

## ADAPTING PLAYGROUND FOR CHILDREN WITH DISABILITIES

SMEU Andreea

Faculty Industrial Engineering And Robotics, Master Equipment for Rehabilitation Therapies, Year of study I, e-mail: [smeuandreea2000@gmail.com](mailto:smeuandreea2000@gmail.com)

Scientific coordinator: **Prof. Dr. Eng. Cristina MOHORA**

*ABSTRACT: The paper is based on adapting playgrounds for children with disabilities, focusing on an existing space. The playgrounds, both indoor and outdoor, are not equipped with the minimal activities that a child with disabilities can do. Therefore, throughout the paper, I revealed the first steps to be taken, in terms of ergonomics, accessibility and playground safety. This will take into account access to the playground via ramps, the optimal arrangement of hygiene areas and also access to the table and the staff area. Finally, the visual, thermal and sound environment will be assessed, which is an important aspect when discussing children with behaviour disorders.*

*KEYWORDS: Children with disabilities, accessibility, playground*

### 1. Introduction

The paper presents aspects, observations and ideas through the children with disabilities and the lack of playgrounds needed by them. During this paper we will discuss the relationship between children - the play and relaxation environment, the arrangement of the space according to children's needs, the layout of the furniture and equipment, as well as tips to follow within the space.

The research aims to highlight the needs of children with disabilities and their desire to express themselves and collaborate with people of the same age and interests. They all share the passion to play. Playgrounds should be designed to give all children the right to play according to their disabilities. It will show the possibility of reintegrating into social life people with physical or locomotor disabilities who require rehabilitation and specific assistive devices.

In this paper we are focused on the implementation of a playground, designed according to the needs and requirements of children with special needs. The place is the one where I work, and along the way I have noticed irregularities in its design to be suitable for children with disabilities.

The objectives of the paper are related to the benefits needed to enable children with disabilities to enjoy and experience themselves in conditions of adaptation and equality with their peers. Therefore, we will focus on providing the place with:

- Ramps (both at the entrance into the room and in the play area itself).
- Handrail (located near a staircase or ramp to allow movement).
- Doors wide enough to allow wheelchair access.
- Non-slip floors.
- Adequate lighting.
- Special bathrooms.

The above objectives are still on the proposal plan, as the entire space is owned by an organization. I will exemplify below how I would intend to change the whole space.

The adaptation of the playground requires a meticulous analysis of the space to ensure that it reflects all the needs of children, parents and staff.

Currently, the space is used to hold dance classes, which allows us to run the activity only at the end of the week. The space owner limits us in making the necessary changes to adapt the existing playground (see figure 1). However, after many discussions, we decided to give up the activity inside the space and to adapt it as follows.



**Fig. 1. The existing playground**

## **2. Current status**

The idea of supervised playgrounds has its origins in Germany as a way of preventing children from playing in the streets. These playgrounds were piles of sand and the police kept an eye on the children. Dr. Marie E. Zakrzewska, a German citizen, brought the idea to Boston in 1885. Boston Sand Gardens became the first supervised playground in the US. A few years later, also in Boston, the Charlesbank Outdoor Gymnasium opened. This large playground included a running track, canoeing activities on the Charles River, and play equipment such as swings, seesaws and ladders. With the development of more durable materials and increased safety standards, companies began manufacturing safer equipment for children. In 2010, the U.S. Department of Justice passed a special law to design accessible equipment for children with disabilities. When existing playgrounds are modified or new ones are built, they must comply with government requirements [1].

Deficiencies, whether sensory (concerning the activity of the analysers, especially visual and auditory), psychological (concerning the development and maturation of the S.N.C., with consequences on the development of intellectual and instrumental faculties), or neurological (developmental defects of the S.N. C, with consequences on functionality, especially in the motor sphere), cause adaptation difficulties, reduced communication capacity (or loss of this capacity) and consequently, changes in the behavioural sphere. The disabilities that appear during life are the results of diseases or therapeutic accidents. If they occur during life in people who were structurally and functionally intact, they form the category of disability (aphasia, paraplegia, amputations, etc.) [2], [3].

## **3. Adapting the playground for children with disabilities**

### **ACCESS TO THE PLAYGROUND**

At the present, access to the hall is provided via the staircase, which is on the ground floor (see figure 2). Our recommendation is to design an access ramp with a handrail and non-slip surface to avoid the risk of slipping.

The stair access is quite wide, so the ramp can be on one side and the rest of the steps on the other side. Another recommendation would be to place a disabled lift.



## Adaptarea locurilor de joacă pentru copiii cu dizabilități

- Equipment with transfer stations.
- Equipment is approximately 25% above ground level.
- Ramps leading to play areas.
- The floor should be covered with a rubberized material to mitigate falls.



Fig. 4. The for access to the playground

### **PERSONAL HYGIENE AREAS**

- Personal hygiene areas should be accessible to both sexes. The initial space is presented in figure 5.

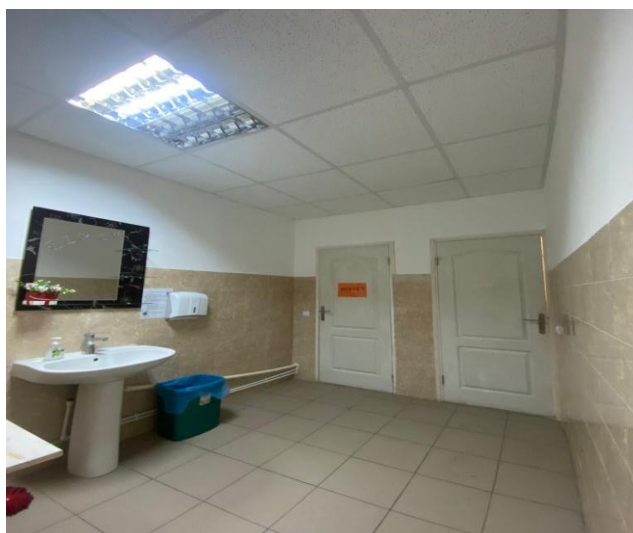


Fig. 5. The initial bathroom

The design for the new bathroom must take into account the following:

- Clear floor space in front of the toilet bowl should be 1.50 x 1.50m to allow wheelchair use.
- Clear space at the side of the toilet should be min 90cm, preferably 1.20m to allow transfer of the person from the wheelchair to the toilet space.
- The operating space in the room must allow the transfer of the wheelchair user from the wheelchair to the front, side and oblique (see figure 6,7).



- For children, the toilet bowl shall be positioned so that the distance from the longitudinal axis to the adjacent wall is between 30.5-38cm. The height of the toilet bowl should be between 20.5-38cm. The horizontal support bars should be positioned at a height of 51-63.5cm.



Fig. 6. Plan view showing an outline of a clear floor space of 80 cm by 135 cm

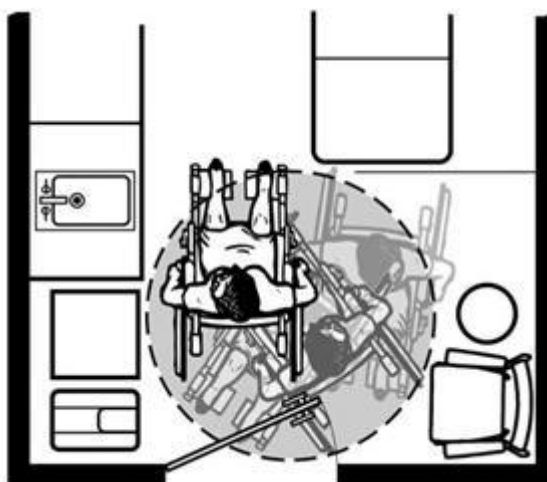


Fig. 7. Plan view of part of an examination room showing clear floor space for turning a wheelchair. This space can also make it possible for the lift

### ACCESS TO THE TABLE

We also offer children a meal break during the programme in the built play area. So we have to provide a special place for children with disabilities and the possibility to stay at a table in a wheelchair.

- The space required for a table place will be min 80cm x 135 cm (see figure 8).
- The table top must be 80 cm above the finished floor level and the table must be shaped so that there is enough knee room.

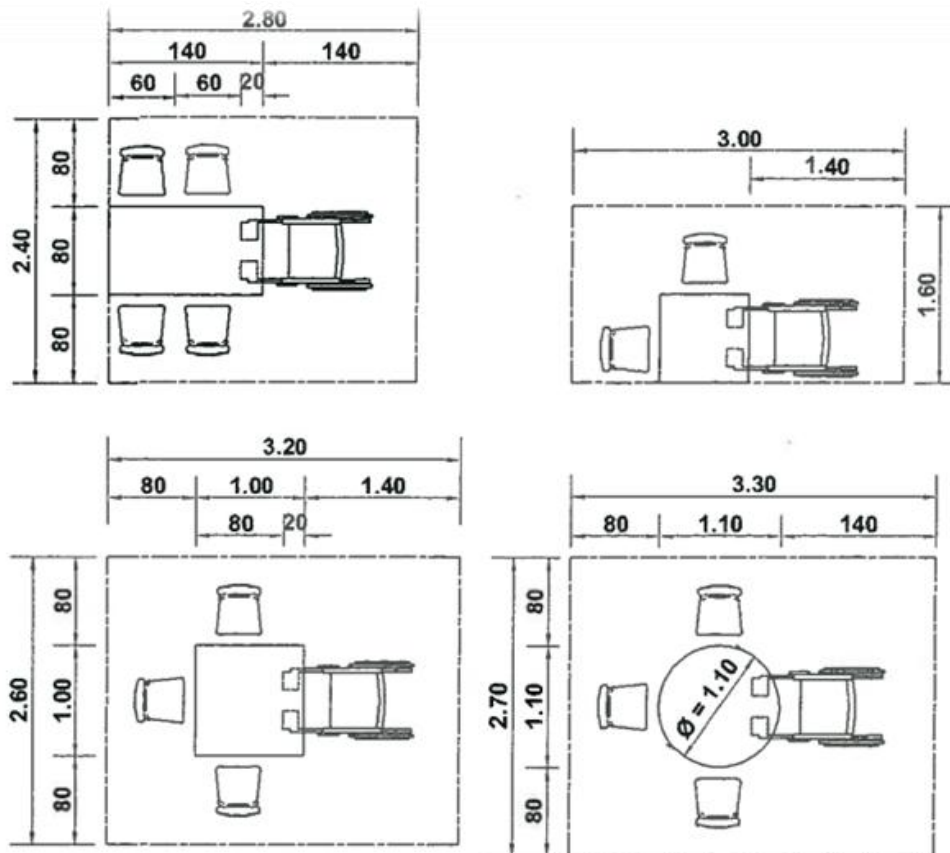


Fig. 8. Required table space for wheelchair users

## EMPLOYEE SPACE

Analyzing the space, we noticed a lack of storage space for the accessories and equipment we own (various games, tables, bouncy castles, chairs), and this requires transporting them from the car and arranging them in the play area. This happens before and after each event because the space has to be cleared.

Another need for space would be to set up an office for the supervisor and staff. This should include a desk and an ergonomic chair to avoid various back problems, as well as chairs or a sofa for the rest of the staff because the hours spent at the playground are quite long.

The space should be bright and well ventilated

The presence of a kitchen is necessary in order to be able to serve meals between events and to prepare children's meals.

## VISUAL, THERMAL AND SOUND ENVIRONMENT

The light sources in the room should be both artificial and natural. Children need enough light to carry out their activities and to see the obstacles around them and the equipment they use. An adjustable light can be used.

Colour perception of objects is determined both by the spectral characteristics of the light reflected from them and by the position and spectral composition of light sources. Variations in light intensity change the colour, which makes it necessary to choose light sources carefully according to the work task (see figure 9).

The thermal environment is very important, changing from day to day depending on the outside temperature. The playground must have its own heating source. A temperature of 22-24 degrees is recommended in winter.

The play area can also be equipped with air machines, which can cool or increase the temperature.

Soundproofing is very important because it is what we use to carry out our work.

It is recommended that it is within acceptable limits and does not disturb children or parents.

It is good to know that some children are very sensitive to noise (the children with autism) and it can affect their mood in a negative way. [5].



Fig. 9. Proposed visual environment

#### 4. Conclusions

In conclusion, playgrounds should be adapted to ensure that all children can enjoy playground experiences. It would be unfair to exclude them simply because they cannot move, react or feel the same way as everyone else does. Spaces must allow access for all children to interact, communicate, share experiences and form friendships. In this way, a child with a disability will feel a considerable difference in his or her physical and mental state, knowing that he or she is finally integrated into society.

During the research, I tried to adapt the playground as I imagine it, in terms of accessibility, comfort and safety in the room. In the future, my plan is to complete the design of the playground accessories and platforms, including swings, slides, sensory boards, interactive walls, etc.

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