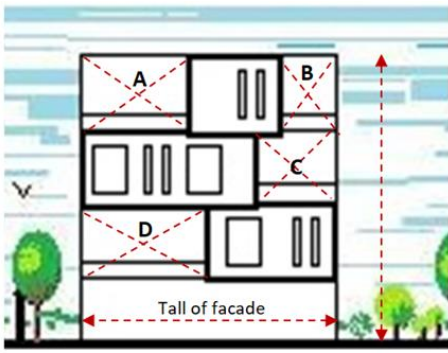
- Controlling of the ventilation and lighting ratios spam blank faceplate interior overlooking the interfaces.
- The flexibility of the ruins and opening to the outside.
- Reducing temperature control as a result of the contrast of restructuring on the interfaces.

❖ **Social benefits:**

- It can be through those interfaces to be more attractive and positive through the sense of near and contact and overlap between the different roles, especially in the relevant units of private property.

❖ **Aesthetic benefits:**

- Greater possibility of restructuring, the amendment gives the variance and sufficient flexibility in the design of the interfaces.
- Improving the form and the building block for foreign destinations in turn lead to the improvement of the general nature and form of the city.

The current law	The proposed amendment of the law
	
<p><math>A = B = 50 \% \text{ per length of façade.}</math></p>	<p><math>A+B+C+D = 50 \% \text{ per erea of facade.}</math></p>

The success or failure of these amendments would be dependent on time, as in the case of urban solutions generally, this does not mean the abuse of the amendment at all, but it is the door for a comprehensive change and to look for sustainable solutions, so the priority of residential development environment must not only be on the unit or the land, but planning scheme as a whole should be first consideration, where urban legislation needs also many revisionism that can complement the improved quality of the Housing Environment and urban development in general.

### The results:

- The current legislation and laws did Not Achieve what we aspire to provide factors that can lead to improving the built environment commensurate with the spatial and temporal conditions, socially, aesthetically and environmentally.
- Lack of flexible construction requirements for new urban areas, have led to a similar modular buildings, which made caused the urbanism of those cities to be identical copies, which leads to negative effects on the physical environment and architectural identity of these cities.
- The design flexibility granted by the structural requirements and the legislation of the organization of the architecture, especially in new cities, not working to raise the efficiency and environmental design of buildings and improve the characteristics of the physical environment and the form of the city.
- The current structural design requirements do not give sufficient flexibility to help the designer to provide a greater area of creativity, and do not encourage the owner.
- The current construction law was one of the factors that have affected the loss of the concept of privacy in archaeology, architecture and new cities, and the lack of compatibility of the social factors, pickled fabric is directed abroad to a separate building, which gives a sense as isolationism.
- The architectural aspects: We find that characteristics that should be available in the housing units, the most important value of privacy were absent, as a result of the transfer of those laws from abroad without considering the social and cultural values of the Egyptian society, where free from the presence of the requirements of the Organization places of holes or keys, as well as the laws of rebounds which force designers in most cases to the orientation of the building outward, leading to the loss of privacy and vision and audio.

### The recommendations:

- This study represents a simple vision to guide the specialists of academics, architects and decision makers to the formulation of such laws, including aims to improve the built environment of these cities aesthetically, environmentally, and socially.
- Returning to use of the sizes in the constructional requirements, and modify and develop the existing laws in line with this principle, would solve many of the problems at the environmental, social and aesthetic levels, and to improve the built environment architecturally and unrealistically.
- Legislation must defend architectural building blocks toward creativity in order to reflect the visions of architects and the requirements of the users, and not to lose the status of sustainability, and to be strict restrictions, without abandoning a structured framework, which makes a positive impact in the form of architecture and construction in the city.
- The involvement of the relevant bodies and academic institutions in the evaluation of such legislation and leave the laws to work on the development of urban and architectural product of Egyptian society, commensurate with the architectural, cultural and civil heritage of Egypt.
- Development of residential environment its priority must not only be on the unit or the land, but should be first about consideration of the planning scheme as a whole, where urban legislation needs also many revisionism that can complement the improved quality of the Housing Environment, and urban development in general, there are other criteria of importance



in the physical environment lacks a lane and residential rejuvenation, comes on top of the quality of the outer vacuum, and increase the green surfaces and reconsider the scope and volume of services and how to access them, all of these requirements are necessary to improve the level of residential environment before entering into the housing unit directly.

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