

Architectural requirement of people with disability in the urban cities in Iraq

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ABSTRACT

At the international level, attention is focused on the possibility of integrating people with special needs into their communities in a way that reduces their sense of disability by providing their public needs in the urban environment. The architectural and building codes in Arab societies have neglected the humanitarian considerations associated with this category for a long time, where people with disabilities in Arab societies, especially the Iraqi society, have many difficulties that lead to determining their movement in the urban environment of contemporary cities, which has a negative impact on how this group adapts within these societies and the difficulty of their integration, although the Iraqi government has sought to develop the constitution to support people with disabilities, However, these attempts were just theoretical but do not adopt a real binding application for urban development projects in the current reality of the cities in the twenty-first century, which calls for the introduction of real standards with well-studied dimensions and depends on multiple global standards to provide flexible solutions to transform the urban environment into an environment that can embrace the people with disabilities and provide sufficient flexibility in movement solutions which helps to develop their mental and physical abilities in a series and appropriate manner in the current Iraqi society, therefore the research study includes the following:-

- Criteria and requirements of people with special needs in the urban environment to reach the appropriate architectural standards for them.
- Experiences and legislation suitable for people with special needs in third world countries and Arab countries.
- Architectural foundations are suitable for people with special needs in the Iraqi cities.

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1. Introduction

In the first and second decades of the twentieth century, individual design and implementation attempts have been made in this field, many of which continue to fail because of the lack of real application of strict standards that take into account the needs of this category. This contributes to the ease of movement in the building joints resulting from these designs due to the lack of knowledge of engineering requirements or not to apply or meet with each other to cause a significant obstacle to provide a climate suitable for the integration of this category with the rest of the components of society, and in this sense comes the importance of the study in determining the real standards appropriate to transform the urban environment of Iraqi cities to an environment suitable for the movement of people with disabilities in an easy, simple and innovative way, based on various visual and structural solutions that will vary in the solutions of development of external spaces and traffic paths and entrances of public and residential buildings and vertical means of movement and service spaces to provide the greatest flexibility to support the movement of this important group in the community.

The aim of the study is to study the design and planning considerations suitable for people with special needs in Iraqi cities and the need to benefit from the experiences of countries that have already been in this area, whether advanced or developing, to find suitable solutions that can be applied according to real standards based on legislation that ensures the application of these solutions is ideal.

2. The Material and Method

The study is based on the analytical descriptive approach in presenting the social problems of people with special needs and their requirements. The study deals with the experiences and legislations in the countries of the developed world and the Arab countries in order to be able to know the problem and the appropriate design methods to formulate real solutions for it at the architectural levels in the interior design of the building itself and the urban outside in roads.

3. Theory

3.1. Disability and disabled setting size in Iraq

Before starting to study the problems and requirements of people with special needs in the Iraqi urban environment, different methods of classification of multiple disabilities should be clarified so that we can study their problems:-

3.2. Classification

Medical disabilities are classified into: -

Physical disability: - disability resulting from dysfunction of the nerves or muscles or bones and joints, leading to loss of motor power to the body as a result of amputation, spinal injuries, muscular dystrophy, and its relaxation and her death, rheumatism [1].

- Sensory disability: - disability resulting from an injury to nerves sensory organs such as the eye or ear or tongue produces a Visual or auditory sensory disability or hearing disability ratio. Head and neck approximately 21.6% of total [1].
- Intellectual disability: - disability resulting from defect in senior positions for the brain, as focus and counting, memory and communication with others, resulting in learning disabilities or learning difficulty, or faulty behavior and General conduct of person [1].
- Mental disability: - disability resulting from mental disease or hereditary diseases or cerebral palsy as a result of lack of oxygen, or the result of genetic disorders or all that impedes the mind from the known functions [1].
- Dual Disability: - presence of delays per person [1].
- Composite Disability: - is a collection of various disabilities have per person [1]. Emphasis has been architecturally on the following:-

3.2.1. Sensory disabilities

Featuring the behavioral effects and personal tracking individual and the most are:

- Grow his attention in motion and depends on others assistance in several areas.
- Use his hearing to recognize sounds and determine distances and obstacles are dynamic spaces must be provided free of soundproof materials or pipette it.
- Using the sense of touch to identify texture sizes and shapes and surfaces for non-diversification must be unjustified termination materials and elements brushes for the psychological effect.

- Braille communication is representing a preferred way to communicate and its own a big potential for visually handicapped that choice to rely on the various extension movement and multiple spaces and denote mock names or public moral.

3.2.2. Physical disability

Which is the basic element on the architectural study of the impact of disability carried significant impact across artificial limbs used by means of daily communication and movement and one of the most important human qualities:-

- Turning traffic to sit in a wheelchair and the depending on others help for move it that's why it's limited to streets and accompanying person in the back to secure the momentum.
- Difficulty moving for a long time with poor balance and difficulty bending and slow motion.
- Weak support members as feet and forearms.

3.3. Size of the disabled in Iraq

The study relied on data available on the disabled in Iraq are the Population censuses and the last scan in 2007 IHSES [2] conducted the socio-economic survey of the family in Iraq and Population censuses:-

Table (1) shows the total number of persons with disabilities according to the environment, sex, and population censuses of the country in 1977, 1987, and 1997 [3]. The percentage is doubled during the years 1977 to 1987 due to the Iraqi-Iranian war, the Gulf War and the circumstances in Iraq. And decreased from 1.7 to 1.3 between 1987 and 1997. The main reason for this decline was the cessation of the Iran-Iraq war, in addition to some increase in some of the services available to them. The total number of persons with disabilities in 1997 is 244817 [4] and is 1.3% 0%, which is very low compared to the world rates. The global statistics show that the percentage of disabled persons in developing countries is 10%. This low rate is due to the reluctance of most families to disclose what the family has to people with disabilities due to shyness, as well as the lack of knowledge and diagnosis of disabilities by parents, especially in early childhood.

Table (1) shows that the highest percentage of disabled persons reached 2% for males in urban areas and the lowest percentage of persons with disabilities in rural areas are females, 0.6%. The percentage of persons with disabilities in Baghdad governorate to persons with disabilities in the country is 33.81% the percentage of disability in Baghdad was 34% for the mentally weak, followed by the percentage of those with visual impairments (30.7%), followed by those with paralysis (30.53%), the rest the ratios between 25% and 2% (1977-1987, 1997 census) [5].

Table 1. The distribution of the population with disabilities by gender and environment and caused them to the total population, According to the General Population Census for the years 1997, 1987, 1977 [3]

The countryside			Urban area			type of people	year
total	Female	male	total	Female	male		
36660	13169	23491	74435	28654	25781	persons with disabilities	1977
4354443	2151094	2203349	7646054	3666505	3979549	total population	
0.8	0.6	1.1	1.0	0.8	1.2	Percentage of disabilities	
75116	22214	52902	200412	62222	138190	persons with disabilities	1987
4866230	2421744	2444486	11468969	5527566	5951403	total population	
1.5	0.9	2.2	1.7	1.1	2.3	Percentage of disabilities	
623767	17985	45386	181446	53958	127488	persons with disabilities	1997
623767	3168522	3070245	12945776	6479451	6466326	total population	
10.2	0.6	1.5	1.4	0.8	2.0	Percentage of disabilities	

Total			year
total	Female	male	
111095	41823	69272	1977
12000497	5817599	6182898	
0.9	0.7	1.1	
275528	84436	191092	1987
16335199	7939310	8395889	
1.7	1.1	2.3	
244817	71943	172874	1997
19184543	9647973	9536570	
1/3	0.7	1.8	

3.4. International experience

3.4.1. European countries and America

European countries differ in dealing with the problems of the disabled. The follower of the situation of the disabled in Denmark finds that it is not related to a government policy aimed at integrating the disabled, and the quality of educational services provided to the disabled. While in England and France, federal laws provided multi-faceted support for integration into schools, although students with mental disabilities were isolated from their peers in mainstream schools. In Germany, children with mental disabilities were successfully integrated into integration schools in 9 of 11 states, and government schools accepted students with disabilities who could follow the mainstream curriculum. In 1975, the federal law was passed in the United States, which stipulated that special education should be provided to all who needed it, and the right of children with disabilities to receive education, free integration into the less restrictive environment and the restriction of normal schools. A large number of students with light disabilities and middle school students were merged with their peers who did not have a disability of the same age, but the students with the most severe disabilities remained in American schools [6].

3.4.2. Arabic States

In the Arab States, there is a discrepancy in the focus on the issue of integrating disabled persons into public education. In Jordan, the Disabled Persons Law was promulgated in 1992, in which the Ministry of Education was given the task of educating the Ministry of

Education. This responsibility was the responsibility of the Ministry of Social Development. Which has developed a five-year project that was implemented in three phases. In the United Arab Emirates, special education classes included 1060 students, and learning resource rooms have been introduced in regular schools since the beginning of 1990. In Bahrain, disability issues were distributed among the Ministry of Education in the remedial classes. In 1992, the integration experience was implemented in a school for males and for females. A law on disabled persons in Libya in 1972 provided for the State guarantee of basic education for persons with disabilities. A Tunisian law issued in 1991 provided for the State guaranteeing the right of persons with disabilities to free and compulsory education, which was implemented in the same year in 35 schools. Students with disabilities in Syria receive their services in specialized centers and institutions, and integration ideas are still being studied and evaluated. The situation in Egypt and Morocco is different from the rest of the Arab countries mentioned earlier, where the schools of special education are still isolated from regular schools, although there are many calls to apply the idea of integrating students with disabilities in public education [7].

The Arab Regional Conference, held in Beirut from 7 to 10 May 2001, under the theme of integrating disabled persons into formal education. The experiences of five Arab countries in the integration issue are Lebanon, Morocco, Saudi Arabia, Yemen and Egypt.

In Lebanon, the experience of integrating disabled persons into public schools began in the early 1980s by the civil society and at the official governmental level. The work started in 1999 and the civil society activities on this issue included an attempt to develop educational programs in the centers of NGOs to attend regular schools. Individual initiatives were initiated by some parents and institutions in the integration of various disabilities including deaf, sight and motor disabilities. An attempt was made to document these experiments with a field study. The results showed difficulties in the following areas:-

- Training and training of breeders.
- Accepting the civil society for the disabled to attend regular schools.
- Implementation of integration in the basic stage, while it is easy to join children with disabilities to kindergarten.

The results were presented at a general conference held in 1993, followed by a group of individuals who sought to reflect on the policy of integration in an attempt to develop the best strategy for the spread of integration in regular schools. These efforts remained scattered until 1999, when they intervened. Ministry of Education through the Educational Center for Research and Development in cooperation with UNESCO, and asked three specialists to prepare a report on the situation of the disabled in Lebanon.

This report showed the Ministry of Education's lack of a comprehensive policy on the education of the disabled, as well as the problem of teacher training and the lack of specialists in this field [7].

The report was accompanied by the preparation of the first national conference on disability education in Lebanon, held in 1999, during which the results of the national report raised some of the field experiences that contribute to the expression of this issue.

At the conclusion of the first conference, six areas were identified for field research: -

(Organizing and legislation, awareness and information, research and documentation, educational programs and methods, training, pilot experiments). The research was conducted by about 80 volunteers from all employees, in 2000, the Second National Conference on the Education of the Disabled was held in Lebanon. The results of the field studies were presented and recommendations were made in each of the six areas to consolidate the strategy of educating people

with disabilities by selecting an educational area. Concerned and all civil society groups, parents and persons themselves, to reflect a model empirical work structure based on:-

- Diagnosis, early intervention, rehabilitation and education in formal and private formal schools.
- Training of workers in the sector.
- Educate and educate parents, students and the community.

The project shall be evaluated after one year of its implementation prior to the necessary amendments and generalization. In fact, there is no field follow-up to implement the recommendations and action plan for many reasons. But what we can deduce in this context is the existence of an active civil society in Lebanon that has managed to reach the highest levels of official and national education. As a result, Lebanon has taken some steps to institutionalize the affairs of persons with disabilities, all of which still have many obstacles in the educational system. 70% of the schools are private schools and the status of public schools is very poor. On 6/6/2000, There is a clear paragraph that obligates schools to receive the disabled, but without specifying the appropriate mechanisms to implement this. The card of the person known as the disabled card is still issued by the Ministry of Social Affairs [7].

3.4.3. Syrian Arabic Republic

The Syrian Arab Republic has taken steps on the path of integration. The most important results were drawn from this experience during the last period:

Accept the idea of integration among many educators and accept work with special cases.

The warm and sincere emotional atmosphere between ordinary children and the disabled, which indicates that the error lies within the adults, and the young language of their own communication.

Adjust the negative attitudes toward disabled people.

Increasing attention to the issues of persons with disabilities and seeking to meet their needs tomorrow is easier than before, which shows the increase of awareness and acceptance of the other among the members of society [8].

3.4.4. Situation in Iraq

The Iraqi government issued the law on the care of all disabled persons to guarantee their rights, especially the texts of articles (20/19/18/17/16/15/3/2), where the text of those articles includes rights, privileges and even penalties according to the provisions of the following law:-

According to the provisions of Article (1) of Article (61) and Article (III) of Article (73) of the Constitution, the following law was issued:

No. (38) For the year 2013

Law on care of people with disabilities and special needs - Chapter II

Goals and means

Article (2) this law aims to achieve the following:

Care for people with disabilities and special needs and eliminate discrimination due to disability or special needs.

Create the integration of people with disabilities and special needs in society.

Provide a decent life for people with disabilities and special needs.

Respect disability and accept disability as part of human diversity and human nature.

To create employment opportunities for people with disabilities and special needs in the government departments and the public sector, mixed and private.

Article (3) the objectives of this law shall be achieved by the following means:

Develop special plans and programs to ensure the rights of persons with disabilities and special needs in accordance with the provisions of the law and the international conventions and conventions to which the Republic of Iraq is a party.

Accession to international agreements and conventions on the care of people with disabilities and special needs.

Develop programs and plans to prevent the causes of disability and make them available to raise awareness.

Securing therapeutic requirements, social services, psychological and vocational rehabilitation for persons with disabilities, and special needs for cooperation and coordination with relevant bodies inside and outside Iraq.

Provide public and private education opportunities and vocational and higher education for people with disabilities and the special needs of those who can afford it.

Development of staff working in the field of care for people with disabilities and special needs and the establishment of a database for them and update them [9].

The use of expertise and specialization and keep abreast of scientific developments in everything related to disability and special needs and contact with the competent authorities inside and outside Iraq to raise the efficiency of performance in this area.

Holding conferences, seminars, scientific meetings and training and rehabilitation courses inside and outside Iraq.

Disability grants and special needs special identities.

Encourage the manufacture of equipment and equipment needed by people with disabilities and special needs.

The law lacks precise application and real follow-up of this category in all aspects of life and does not confirm any legal provisions forcing the government departments and private and mixed companies operating in all state facilities to provide the real needs of engineering in the field of architecture and urban planning for this category accurately and practically in the Iraqi urban environment [9].

3.5. Architectural foundations in the urban environment for People with disability in Iraq

Spaces in buildings and external environment can be divided into below kinds:-

3.5.1. External environment

The external environment, for example, includes streets, squares, pedestrian paths, parks and playgrounds. It is important to enable persons with special needs to move between buildings or other places or to walk or perform any activities abroad.

A city identity is necessary and essential as it delivers harmony between the “constant” and the “changing” elements [10] When planning the outdoor environment, take into consideration wheelchairs users, whether manual or electrical. [11]

3.5.2. Pedestrian areas

The width of the walkway should be at least 1.80 m and a width of not less than 0.90 m to enable wheelchair users to pass these roads as in (Fig.1).

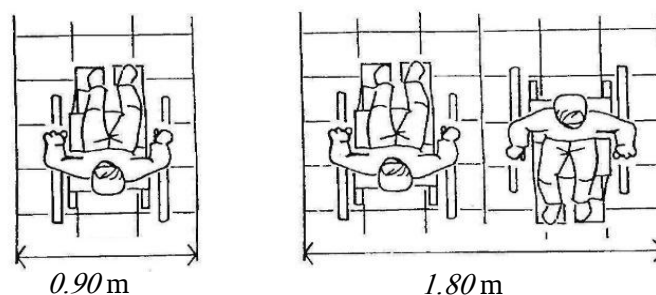


Figure 1. View the Boardwalk arcade [14]

- Surfaces must be solid pedestrian lanes and slip-resistant.
- There should be a clear difference between the surface footpaths and part of asphalt or grass for easy directing of suffering from poor eyesight.
- Must be the surrounding fields or specific characteristic surfaces large areas as in (Fig.2) .
- Awareness of the problems of housing and urban environments [12].

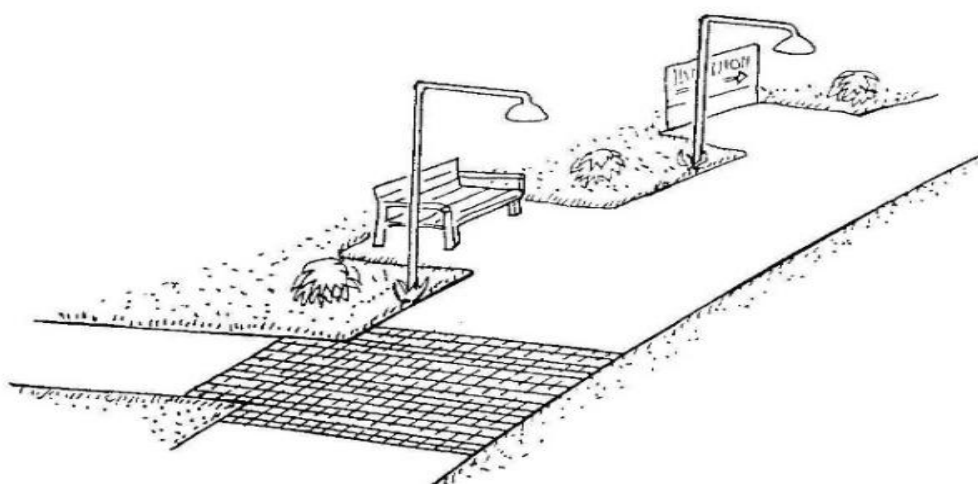


Figure 2. Lanes [14]

3.5.3. Pedestrians paths

- If there is an intersection between a pedestrian passage and another or a street, there should be a clear change in the surfaces to attract the attention of those with impaired vision of these intersections (transit place).
- Pavement plazas are created by converting space on the sidewalks of main streets to usable pedestrian plaza or commercial space [13].
- Lighting poles, signs, seats on the sides of corridors should be placed.
- Seats should be provided along the long walkways.
- The walkways should be well lit [14].
- Creating decorative architectural module that can effectively reduce air pollution when installed near traffic ways on building facades. Modules would be made from lightweight thermoformed plastic panels coated with TiO₂ [15].
- Creating innovative plant locations to solve the main problem in the field of air pollution by industry which is the use of geo-ecologically unacceptable production technologies that are not in accordance with best available technologies (BAT). Pollutants emitted from agriculture to the environment are ammonia (NH₃), methane (CH₄) and nitrous oxide (N₂O) [16].

3.5.4. Pedestrian crossing

- The location of pedestrians crossing and distinguishing them from the rest of the corridor should be clarified by the diversity of surfaces.
- The crossing must be perpendicular to the pavement, and when there are traffic lights, it must be equipped with sound signals.
- There should be diversity in the surfaces of the transit areas.
- The width of the island at the middle of the footpath should be at least 1.5 m as shown in (Fig.3) to enable wheelchair users to stand on it.
- Pedestrian width should not be less than 1.80 m to allow wheelchair users to cross.

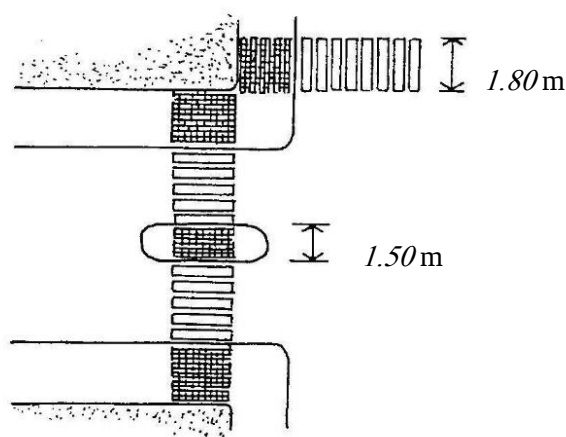


Figure 3. Pedestrian crossing lines dimensions [14]

3.5.5. Parking

- Parking spaces for persons with motor disabilities must be close to the entrances in public buildings, commercial centers, other service buildings to enable maneuverability for the wheelchair next to the car with the possibility of opening the door of the full car we need space Sufficient as in (Fig.4).
- A minimum distance of 3.5 m should be provided in disabled parking spaces to allow wheel maneuvering [11].

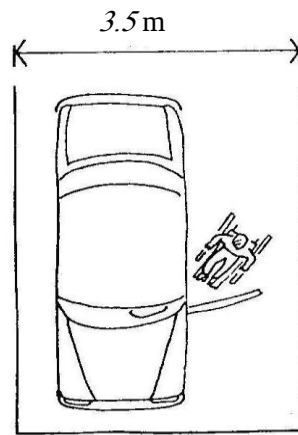


Figure 4. Car parking [14].

3.5.6. Doorways and distribution terminals

- In the case of design of entrances suitable to the needs of persons with disabilities, the facilities and facilities on which the design of the entrance is based will vary between a public building with a large number of users, whether wheelchair users or not, and dwellings whose entrance is usually used only for one person at the same time.
- In the interior spaces of the public buildings, a difference can be made between the crowded distribution halls, which require special specifications for the vacuum or the internal distribution halls for areas of limited use such as toilets, refer to the door section to meet their requirements.

3.5.7. Entrances

- The entrance to the building must be shaded, for example an indoor or an umbrella, and such a procedure can also help to distinguish the entrance for people with visual impairment.
- Space should be provided without any barriers or obstructions that are no less than the dimensions in the figure to provide space for wheelchair users to approach the entrance in preparation for transit.
- Surfaces must be slip-resistant.
- The openings must not exceed 15 m.
- A handrail should be placed next to the entrances to help people with motor disabilities.
- It is recommended to avoid rotating doors if any alternative doors are found at the entrance of the wheelchairs for people with motor disabilities [14].

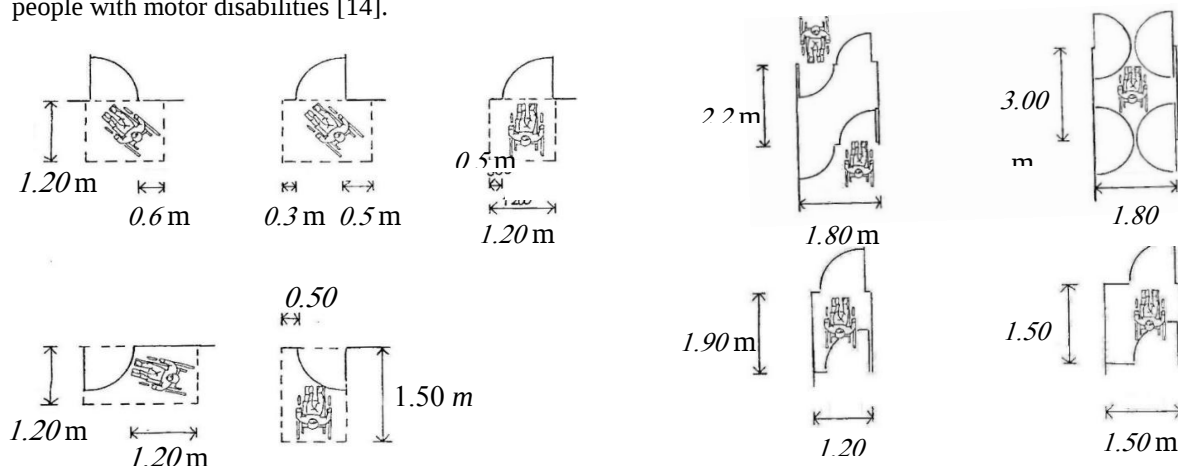


Figure 5. Space of doors [14]

Figure 6. Lobby doors to public buildings [14].

3.5.8. Lobby doors

- If there is an entrance hall in a public building, sufficient space should be provided to allow the chair maneuverability and dimensions as shown in (Fig.5).
- If there is an entrance hall in the private housing, sufficient space should be provided to allow the chair maneuverability and dimensions as in (Fig.6).
- In the case of the threshold of the entrance must be below the surface of the floor to be the same level of the adjacent surfaces and must be of solid materials.
- In the entrance to a door leading to private accommodation, additional space must be provided in the entrance to allow wheelchair rotation [11].

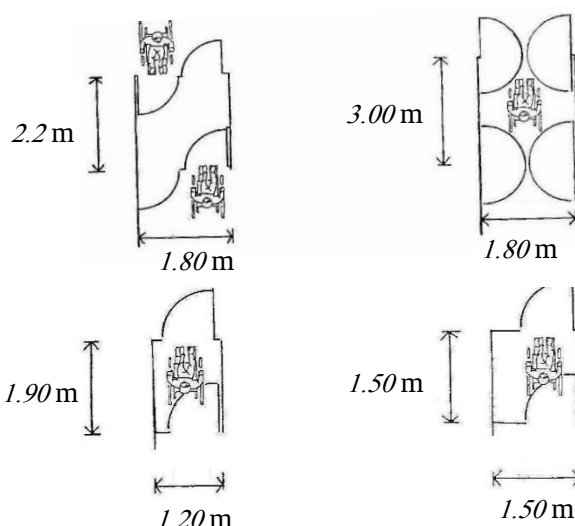


Figure 6. Lobby doors to
public buildings

Figure 7. Domestic lounges [14]

3.5.9. Interior hallways in public buildings

- The interior corridors of the public buildings must have a large area that allows for the free movement and maneuvering of the wheelchairs.
- Double-sided doors should be designed as shown in (Fig.6).
- Single-door lobbies should be designed to separate busy traffic areas and internal traffic as (FIGURE 7.) a. In the case of limited motion, the spaces are reduced as shown in (Fig.6) b.
- In bathrooms, one coat holder should be placed at minimum height of 1.20 m above ground level for ease of access from the wheelchair, and should not be prominent so as not to pose a potential hazard.
- Provide sufficient space for wheelchair mobility.
- The reception areas must be clarified and marked, and the reception should allow use of wheelchairs. [14].

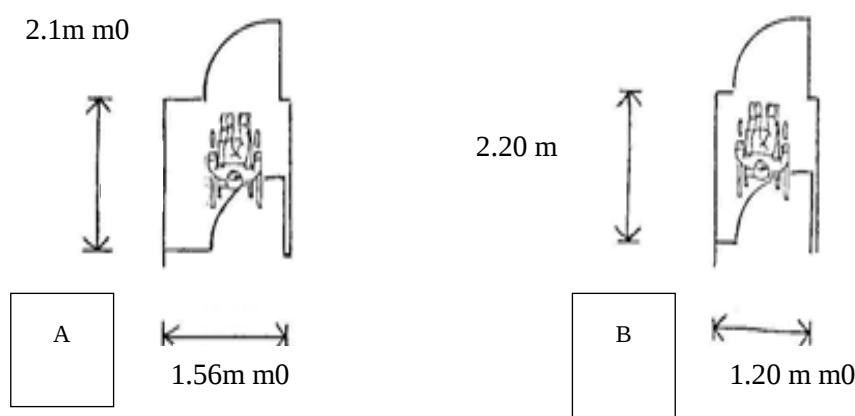


Figure 7. Domestic lounges [14].

3.5.10. Public buildings

3.5.10.1. Interior hallways with private accommodation

Interior hallways for private residences should be designed as they are in (Fig.7).

3.5.10.2. Elevator cabins and controls

The elevator entrance must be on the same level as the entrance of the building. It should also be accessible by wheelchair users from all floors of the building.

3.5.10.3. Elevator cabins

- To facilitate the access of wheelchair users to buildings, the dimensions of the elevator must not be less than 1.10 * 1.40 m.
- Must be in accordance with the standard specifications in the case of only one elevator in the building.
- However, the elevator cabin does not allow 1.10 * 1.40m wheelchair dimensions, so a lift should be provided with larger dimensions if higher accessibility is required as in (Fig.8).
- Sliding doors must be used automatically according to the standard specifications, and the time to open the door should be sufficient to allow the wheelchair to pass.
- The net width of the door, which allows the wheelchair to pass at least 0.80 m.
- It is useful to have the door of the elevator of color contrasted with the wall next to the easy orientation of the visually impaired.

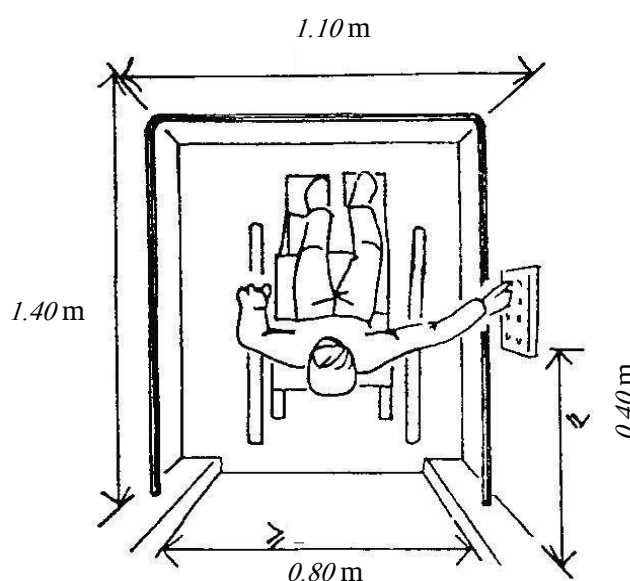


Figure 8. Cabins lift [14]

- Enough space for wheelchair maneuvering should be provided in front of the elevator doors to enable wheelchair users to enter and exit the elevator easily (Fig.9).
- There should be no difference in the levels between the elevator floor and the floor in front of him in order to avoid the dangers of accidents. This is especially important if driving the wheelchair back inside or outside the elevator.
- It is preferable to equip the elevator cabin with a handle in the inner perimeter of the cab at a height of 0.90 m from the floor level to support the handicapped.
- The floor of the elevator cab must be finished with a slip-resistant material.
- The elevator cabin lighting should be good and non-reflective [11].

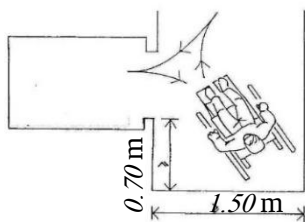


Figure 9. Net vacuum before the elevator door [14]

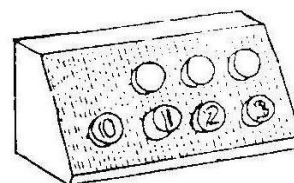


Figure 10. Control panels [14]

3.5.10.4. Control devices

- The elevator controls should be placed at a height of 0.90 to 1.20 m above the ground level so that wheelchair users can access them, and should not be placed at a very low altitude so as not to be difficult for the visually impaired to use.
- Controllers should be placed at a distance of 0.40 m from the cabin or cabin doors for easy access by wheelchair users.
- The controls must be placed in a regular and orderly manner. The diameter of any button should not be less than 0.025 m. At least 1 cm between the buttons should be left for easy use by persons with weak or weak coordination between the arms and hands or the visually impaired.
- The touch of the button on the ground floor must be marked and has a different color.
- The buttons should be contrasted with the background color to help the visually impaired to use them.
- Symbols should be of different colors and be easy to understand. Figures and symbols should be prominent for ease of reading by touch [14].
- It is useful to place the control devices and symbols at an angle on the wall to facilitate the process of reading and maneuvering as in (Fig.10).

3.5.10.5. Access to bathrooms

- In the design of bathrooms for residential buildings and to achieve the minimum of general needs may mean the lack of all the health systems in full (for example, it may be impractical overlap of access to health devices together) in this case must be clarified all the information available to achieve the best practical solution.
- When designing health appliances in public housing or private housing, attention must be paid to the needs of people with special needs, especially with regard to the vacuum required to reach all health systems.
- When designing a vacuum, the main concern should be to provide a suitable wheelchair entry.
- The vacuum of the water cycle should allow a forward, lateral and lateral movement of the toilet as in (Fig.11).
- A suitable space should be provided at one side of the toilet to allow a person or a hand wash basin to be located on the other side, and an area that allows the wheelchair to allow the person to move sideways in public buildings as shown in (Fig.12).
- Provide sufficient space to allow easy movement of the person on both sides of the toilet (left and right) [11].

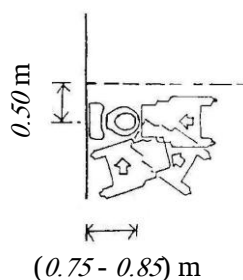


Figure 11. Into the toilet [14]

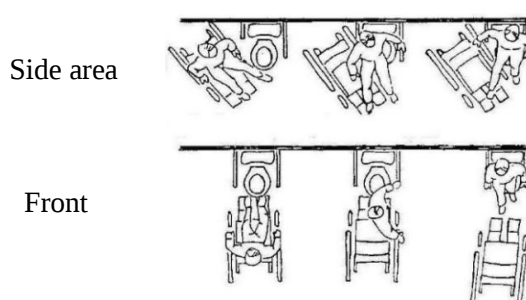


Figure 12. Examples to move from the wheelchair to toilet toilets [14]

- The available space should allow the front, side, and lateral transition of the wheelchair users. This space is required on each side of the device to allow the facilities to assist the user in moving as in (Fig.13).
- For the hand wash basin, the available front and tilt space should be allowed for wheelchair users as in the (Fig.14).

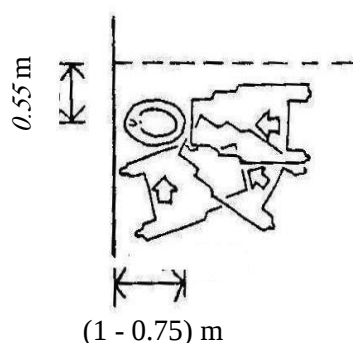


Figure 13. Using the toilet [14]

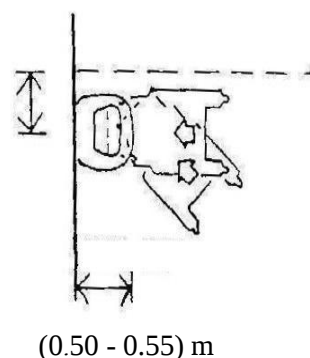


Figure 14. Put washing hands [14]

- It is preferred to have a terrace at the front of the bathtub for the possibility of moving inside the tub with seating as in (Fig.15).
- The spaces within the bathrooms should allow for the front and diagonal approach of the basin as well as the lateral movement of the wheelchair users to the terrace in the bathtub.
- A seat for the disabled should be available for disabled people who cannot stand, with a space that allows lateral wheelchair users to move to the shower seat as shown in (Fig.16).

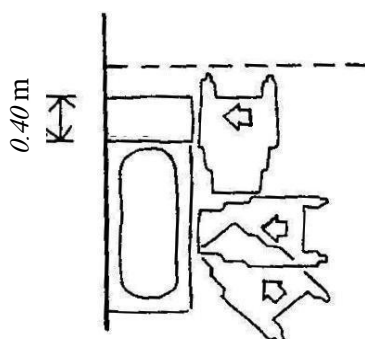


Figure 15. Shower position [14]

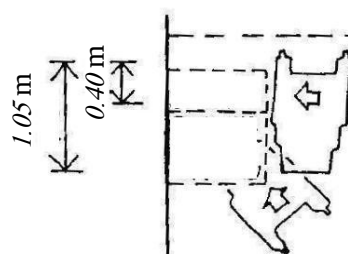


Figure 16. Bathtub position [14]

- Floor surfaces must be non-slip.
- Bathroom fittings must be flexible and equipped to achieve user comfort according to the type of disability.
- The possibility of replacing the bathtub with shower and changing the water mixer should be available with a single-handle mixer or heat mixer [11].
- L- Kitchens
- The basic purpose of the disabled can be achieved by applying some general requirements in the standard kitchens. In addition, it is possible to rehabilitate the kitchen for more specialized needs for the disabled person residing in residential buildings.
- In this section, some general and common requirements are described. However, the need for clarification and discrimination is based on the actual general requirements that should be achieved locally on all the kitchens that are created and it is best to comply with the greatest number of requirements in general.

4. Results

Guidance systems should use the following order of solutions to maintain a good performance for the urban environment.

4.1. Routing problem solutions

Shortages in routing ability cause difficulties in receiving, absorbing and interpreting information, such difficulties depend on the following example:-

- The availability of information in a form of difficult reception for the visually impaired or the hearing impaired
 - Provide information in an inadequate and difficult manner to people who are mentally disturbed or mentally disabled
 - Put information in a way that is difficult for the physically disabled to reach
 - The required guidance requirements are established according to the following:-
1. General planning - facilities and external environment
 2. Signboards
 3. Colors
 4. Illumination
 5. Choose materials
 6. Different forms of guidance and guidance

An integrated information system is used to take special care of people with different needs. It is also necessary to know where they are and where they go as in (Fig.17), in order to move easily and safely and operate the control keys, elevators and doors (Arabic industrial development and Mining Organization / Center of standardization and Metrology).

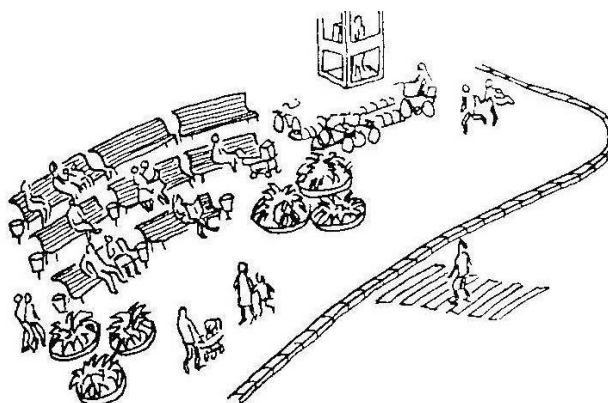


Figure 17. Street equipment groups [14]

4.2. General layout – facilities and external environment

- It is important to have a simple and clear general planning, general planning should provide the possibility of achieving perceptions and ideas of the surrounding things including the points of guidance that can be achieved and activated.
- In the general planning of an area the associated services are contiguous.
- Elevators, information desks, telephone booths and separate toilets must be in a clear location, and the electricity management room, instructions and other services are best to be found in regular locations.
- During planning, consider the natural environment that identifies routing problems to avoid risks to buildings and the external environment. Solutions are found to avoid the presence of one degree, columns, protrusions from the wall or glass doors and the like. Consider the acoustics, level of lighting, change of finishes, color variation and other environmental aids.
- Roads and corridors should not be provided with stairs or obstructions. Be suitable for the purpose of use.
- The change in direction should be determined by the difference in materials, colors, lighting, handrails, etc. It is best to use the existing angles when changing direction.

- Street equipment, shop baskets and wheel paths can be combined to reduce risk. Furniture should be placed so that it does not pose any obstacles.
- If there are obstacles, warnings should be placed in the face of these obstacles. Glass doors, automatic doors, windows, and engraving should be marked with signs [11].

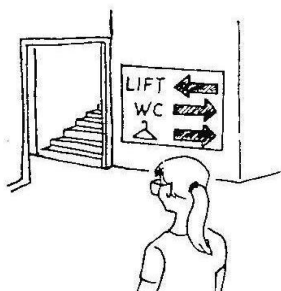


Figure 18. Readable instructions
understandable [14]

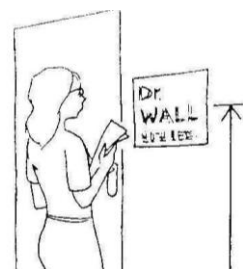


Figure 19. Marking in the fixed
places [14]

4.3. Guidance signs and writings

- Signs must be readable and understood according to their purpose.
- They should be designed so that they are not ambiguous, simple and easy to interpret, and the information must reflect the user's familiar ideas and experiences.
- Signs should be of strong material and be easy to change, clean and repair.
- Main types of signs
- Direction signs: sketches, diagrams, models, etc. should be placed in accessible places for wheelchair users and others so that they can be easily examined and understood as quietly and conveniently as possible.
- Direction signs: They should be placed in a logical sequence from the starting point to the positions of the different points as in (Fig.18).
- It should be repeated but not in abundance but every place where movement can be changed.
- Functional signage: a non-ambiguous explanation of the activity to which it refers should be given - parking spaces, elevators, separate toilets, etc. as in (Fig.19).

4.4. Places of signs

- Wall signs must be placed at an altitude between 1.40 and 1.60 m above ground level. Hanging signs of ceilings, columns or protruding from the wall that are placed at an inappropriate altitude for optimal reading height should be avoided. However, if this type of signage is chosen, its design should be taken into consideration so that the size of the writing is proportional to the distance from which it is read.
- Signs should be attached in a manner that avoids the presence of reflections.
- Signs should be placed in a specific place on the door frame, wall, columns, etc. instead of doors [14].

4.5. Topography

- The use of easy codes can increase user orientation.
- Difficult to understand or unusual characters can lead to difficulty in directing the user.
- It is best to use the easy and familiar style of writing, keeping in mind that the degree of writing is not light or dark.
- The height of the letter shall be 1: 200 of the required reading distance, but the height shall not be less than 0.15 m and the external gaps shall not be less than 0.10 m.
- In the case of writing in English, CAPITAL LETTER is used for short phrases. Long phrases use lower-case letters, which must be colored in contrast to the background.
- It is preferable to use simple words, with no distance between words, short sentences are easy to understand and remember.
- Should not use abbreviations or long words that are difficult to understand.
- Should leave proper spaces between lines of writing.
- Lines should start from one vertical line and not necessarily equal length.

- Prominent characters are preferred and should not be too pronounced to avoid being easily read sideways, letters 15 to 40 mm high and 1 mm preferred for visually impaired as in (Fig.20) [14].

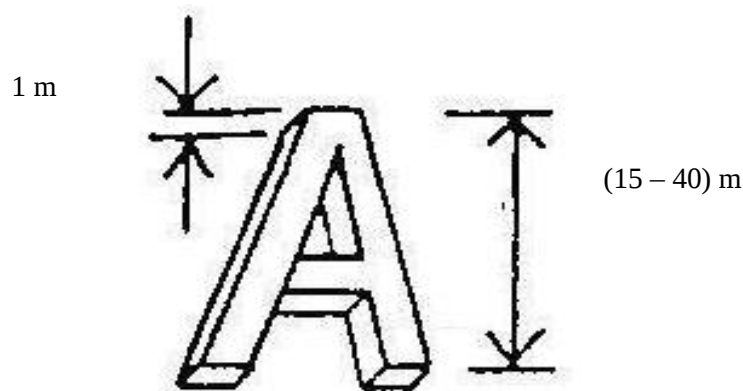


Figure 20. Occurrence of characters [14]

5. Discussion and Conclusions

From the previous study we can conclude several recommendations to make the urban environment internally appropriate from the architectural and externally in order to meet the needs of people with special needs in the Iraqi cities, as follows:-

- It is necessary to emphasize the application of the relevant laws to provide the requirements of people with special needs immediately with the creation of specialized tools that support the new terms that could be generated to works in different parts of society in the country.
- The development of specialized agencies inside the higher authority of the government as well as creating legislation for the setting new standards to transform the environment in order to support the new needs
- Updating the components of the urban environment also to deliver them in an appropriate technical level that provides the needs of both normal persons as well as people with special needs.
- Ensure that the existing facilities in the urban environment are applying all the needs of people with disability in civilized and continuous actions.
- Developing the elements of urban furniture by supervising the contractor's jobs and assist in choosing the right norms to deliver a very good level of comfort to both normal and disabled peoples.

6. Acknowledgments

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Global experience in the construction of housing units – Case study in Iraq

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ABSTRACT

The problem of housing and the provision of housing requirements is one of the major problems in the civilized world today, which requires deep planning and implementation policies at various stages, especially in developing countries and for low-income community groups.

And one of the approved housing policies in many countries of the world is the pre-fabricated method, which provides many advantages that contribute to the development of society and the fulfillment of its housing needs such as providing job opportunities through the need for employment at the levels of craftsmanship and quantity as well as provides a field to support the local economy by supporting the local product Of building materials, equipment and accessories of additives, which contribute to the operation of local government and private laboratories supported by the state as the ready-to-build method is an economic and rapid means that provides production and construction of housing units in large numbers that meet the continuous need for several years. The research provides information from a survey prepared by the Housing Corporation in 2000. Survey points indicate that housing shortages were required at that time to implement approximately 135,000 apartments annually, in both sectors: urban and rural, for a period of 20 years.

Keywords : *Architectural housing units, Reduced costs, Improvement of quality and its control in Architecture, Industrialization, Financial turnover, Reduction of the workforce*

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1. INTRODUCTION

At the present stage, we can see that the need for housing has been aggravating and that makes us look for new methods to use in our designs to stop the shortage of houses since the traditional methods cannot satisfy this need in a short period of time, and that deals with the following issues: -

- Clarification of the necessity to accelerate housing construction by making use of rapid construction procedures.
- Focus on the use of prefabricated elements in building low-cost homes
- The research focus on other countries experiments that used such procedures before Iraq in the field of assembling the prefabricated parts.

2. MATERIAL AND METHODS

2.1. General aspects

In the field of housing construction, demands are ever greater therefore in some countries in Europe, the number of housing units is growing bigger and bigger.

In Norway, Poland, Sweden, provisions have made for the high increase in the number of housing units. In Finland it is presumed that subject to the public demand, the type of one – family housing shall be favored in the future, followed by 1-2 apartments including that is due to rise over 50% from the total.

In Bulgaria, the housing unit's standards including 1/person/room were prevalent in 1990 according to the long-term plans of the country.

In Belgium, the construction of housing units is ever increasing especially for small-salary employees rented at low rates.

As far as the housing comfort is concerned, most of the countries lay stress upon the number of rooms per apartment so as in the future each family should have a separate apartment, a room for each member of the family, and even one conditional spare room per household.

That is why international civil engineering companies in Finland, former Yugoslavia, Bulgaria, and Romania have been caring out housing units and industrial projects on a "turn-key" basis starting from countries like Germany, Austria, the Czech Republic now expanding their activity in some countries in Africa and Asia.

Urban housing unit represents the prevailing program with civil buildings as well as architecture of our age; housing construction has been long since surpassed the limit of investing only for an individual, or group of individuals thus becoming an issue of great social impact, one of the major factors of social development criteria. It is necessary to try and be certain of: -

- The act of the objective laws of economic development for the national economy and for various fields.
- The social command, limited from the historical viewpoint, (at a certain moment the designing activity has to meet the housing demand for a pre-established standard of comfort).

The degree of fulfillment of the requirements in this field is subject to the material possibilities of the relevant stage.

Therefore, one cannot talk about "small-houses" by the codes of practices and fail to comply with their stipulations in respect of surfaces, maximum prices, and design of housing units to the whim of the architect, so living is a complex activity undergone by a man in two spaces, general and a private one. The home is a private space for many social activities.

This dual relation between the two types (general / private) space named "living." The two types should balance bigger importance paid to the private space would result in seclusion as the bigger importance paid to the general (collective) space would result in losing one's individuality to a certain degree [1], therefore, it is necessary that the man should directly partake in the concept of his way of living both in the private home and general housing unit's space.

Only in this frame of mind can be studied the individual and group relations, therefore the Dutch architect John Habraken pointed to six types of common relations (Fig.1)

- The first individual relation is the simplest since the builder is the future house dweller.
- The second individual relation is that relation established further to demand of the tradesman (carpenter, locksmith, builder, or any other trade).
- The third individual relation involves the architect as the intermediate link between the owner and tradesman.

And for the group relations (Fig.2)

- The first group relation is the society collective buildings, such as houses, which needs on individual local experience, this relation found in primitive society's belonging to former ages.
- The second group relation is the society buildings where houses needs the help of various trades based on previous specifications.
- The third group relation is the architect as intermediate professional link between the collectively and tradesmen.

It may be also a fourth relation resulting from the fact that the dwellers are not actually involved in designing their own houses or shaping them, the dweller represents an anonymous group that is shown in the designing stages and also appears in the decision, facing whose result is there own house later. The dweller considered anonymous and abstract symbol in the mind of specialists, the designing activity points of this fact is made by the architect ignorant of the opinion of collectivity, thus, the relation is "broken" since the tenants do not know the architects and the architects never meet the tenants.

In fact, the architect has given the project by another specialist from both of the house dwellers as well as tenants, now, what the the steps that any architect wishes to build houses for the poor one?

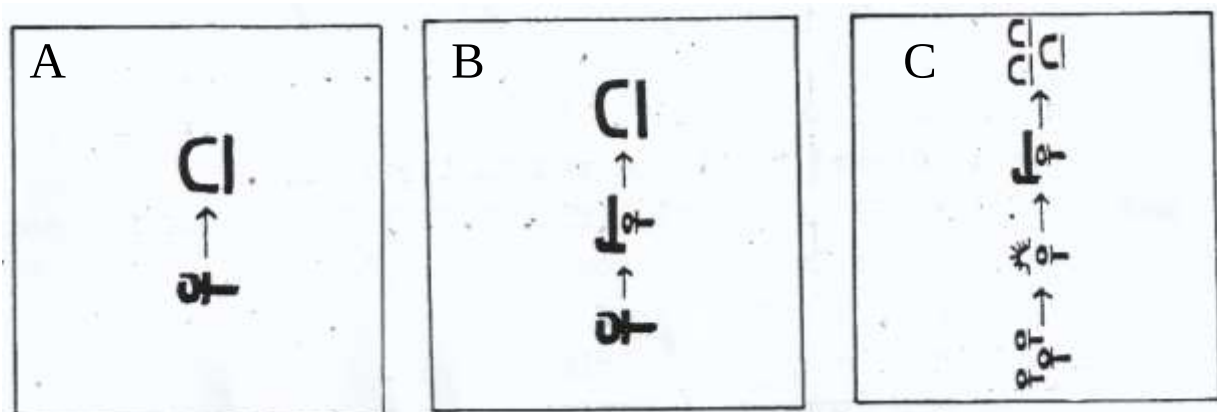


Fig.1 Common individual relations

A- I-st. individual relation

B- II-nd. individual relation

C- III-rd. individual relation

Source: - authors

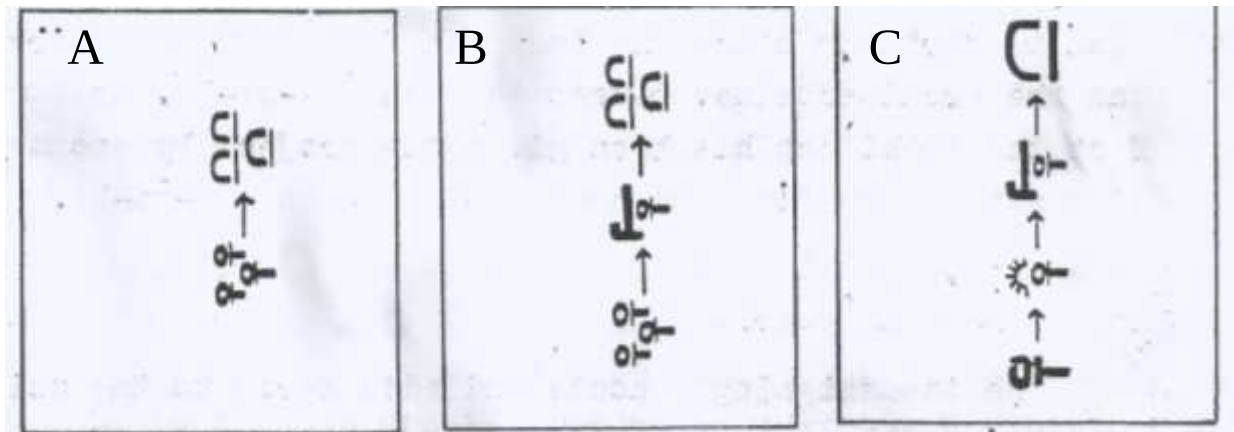


Fig.2 Common group relations

A- I-st. group relations

B- II-nd. group relation

C- III-rd. group relation

Source: - authors

The architect is designing a house and shows zero marks for unity, this is a mistake, theoretically, we can say that every family should be approached (every single member) in order to meet their demands and personal needs, however, this cannot be done by the consideration of the architect as a "creative tool."

The location of pedestrians crossing and distinguishing them from the rest of the corridor should be clarified by the diversity of surfaces [2] It can be described as illegal and informal. Yet, it could be financially beneficial to the individuals who created it [3] so the water footprint will provide low urban open green areas [4], to understand the future, one must think of the future at present, because "the future exists in the same sense as the past" [5].

Of course, this would be the ideal situation but practically impossible to be attained, nevertheless, there are certain methods that could be used later as the instance collecting of certain information from the tenants, by making debates on models and designs, also the inquiries among tenants of certain existing units similar to what was designed, competent participation of mass-media in such polls of opinion, training of population into modern living in housing units.

on the other hand, the concept of industrial-scale production of housing units imposed by the high demand which has resulted in a certain type of the same units that cannot meet every tenant wish.

Nevertheless, a large scale of such designs may provide for the living requirements and comfort standards of most people with low incomes.

The lack of particularities and debates on new ideas of housing units may have accepted in a principle, moreover, there are groups of people that developed advanced ideas for the future but such an idea will be far from becoming reality even in the future unless it supported by accurate planning.

Searching on original solutions for a group living has reached utopic designs that should be supported in life or it would become something absurd, strangers, from the human living environment.

3. THEORY/CALCULATION

3.1. Analysis of housing construction and reactions versus such achievements.

Such reactions are most diverse and sometimes characterized by certain rejection such as one of the housing projects of Le Corbusier has been rejected by the people based on the claim that it inhabited by ghosts, and his ideas of strange shapes and colors.

another design of him was located in the town of Pisac in 1925 (Fig.3) has been the object of many modifications of its housing units during many years, similar situation has been happened to certain housing projects in Iraq, for instance, Housing project – west Baghdad (Fig.4), the Arabic district, officers living quarters in Al-Yarmuk and Zeiuna in Baghdad, and others, on which Doxiadis has designed all the above projects in 1950.

The modifications (including the changing of its partitions and garages in order to be housed by additional rooms of certain functions and enlarging of the area by pulling down partitions) have considered by some critics as necessary and justified taking into account the lapse of time since their construction.

Another adverse reaction against such a way of living in the destruction of houses either on purpose or not (by negligence) is the famous example of the architecture of modern times is the fiasco of the public housing project "Pruitt-Igoe" in Saint Louis made by Yamasaki, 1952-1955.

Thus, some of the apartments of this project were demolished in 1972 after having permanently destroyed by tenants. This project has come to symbolize the failure of public housing projects in modern architecture. Moreover, some critics view such an event as a sign of the decadence of modern architecture.

Cutting a long story, we may say that the natural relations exposed to great danger as far as the collective living process is concerned.

Any official directive meant to provide housing units for the population must enable the end-users to partake in this process, one way, or another.

Lately, we have witnessed many endeavors in the field of housing construction meant to attain the natural relations either by getting the end-user closer to the architect or vice-versa.

Thus, in order to achieve the third type of individual relating, public presentation of "standardized" projects have taken place under the name of "Citizens Housing Models," locally.

The General Housing Corporation – Department for Design and Studies in Iraq, prepares these models, so any citizen may get a loan from the bank in order to buy a house that have been built according to one of these model, also the citizen shall benefit from many advantages such as priority in getting the loan from the bank, thus he is encouraged to get one of the presented models.

"More than any other type of architecture, house cannot be the mere result of an investment; it is the expression of a century-long way of living, of ancient traditions and modern technologies."

Anyone wishing to have a built house, he may also choose the most adequate project according to his specific needs and desires, nevertheless, we believe that such an endeavor is only partly satisfactory since the projects are limited.

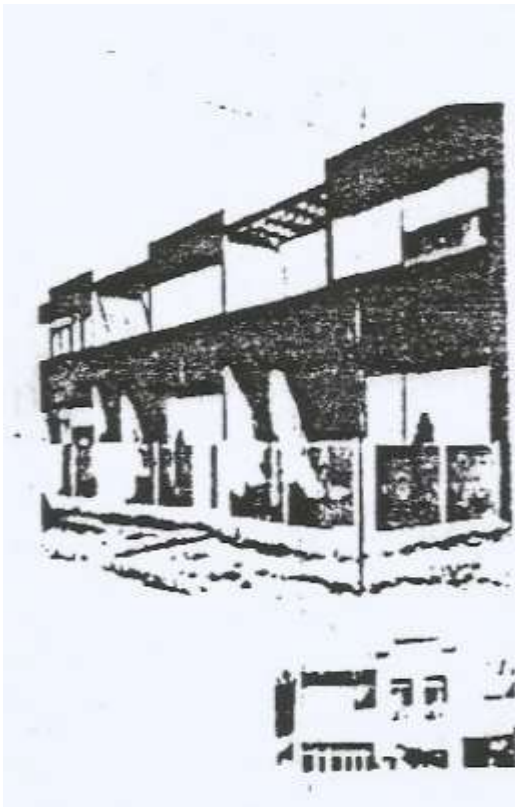


Fig 3. Housing project in Pisac (low cost housing)
Source: - [6]



Fig. 4. Housing project – West Baghdad, 1950-ies Arch.
Dixiadis, Source: - [6]



Fig 5. Rural traditional house in south Iraq
Source: - [6]

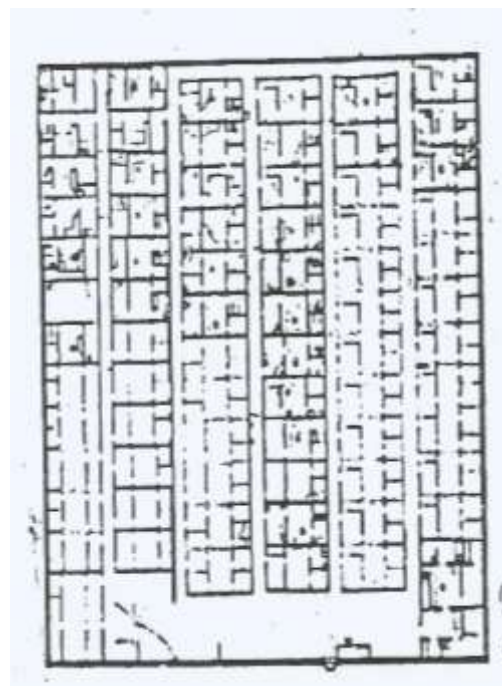


Fig 6. Ahhetaton (Tell-Aarna) – Egypt new kingdom, XVIII dynasty, "East District for workers.

Orderly, Pre-planned arrangement lies in contrast with the town planning hewing a spontaneous uncontrolled development, Source: - [6]

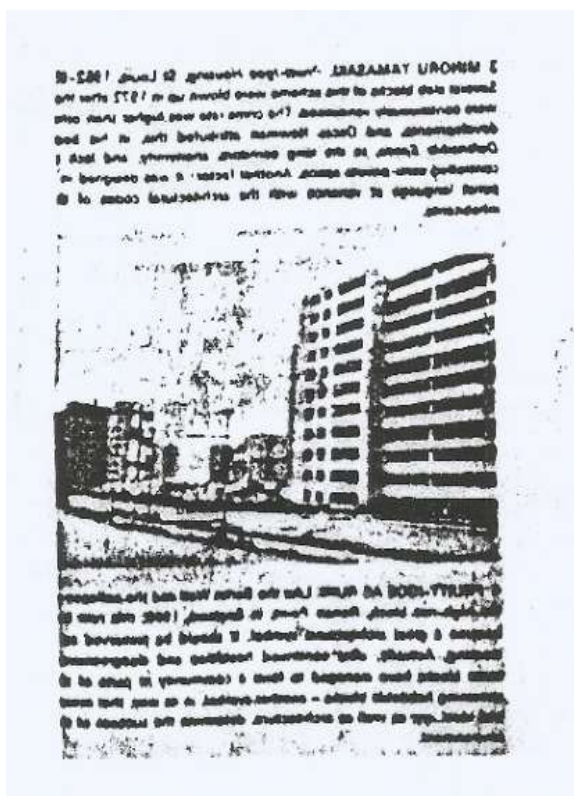


Fig.7. Pruitt-Igoe project in Saint Louis – arch. Yamasaki

Source: - [6]

3.1.1. The experience gained in Romania in housing construction; techno-economic; (prospects and state policy in the field of housing – applicability in Iraq.

The problems related to the town housing, of dwellings in general, have no longer a functional character or a utility-related one, also, a stressed social and political character, people concentration in towns, the sanitary-hygienic requirements, the functional and constructive standards brought about by such congestion have made it impossible that the answer to this issue might be given only by the individual or family or by each generation. Cooperation among individuals and state intervention plays an important part that may clearly shown in industrialized countries.

Usually, the answer to the housing problem represents one of the major issues solved by any national government, due to the high demands for "shelters," difficult problems created, mostly in developing countries that do not avail of financial and materials, and from the very beginning, due to technology and skilled labor are also lacking, the higher demand the more difficult problems to be solved, further to the rapid pace of "urbanization." [6]

Considering objectively such general realities that have various particular applications due to the economic, social, and political conditions specific for Iraq, the Iraqi government showed a strong interest in the issue of housing, especially during the latest two decades.

SOLUTIONS APPLIED IN ROMANIA.

The highest level of housing construction has attained in Romania after 1950 when the housing issue become a state problem, the organization of housing assemblies is a different subject to various categories of houses (individual or collective), until the fifth decade, lots of allotted of traditional buildings had two or three floors, isolated or coupled.

A perfected variant of the traditional allotment proved to be the practical outcome by the principals of the "garden-town," which is already used by certain European countries, the critical situation of the domestic housing reserve imposed on the designing of other solutions, giving up certain specific advantages of the former variant (Floreasca zone / Bucharest, Hunedoara works town, Victoria new town – Romania).

Since the government has taken over the activity of designing and construction in February 23, 1949 and enacting the decision of council of Ministers of November 13, 1952, regarding the reconstruction of towns, a new term will be use for the residential unit/zone organization, namely: District, the density in such residential districts is almost rationalistic, and that means 300 inhabitants per hectare, and a suitable distribution of the public facilities and specific functions, all these facilities can have located on the ground floor of housing units. Part of it or isolated in the space planted with such units reserved

for pedestrians, lots of parking may relatively have forgotten, streets systematically cut, tracing geometric networks enclosing monumental volumes, border such districts (Fig.6).

By involving traditional execution methods and difficulties in introducing of the typification and prefabrication, this town-planning concept hindered the housing construction, and that's why such residential districts came out organized as micro-sectors, so its fair to say that the conditions of the socialist countries of certain elements of the theory related to "vicinity units" the relation between the housing unit, the social-cultural ones and relevant amenities expand beyond the formal limit being based on functional and spatial interrelationship.

As for the residential districts, certain definite site obtained (micro – sectors with 4.8 and 12 those inhabitants) subject to the dimensioning of the main public facilities such as school or other types of buildings from the education level of school dimensioning the other facilities of general use (social and cultural facilities) dimensioned accordingly, thus, availing of the fundamental of everyday use facilities belonging to each category of buildings, subject to the size of towns, this micro – sector has defined as the main structural town-planning unit being at the same time the smallest complex town-planning unit.

By applying certain corrections – improvements to this concept of this system could suit the incipient stage of industrialization of housing construction in Iraq (i.e. precast construction and industrialized manufacture). After certain experiments (e.g. Gheorghe / Suceava, Baneasa/Bucharest, Gh-Gheorghiu-Dej town), the first "micro-sector "have built-in Romania, whose outcomes are determinant for the fulfillment (1960-1965 five-year plan) of the first assemblies-districts and town-sectors: Gheorghieni/Cluj, Tatarasi/Iassy: Steagu-Rosu/Brasov, Balta Alba-Titan, and Drumul Tiberi/Bucharest. Characteristic for housing clusters alternative spacing of housing units with relevant public amenity spreading of building (with doubtful results regarding the street rout) and differentiating the public spaces from private ones. (Fig.7).

Late on, by jamming various buildings in the same area the density grew reaching approx. of 500 inhabitants per hectare simultaneously with the generation of industrial technologies and standardization of housing units and amenities related thereto, mainly, 6 and 11-floor buildings have built, with double orientation comprising one to four rooms' flats of various sizes [7].

At the present stage, it is a tendency to increase the efficiency of land use of the building, it can be created by means of energy-saving and that's the responsibility of tenants in front of the municipality. therefore, it is felt the need to perfect the organization concepts of the residential districts (Fig.8).

TECHNO – ECONOMIC ASPECTS

The experimental period reached certain diverse solutions, especially from the functional and space-arrangement viewpoint, the variants allow stressing various techno-economic aspects specific to this stage, the height of buildings, density allowances degree of utilization of land area.

Passing to a new form of organization of residential districts "micro-sector," corresponding to the techno-economic aspects of designs, the great use of physico-economic is justified by judicious use (of funds, materials, and equipment), Thus: -

- Maximum prices have fixed for standard flats in housing units.
- There have been stipulated that the required densities will be based on the subject of the height of the building as well as percentage of flat size fixed for a building.
- There have been stipulated the required densities, such criteria shall use in our country as well, subject to the importance of the relevant buildings.
- There have been stipulated the required densities based on the height of the building and Percentage of flat size fixed for a building.
- Such regulations have enforced especially after 1960 and allowed to make up unitary compliance in the construction field, by providing the quality and levels of the present developing stage in the entire territory of Romania [8].n

As far as the housing construction is concerned, bar – type building has been mostly used, T or H – type buildings of 5-11 stories, tower, blade, or H – shaped types (Fig.9), the percentage of such buildings is subject to the importance and six towns.

The increased number of floors shall relate to the judicious utilization of land area by locating an increased number of useful spaces, thus, the physical indexes changed, and that is the rough density which increased by over 30% during 1963-1975, and the net density has been rising to a greater level. The other related indexes modified accordingly, the land area utilization was about 25% (23.1 Galati – complex 17) and recently it has exceeded 30%.

Simultaneously, the land use index exceeded unity (1): 1.30 – Gheoghieni, 2 – Cluj, 1.47 Bucharest (complex 3-Drumul Taberei).

The experience gained that the Housing Law (4/1973) Territorial, Rural and Urban Planning Law (58/1974) and the Street Law (37/1975) amended into account of the new characteristics of the present stage of socialist development of Romania.

Based on the programming documents decreed by the political and administrative leadership of Romania, housing construction (socio-cultural amenities incl.) ranges on an important place; until 1990, housing construction should have met the actual requirement of people.

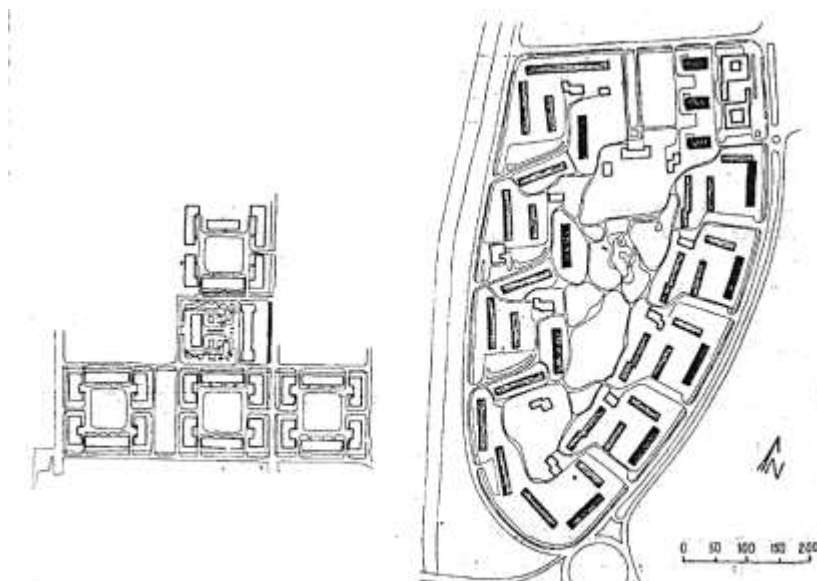


Fig.8 Balta - Alba – Titan Urban District / Bucharest, Source: - [6]

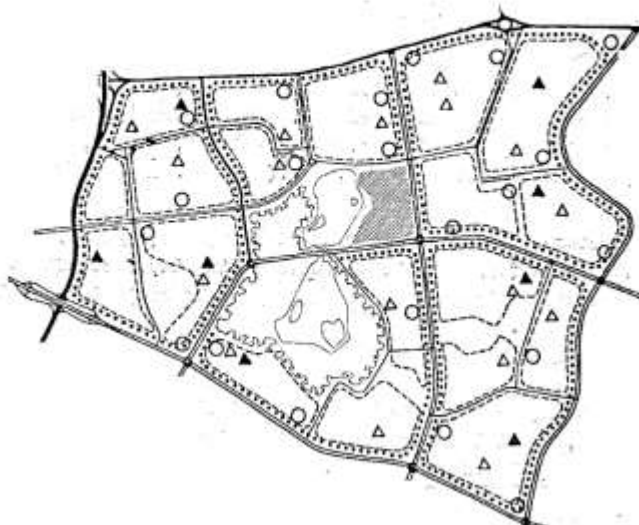


Fig.9 Residential district in town of Petrosan – Romania, Micro – Sector in Resita – Romania
Source: - [6]

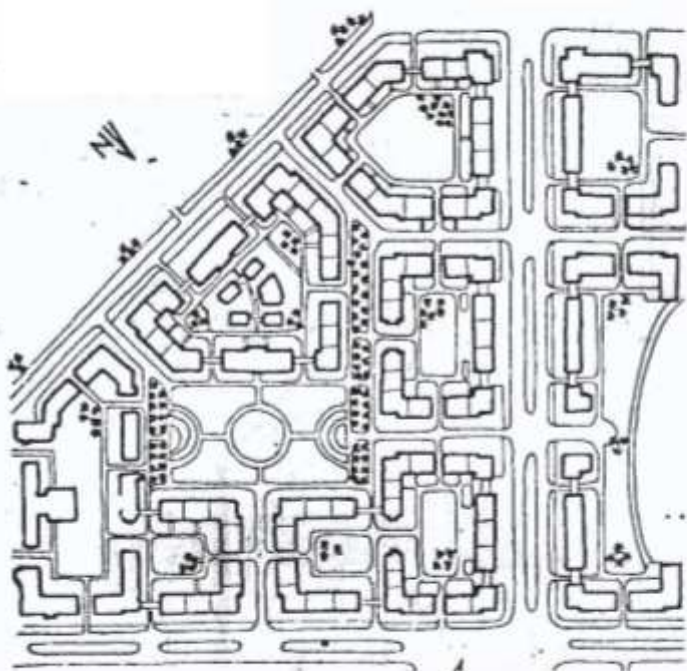


Fig.10 Arrangement schemes of housing units

- A. around a common-garden jointly used
- B. along residential clusters
- C. bordering a thoroughfare

Source: - [6]

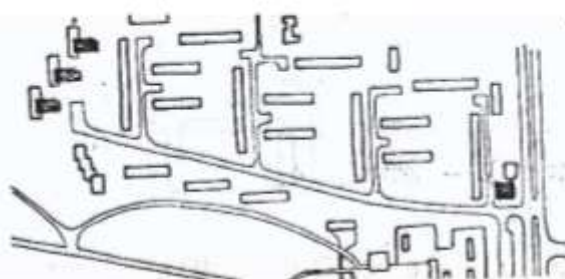
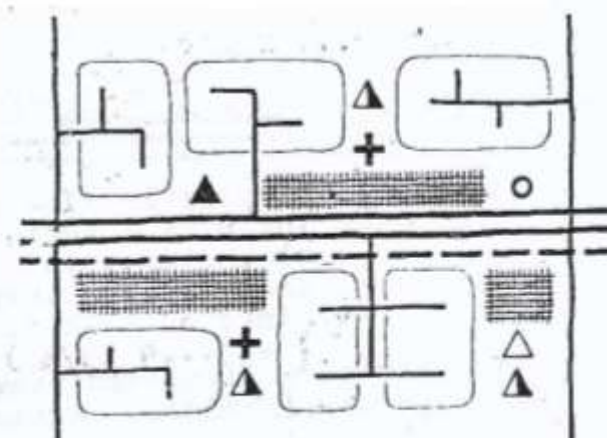
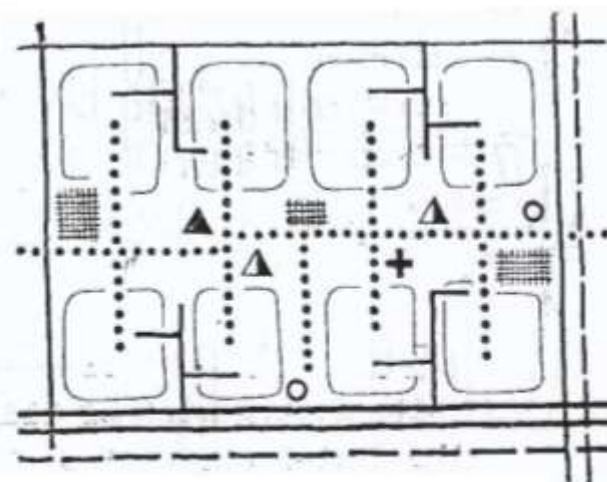
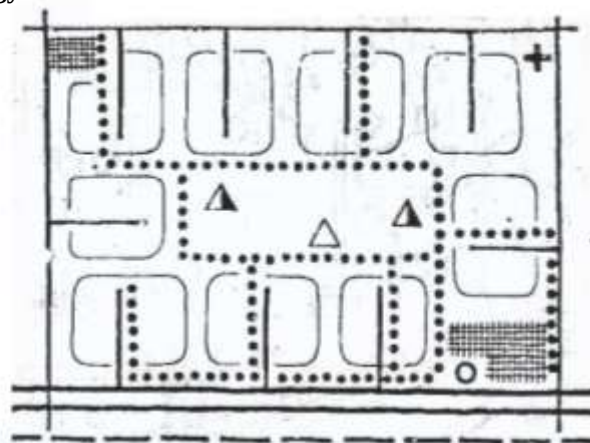


Fig.11 Diverse type of land arrangement

- A. Closed planning
- B. Open planning

Source: - [6]



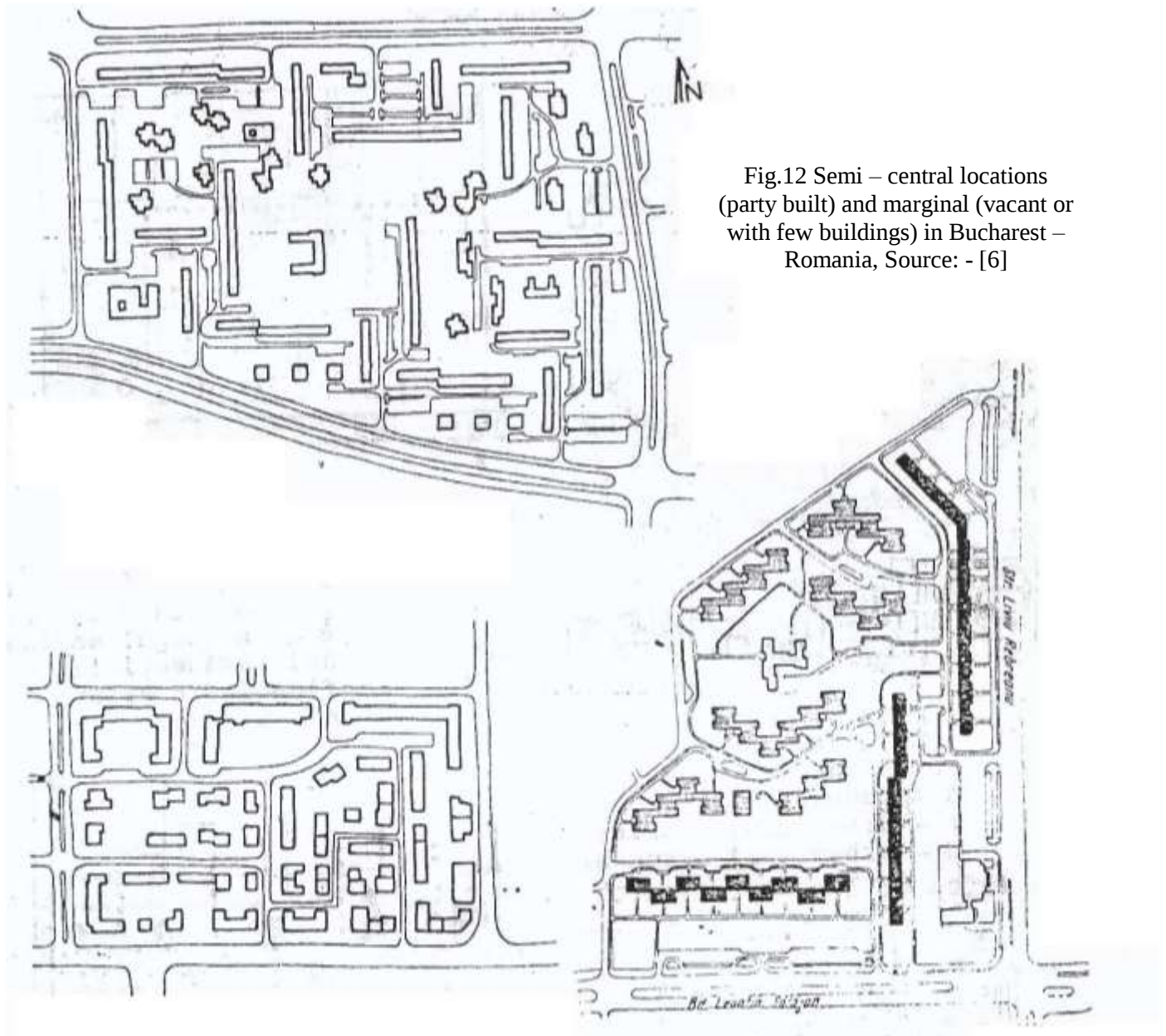
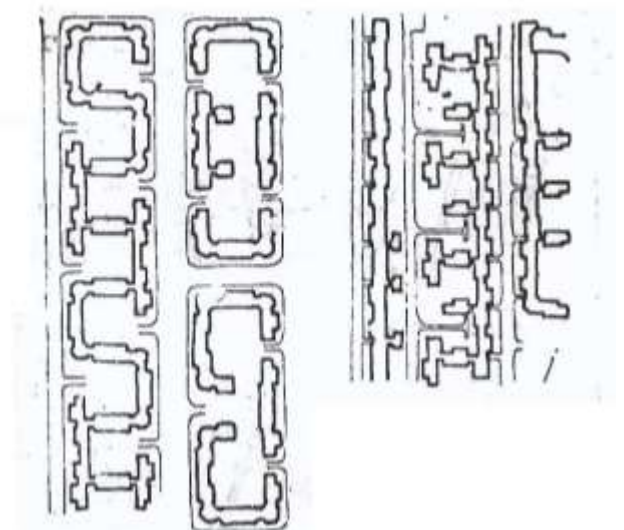


Fig.12 Semi – central locations (partly built) and marginal (vacant or with few buildings) in Bucharest – Romania, Source: - [6]

Fig.13 Site arrangement of buildings H and I – study of project – Bucharest Design Institute (building enclosures) Ground floor plus 3-4 floors, Source: - [6]



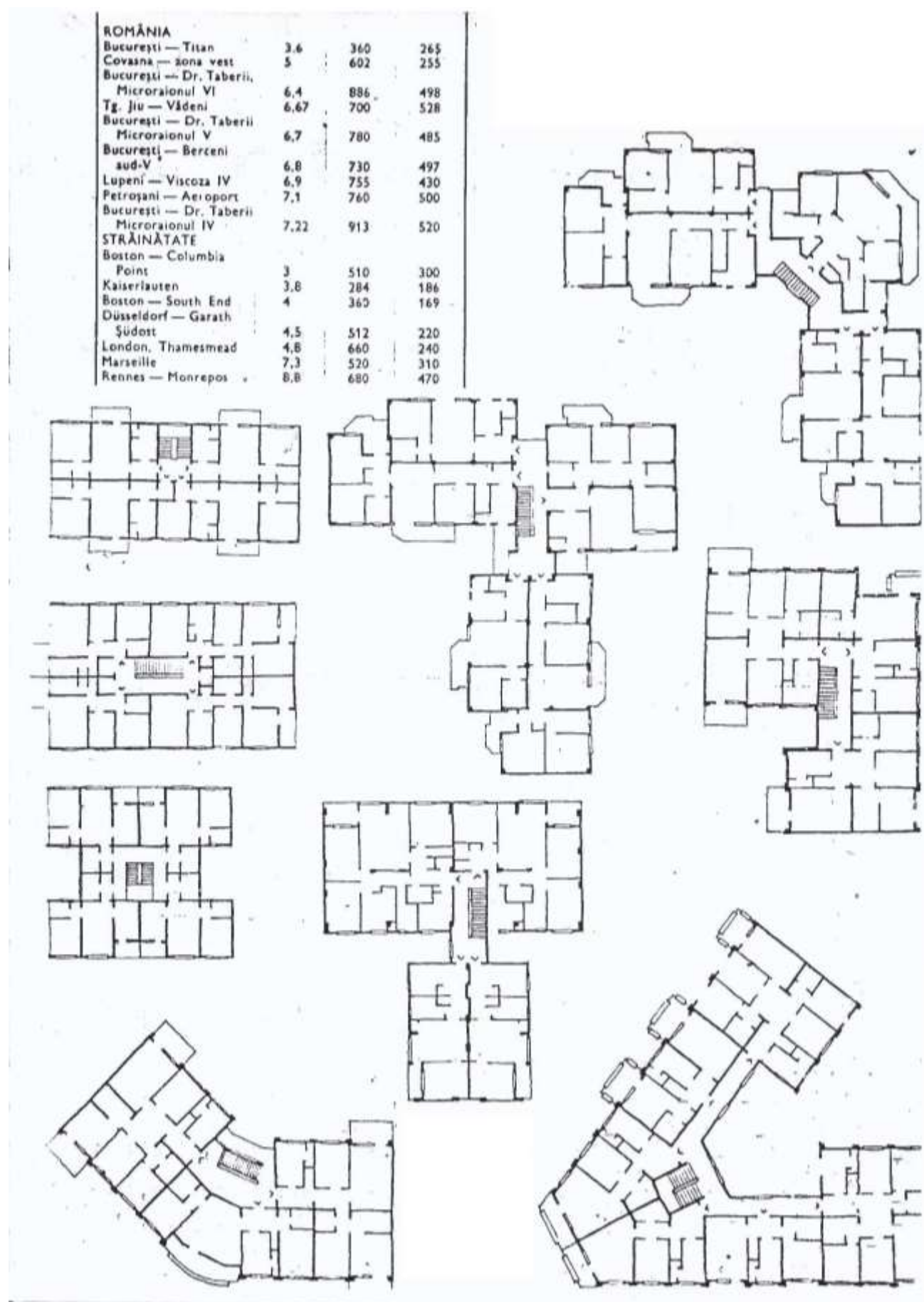


Fig.14 Behavior analysis of certain housing assemblie, Source: - [6]

Table 1. Categories of areas that used in housing assemblies, Source: - [9]

Number of rooms per flat	Type of flat	Living area minimum	bathroom	kitchen	pantry	Net area m ²	Built area m ²
1	I	14	3.5	3.5	1.0	24	37
2	I-a	20	4.2	6.0	1.5	27	50
	I.A	34	4.2	8.0	2.0	58	90
3	I-B	36	4.2	8.0	2.0	61	95
	I	40	4.2	8.0	2.0	66	102
4	I-A	46	4.2	8.0	2.0	74	115
	I	56	4.2	10.0	2.5	90	140
	I-B	58	4.2	10.0	2.5	93	144
5	I.	62	4.2	10.0	2.5	98	152
	I-A	6.8	4.2	10.0	2.5	107	166
	I-B	70	4.2	10.0	2.5	110	178

In the documents of the Seminar of Architecture sponsored by UNO in the field of Habitat held in Bucharest in 1971, It stressed that the architects objectively and systematically review the aggregate of notion referring to town-planning and living quarters, playing an important part in design such a pattern and structure of housing units, including the collective service, also studying environment.

For the living quarter it is stipulated that: -

- Each family should benefit from the house of 3-4 rooms (average) and each member of the family shall have his own room.
- Increase of net area per inhabitant in order to meet the previsions of socio-medical studies.
- diversifying of houses sizes, organization, servicing, possible combinations, location, according to the comfort requirements subject to the income of tenant and to the possibilities and needs of various categories of families.
- provision for an extra number of flats to enable permutation of family's subject to chang of their income, jobs, etc, or in the case of natural calamities (earthquakes, floods) and flexibility of housing for the same purpose [9].

4. RESULTS

For the residential districts, the prospect is less numerous and less specified although the principle of a close link between the housing, facilities, and utilities is almost accepted.

There is a tendency to correlate the degree of comfort from the housing space to the district level, the same is belong to know that a spoilt vicinity results the spoiling of the best apartments in the same territory.

The correlation shall be reflected both in the way of land and occupancy (and in this respect, multi-disciplinary studies made in order to establish the optimal density) and the territory balance.

The link between the quantity housing towards quality improvements brought systematically and it shall influence the degree of providing for the necessary amenities (which means completion and amplifying and diversifying of the social-cultural facilities).

Finally, it presumed that the clustering of housing units, facilities within complex assemblies should surpass the stage of rationalist solutions actually mirror the stage of socio-economic development both as a functional structure and as compositional patterns.

With this very end, in view, it is certain that a more nuanced effort will continue – within the general limits of applicability to each flat – to suit the specifics of every collectivity.

The studies and the practical activity show that on the level of the housing complex in the following percentage is valid: -

- Land for housing units – 50 – 60%.
- Land for socio-cultural amenities 15 – 20%.-
- Land for facilities 20 – 25%.-
- Land for traffic 5-8%.-

Table 2. In the light of new codes of practice (1986), the territorial balance for a 300000 people town is as the following below., Source: - [9]

1. Housing units	466 hectare
2. Administrative buildings	- 7.5 hectare
3. socio-cultural amenities	- 270 ha educational 135 hectare
	- Cultural 135 hectare
	- Sanitary 52 hectare
	- Commercial 30 hectare
	- Services 10-11 hectare
	- Sports facilities 6 hectare
	- Hotels 2-18 hectare
	- Religious (mosque)
4. Green area, sports ground	
Cemeteries	390 hectare
5. Traffic	289
Town sanitation	78

	Total 1500 hectare.

Note:

This size of the town is similar to the future expansion of Al-Samawah, taken as an example in our survey.

Density inhabitants / town = 300 000 / 1500 = 200 inhabitants / 1 hectare.

Religious Facilities – Mosque

It fulfils the complex functions such as religious, political, administrative, social-educational activities, where the most solemn moments in a man's life take place, baptizing, wedding, funeral service, being also a place of recollection and rest.

From the architectural viewpoint, it is a covered space, a large dimension, and many rooms of small size among which social ancillaries. It is eye – catching by the minaret, the place where from 5 times the faithful people called to pray [10].

Consecution technologies, their applicability in developing countries (also the A.R. Egypt).

The developing countries, irrespective of their status and needs, participate in the construction and architectural activity by sharing certain characteristics as follows:

- Shortage of houses where the traditional construction methods cannot cope with the demographic growth.
- Lack of skilled labor dully experienced in applying modern technologies in the construction field.
- Utilization of small-scale mechanization devices in the construction fields.
- Availability of unskilled labor, lack of training of technicians and workers in the field of construction.

Introducing construction techniques in such countries cannot prove successful unless it suits the environment, of the local conditions, the economic possibilities and the experience of available local labor, we can talk a lout the experience of some countries in Latin America, Africa and Asia where advanced technologies have transferred including the entire fabrication and complexity and many failures have recorded since the indexes field top to meet in respect of both productivity and efficiency from the economic viewpoint [5].

The construction procedures for buildings used in developing countries are subject to the economic possibilities of every country, thus the OPEC countries have greater economic possibilities being in the position to import specialists, labor and advanced technologies from abroad.

Other countries, for instance, Iraq, whose demographic structure provides for the necessary labor and experienced medium-trained workers may apply certain technologies of an average complexity that can be subsequently developed in time to gaining its own experience.

There are also some other developing countries, not oil producers, that cannot import expensive technologies due to their limited economic possibilities, however, such countries have a great number of unskilled labor that enable them to use simple less expensive, but not fast construction technologies. In order to carry out a great number of an apartment in Egypt various systems of recasting have been introduced, most of them using panels, simultaneously traditional systems – modernized have been used and partly precast (less expensive).

In the frame of the above diverse conditions, Egypt and Iraq outstand in favorable conditions for the development of construction technologies.

Among the partial percent precast systems, the "terrace-type" roof, wall small panels, shell construction has been successfully used.

5. DISCUSSION

Precasting – industrialized manufactured of housing units (reference to Iraq)

The category of people suffering from shortage of housing in most countries, especially in developing countries, is the low-income population representing the greatest percentage, this category concentrates the attention of the governments, in order to exemplify the housing shortage in our country especially for low-income people, we give information from the survey prepared by the General Housing Corporation in 1970, where this survey points out that housing shortage required at that time the execution of about 135000 apartments yearly, in both sectors: urban and rural, for a period 20 years. The low-income people were 73% from the total in 1970 and they needed a number of 98550 apartments [11].

6. CONCLUSIONS

At the present stage, we can see that the need for housing has been aggravating and that makes us look for new methods to use in our designs to stop the shortage of houses since the traditional methods cannot satisfy this need in a short period.

The above survey deals with the following issues:

- Clarification of the necessity to accelerate housing construction by making use of rapid construction procedures.
- Stimulants for the use of prefabricated members in low-cost houses.
- Advantages obtained by using these rapid procedures.
- The research works and the experiments made by other countries that used such procedures before Iraq in the field of assembling the prefabricated parts.
- In the field of housing construction, demands are ever greater and in some countries in Europe, the number of housing units is grow bigger and bigger.

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