



18<sup>th</sup> „Building Services, Mechanical and Building Industry Days”  
International Conference, 11-12 October 2012, Debrecen, Hungary



## ACCESSIBILITY AS PART OF A SUSTAINABLE SOCIETY

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**KEYWORDS:** *accessibility, sustainability, universal design, inclusive design*

**Abstract:** Disability means the disadvantage or restriction caused by the contemporary social organisation, which takes no account of people with impairments, leading to discrimination and social exclusion. Disability is external to the individual and is a result of environmental and social factors [5]. European Concept of Accessibility (ECA) [10] based on Universal Design principles supports the creation of convenient, safe and enjoyable environments that can be used by everyone, including people with disabilities. An accessible built environment is a key element to sustainable development, because it enhances the quality of life, makes the urban environment more liveable and provides its citizens with autonomy and the means to pursue an active social and economic life. The paper presents the notion of Accessibility, Universal Design, Inclusive Design, and Sustainable Design and the way in which they interact with each other in an equitable society.

### 1. General aspects

#### 1.1 Introduction

Nowadays there are approximately **650 million** persons with disabilities worldwide [12], that is 10% of the global population. An estimated **80%** of these persons live in developing countries. Statistics conducted in Europe, in 25 countries, on a sample aged 16-64 years show a total of about **45 million** people with disabilities [8]. One out of four Europeans said that a family member is a person with disabilities [9]. Disabled people, older people and persons with temporarily reduced mobility together make up 40% of the population of Europe. Moreover, according to UN figures, **34.5%** of the European population will be **aged 60+ in 2050** compared to **20.3% in 2000** [11].

In the context of growing diversity and a population in continuous aging it is necessary to design accessible built environment, in other words, spaces that meet people's needs, encouraging the respect that people have to pay towards the built environment they live in.

### 2. Concepts

#### 2.1 European Concept for Accessibility [10]

The fundamental basis of a European philosophy for accessibility is the recognition, acceptance and fostering - at all levels in society - of the rights of all human beings, including people with activity limitations in an ensured context of high human health, safety, comfort and environmental protection.

The European Concept for Accessibility (ECA) is based on the universal design principles that rejects the division of the human population into able-bodied and disabled people and supports the creation of affordable, safe and enjoyable environments use by everyone. ECA is the tool used to order and give shape to the environment, so that it becomes suitable for all users. Thus, the



European Concept for Accessibility has to be a basic guideline to everyday working to all those people and bodies who are involved in building the environment - like politicians, local and national authorities, construction firms, entrepreneurs, designers, employers.

## 2.2 The concept of „Universal Design”

The concept of “Universal Design” was first developed in the U.S. in the 60’s by the architect Ronald Mace, afterwards being taken over by the European Commission under the name “Design for all”.

Universal Design seeks to integrate and accommodate disability, using basic design concepts, by sensitising the environment to the broadest possible range of bodily shapes, sizes and movements [3]. The objective is to draw attention away from people’s impairment and to minimize social ostracism. It is recognized that people's needs are not static and that the design of buildings and other products should enhance and not inhibit “changing abilities of humans throughout their life-span” [3].

Universal Design has 7 principles: simple and intuitive use, equitable use, perceptible information, tolerance for error, flexibility in use, low physical effort, size and space for approach and use [3].

The principles of Universal Design are important, in seeking to restore disabled people’s self-esteem, dignity and independence, while encouraging the development and implementation of a friendly design.

## 2.3 The concept of „Inclusive Design”

Inclusive Design [3], branch of Universal Design is more than a technical response to the needs of disabled people bringing forward the dialogue between designers and users. **It is an idea that seeks to prioritise the users views and values** and to challenge the social, institutional and technical relations into the design process.

The real need to consult the opinion of people with disabilities in the design process, resulted in the establishment of access groups, an example being "The City of London Access Group" (Fig.1), established in 1988 with 40 members.



*Fig.1 The City of London Access Group [3]*



## 2.4 The concept of “Sustainability”

According to Brundtland Commission a sustainable society meets the needs of the present generation without compromising the ability of future generations to meet their own needs [7]. From an anthropocentric point of view, sustainability comprises all three elements: [7]

- depletion of resources - that future generations can continue to benefit from resources
- environmental and ecological aspects - in order to enable present and future generations to live in a clean and healthy environment, in harmony with nature
- quality of life - in order to ensure human well-being for present and future generations.

Thus sustainable development of human society must take into account the environmental, material, ecological, social, economic, legal, cultural, political and psychological dimension.

## 2.5 Accessibility, Universal Design and Sustainability

The three concepts - accessibility, universal design and sustainability use principles that are converging towards the ideal design without overlap each other completely.

While accessibility involves "environmental barriers" and "adding special features" to be used by people with disabilities, universal design is a provider of environments that can be fully experienced by all users, and sustainable design refers to the design of objects or buildings in conjunction with the principles of economic and ecological sustainability.

### 2.5.1 *The intersection between accessibility, universal design and sustainability [2]*

In "Beyond access: A case study on the intersection between accessibility, sustainability, and universal design" [2] the authors approach through a case study the relationships formed between the concept of accessibility, universal design and sustainability. The study for the new office building of persons with disabilities - Access Living of Metropolitan Chicago, propose two visual representations accompanied by two examples that allow to understand the interaction between the three concepts.

Fig.2 illustrates how the three concepts lead to the achievement of ideal design. Example given by the authors of the study is the seating furniture within a conference room. From the point of view of universal design - is ergonomic, requires low physical effort, flexible in terms of use as a result of adjustable height and easy storage. In terms of sustainability, it is locally manufactured, it is recyclable and has low emission qualities. In terms of accessibility, the additional feature of adjustable armrests allows the access of wheelchairs. By meeting these three characteristics, the furniture design solution is an ideal one.

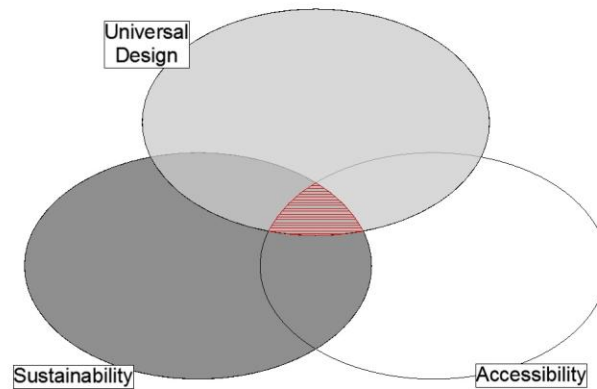


Fig.2 Intersection of the 3 concepts [2]

Fig.3 shows the three concepts operating independently.

The example in this case is a system of elevators with doors on both sides. In terms of accessibility, the system maximizes access and meets the needs of people with mobility, hearing, and visual impairments. In terms of universal design, the system pose navigational challenges to people with cognitive disabilities. In terms of sustainability, the system works with two elevator banks because of heavy traffic and the risk of blockage, requiring more electrical power to operate. Being satisfied only one feature - namely the accessibility, the design solution falls outside the “ideal center” and the three concepts are operating independently.

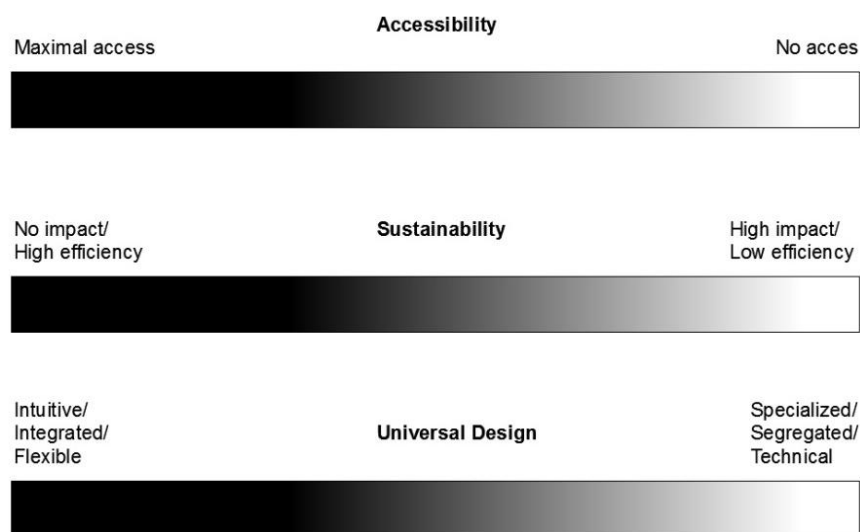


Fig.3 The 3 concepts operating independently [2]

Access Living Organization sought to achieve, since the very beginning, that the new office building will meet the three concepts - accessibility, universal design and sustainability and their implementation has demonstrated that they are complementary.



### 3. Accessibility in public buildings in Romania

#### 3.1 The situation of disabled people in Romania

According to statistics provided by the ANPH [14] (National Authority for People with Disabilities) on 31.03.2012, the total number of people declared disabled in Romania is 687.596, of which 230.906 are certified persons with severe disabilities. 97.5% of them are in the care of their families, 2.5% are in residential institutions coordinated by the ANPH, 4% are working, 52% are located in urban centers and 54.03% are women.

In Romania the norms regulating the rights of persons with disabilities are HG 1175/2005 concerning the approval of the National strategy for protection, integration and social inclusion of disabled persons in the period 2006-2013, Law 448/2006, UN Convention on the Rights of Persons with Disabilities ratified by the Law 221/2010 and design regulations - NP-051-2001 “Standard for the adaptation of civil buildings and urban space to the needs of persons with disabilities” and NP 023-1997 “Standard for designing homes for the elderly and disabled based on performance requirements”.

#### 3.2 Accessibility in public buildings in Romania [14]

In 2007, ANPH has prepared a report concerning “The situation of environmental accessibility in Romania, in cities with over 50.000 inhabitants” (Fig. 4).

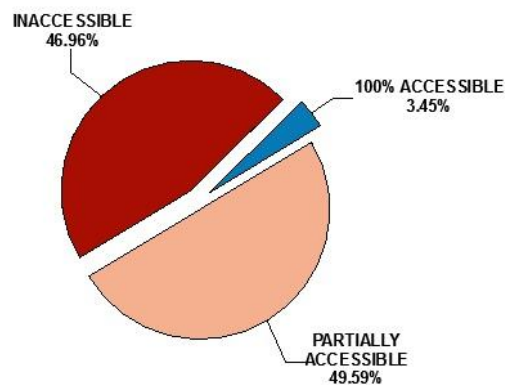





Fig.4 The accessibility of public buildings in Romania [14]

Legend:

-  -100% accessible = ramp, door, adapted toilet, handrails or elevator
-  -partially accessible = ramp, door
-  -inaccessible = lack of any accessibility

#### 3.3 Accessibility in public buildings in the city of Cluj-Napoca

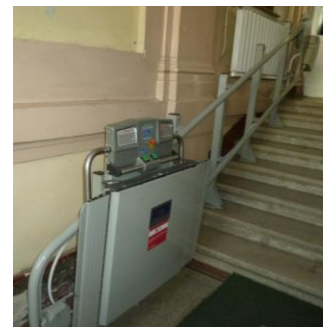
In this study it was taken into account the degree of accessibility of buildings made in the late XIX century and early XX century, more precisely the period 1867-1918 known in history as “the dualistic period”. The establishment of the dual regime, following the signing of the Compromise



between the Austrian monarchy and Hungarian nobility meant both the split of Habsburg Empire into the Austro-Hungarian Empire with two power centers (Vienna and Budapest) and the liquidation of Transylvania's autonomy embedding it in the Hungarian Kingdom. Thus, the city of Cluj loses its political role in an autonomous Transylvania and undergoes to an extensive modernization, funded by the Government of Budapest. Investments in administrative, medical, cultural and educational field changed definitively the image of the city [6].

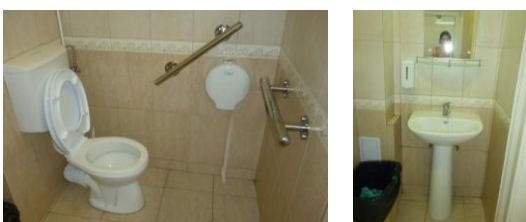
**The City Hall Palace** (Fig.5), former Palace of Cluj County, in neo-baroque style, was built between 1896-1897, being located on the street corner at the intersection of Petru Maior street and Motilor street.

In terms of accessibility, both entrances (from Petru Maior street - Fig.6 and from Motilor street - Fig.7) are equipped with stair elevators, being adapted for people with mobility impairments. At Petru Maior street access there is a ring bell and the stair elevator goes up to the top level of the institution (Fig.8).



*Fig.5 The City Hall Fig.6 Access P. Maior str. Fig.7 Access Motilor str. Fig.8 Stair elevator*

The toilet on the ground floor is suitable for people with disabilities, although are not taken into account details such as the optimal height of the mirror and the position of the support bars (Fig.9).



*Fig.9 Toilet on the ground floor*

However, many areas remain inaccessible to people with disabilities such as “The Glass Hall” where City Council meetings are held, different offices of public relations which are overcrowded, upstairs toilets. The communication/signalling system with tactile and visual markings (in case of edge steps and flight ends), with icons, symbols in Braille and keyboard phones is completely lacking, making the institution services impossible to be used by people with hearing and vision impairments.

**The National Theatre** (Fig.10), initially The Hungarian National Theatre, in eclectic style with Renaissance, Baroque and Secession elements, was built between 1904-1906 and is located in the



middle of Stefan cel Mare square. For people with mobility impairments, the only access provided from the moment the institution was initiated, is the main access, through two semicircular ramps. These ramps are unsuitable for people with mobility impairments due to the semicircular shape, the slope that exceeds 5%, the lack of railings and the pavement made of cubic stone (Fig.11).



*Fig.10 The National Theatre*



*Fig.11 Semicircular ramp*

So far, it has not been initiated any accessibility program for the institution.

#### **4. Conclusions**

Accessibility means removing barriers that prevent people with disabilities from exercising their capabilities and fully participate in society on equal terms. Increasing access to goods, services and infrastructure provides people with disabilities the chance to become active consumers of the society. Accessibility in the built environment is a priority now, contributing to the sustainable construction market [13].

At present, Romania has the mentality of “minimum necessary” or “mandatory minimum”, this being the main barrier in achieving an accessible built environment, added by the lack of adequate budgets to support accessibility conditions. Protection laws for people with disabilities are not observed, being considered optional by state institutions, thus condemning citizens with disabilities to isolation and marginalization. Access to education, healthcare, employment, specialized social services, public transport, sports, cultural, leisure, living and movement conditions in public space are areas not at all or insufficiently resolved by local authorities.

In order to achieve accessible built environment according to the needs of the disabled, there are studies ([2], [4]) through which the theme of accessibility in public buildings is resumed, establishing the interaction between accessibility, universal design and sustainability. There are methods proposed for data collection (in-depth interviews with people with disabilities, designers and experts in sustainability, non-participant observation, on-site tours) and the development of an analysis and classification tool for both, the information gathering and the evaluation used in the design decision process. These methods and tools are leading models that should be considered by construction professionals who approach the problem of accessibility, universal design and sustainability.

The necessary measures for the accessibility in public buildings are mainly the following:

- Implementation and compliance of laws and regulations that take into account the rights of people with disabilities



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- Identification of the main issues affecting accessibility and inclusion [1]
- Establishment of consultation groups (access groups) at the beginning of each project
- Cooperation with representative organisations of and for disabled people [1]
- Bringing accessibility expertise into construction projects [1]
- Information and publicity campaigns on accessibility, to the entire civil society
- Integration of accessibility and universal design into the curricula and training for relevant professions (see Resolution ResAP (2001) 1 of the Council of Europe)
- Conducting case studies in accessibility that demonstrate what can be achieved with careful planning and capability for compromise solutions [1]

Looking at the facts, one can say that compliance of the above measures will determine the future development of the accessible built environments.

It is important to connect the professionals in construction (and their practices), with social and political issues, providing the means for connectivity to be made „between the built environment, and the individual and collective human well-being” [3].

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