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Accessibility Condition of Primary and Secondary School Buildings for Disabled People in the City of Karabük

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Abstract: In Turkey, it is unfortunately seen to have been made in order to fulfil legal obligations as built improvements for the accessibility existing physical spaces of disabled people. Accordingly, people with disabilities face a number of problems in the life of the society. For this reason, it is necessary to take precautions to ensure that the disabled people's participation in processes for social life such as especially education and health can be ensured without problems. Together with the resolution of these problems, disabled people will also have attained to an accessible environment and higher standards of living. The main objective of this study is to examine what extent accessible for physically disabled individuals of the National Education School buildings located in Karabük province. Because many of the educational buildings are unfortunately not designed for disabled people. In this study, the accessibility problem for the disabled people of the selected school building by examining the school buildings in the centre of Karabük province affiliated with the Ministry of National Education will be presented some solutions and suggestions. The obtained results show that the majority of the primary and secondary school buildings in the centre of Karabük province affiliated with National Education are not suitable for the accessibility of the disabled individuals. Also, it is seen that the earthquake safety of the school buildings in question does not meet terms of the Turkey Earthquake Regulations of which is in force today, too. For this reason, it seems that school buildings should in question be strengthened in such a way that most of the together improvements to disability accessibility will provide earthquake safety.

Keyword: *Educational buildings, disabled lift, accessibility, disability regulation*

Introduction

In the world, there are many disabled people to reasons as wars, natural disasters, poverty, epidemics, traffic accidents and prenatal and postnatal. According to Turkey Disability Administration Directorate, it constitutes of disabilities individuals 12.29% of the total population (ÖZİ, 2010). As you can see, a substantial part of the population in Turkey constitutes unfortunately our disabled citizens. Our people with disabilities who have such a large proportion, in achieving the physical space, in the use of the physical space and in the leaving the venue are faced with many problems in terms of accessibility.

When the perspective of disabled individuals, it is needed to ensure that especially the processes of participation in education, health, employment and social life are carried out smoothly and that necessary precautions are taken in this regard. For this reason, in order to provide the easiest and comfortable accessibility of disabled individuals to physical spaces, the designs to be made needs to consider the solutions that meet all the needs of disabled individuals. Because in disabled individuals want to continue their social lives and participate in social life without any help like unimpeded individuals. Disabled individuals with the resolution of these problems will have an accessible environment and a higher standard of living.

Although each individual with the law in Turkey being equal right to receive education, disabilities individuals seem to have faced major problems in this respect compared to other individuals. One of the main reasons for this is that the training is not designed for the needs of disabled users. Only for this reason, it is seen that many disabled people prefer to be deprived of education. However, education structures are one of the places where both disabled individuals and unhindered individuals have to use common facilities. This being the case, new educational structures

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should be designed in such a way that disabled individuals can benefit from educational opportunities at the maximum level. It is required to bring more favourable case situation by making some arrangements in existing education structures.

In this study, accessibility of primary and secondary school buildings affiliated to Karabük National Education Directorate was examined for physical disabilities individuals. Within the scope of this study, firstly the present conditions of school buildings in Karabük province have been determined for disabled individuals. With the conclusions and recommendations of this study, a resource will be created to facilitate the education of the physically disabled individuals and to make the education structures and / or make the existing education structures suitable at minimum scale.

Accessibility

Accessibility, different living spaces and different buildings can be accessed refers to how and under what circumstances. For this reason, the architectural design of the institutions and organizations needs to be arranged in such a way as to cover disabled individuals in terms of accessibility. Especially against the accessibility problems likely to emerge of the physically disabled individuals, architects, interior architects, city planners and civil engineers have to make appropriate projects.

Conditions to be Provided Related to Building Elements

Ramps and Platforms in the Accessibility out of Building

It should be preferred that the ramp bevels are between 5 and 8%. Because the movement of the wheelchair disabled individual is quite difficult at 10% and steeply inclined ramps. On the other hand, the ramp length is also important as much as the ramp slope grades for disabled people. Because, the ramp length increases, fatigue increases. For this reason, in a ramp with an 8% slope, by making a platform area of 9m at most should be constructed short rest areas. If the ramp length is more than 9m, the slope is useful be furthest 5~6% in terms of easy use.

It is clear that the width of the ramp must be at least 120 cm for a person to pass with a wheelchair. According to TSE (Turkish Standards Institution), it is recommended that the minimum clear ramp width should be 180 cm so as to provide two-way passage of the wheelchair (TS 12576, 1999). If there is a turn and / or changes direction that the parts of reaches of the ramp, it would be useful to have a minimum of 150x150 cm platform area to manoeuvre with the wheelchair of disabled users. If there is a door entry on the platform, this area should be provided with dimensions (at least 150 x 150 cm) that will allow the wheelchair disabled person to manoeuvre comfortably (TS 1991, 2011). In addition, the platforms must be horizontal so that the wheelchair disabled person in the manoeuvring areas does not slip backwards.

Stairs

In the design of the stairs, the [2*riser height+foot step]=60-64 cm formula should be used so that a height of the riser will not exceed 15 cm (TS 12576). The width of the stairs should be at least 180 cm from the handrail to the handrail and make banister in the middle of the stairs wider than 300 cm (TS 12576). On the other hand, adequate stairs width should provide the possibility of installing elevator mechanisms or stair climbing systems/transport platforms when needed for disabled individuals.

Lifts

If there is not enough space for the ramp in places with elevation differences in buildings, platform lifts or elevator are used to enable disabled individuals to move freely. In addition, the waiting area in front of the elevator should be at least 1.40 x 1.40 m in terms of ease of use. It would also be useful the dimensions of the elevator car should be at least 110 x 140 cm so that disabled individuals with wheelchairs can move comfortably.

Stair Climbing Systems

Today stair climbing systems are currently used in situations where elevator placement is not possible. For a stair climbing system to be able to be placed, it should be necessary to have at least 1 m of the stair width.

Platform Stair Lifts

Platform stair elevators are systems that provide safe and easy access without the help of another person to physically handicapped individuals, especially disabled individuals using wheelchairs.

Lifting Platform

Lifting platforms provide mobility and increased quality of life where there is a difference in height as vertical with physical disabilities individuals (particularly those with walking difficulties). They can be applied to both interior and exterior sides and provide opportunity easy access to 3m height.

Here, it should be appropriate to state that the arrangements for the physically handicapped individuals are the best solution making in the design and construction phases of the school buildings.

The Situations of Primary and Secondary School Buildings Dependent on National Education Directorate in Karabük Centre

In Turkey, along with the law on disability entered into force in 2005 was recognized to 7 years for accessibility. However, since the regulations made at the end of this period were not seen sufficient was given an additional period 3 years. In this study was chosen as the study area of primary and secondary school buildings affiliated to the National Education in Karabük centre. Because after becoming a legal requirement of the regulations concerning the disabled in Turkey, the accessibility of school buildings, which have been completed construction in previous years, in many respects is not appropriate.

In the context of this study, the state of the building elements in considered the school buildings in terms of unimpeded access is summarized in Table 1. As can be seen from this Table, most of the school buildings in the study area have not elevators that can be used of disabled people.

The construction years of school buildings in the study area, the suitability of existing elevators and ramp and / or ramps in the school buildings in terms of unimpeded access are given in Table 2. From this Table seen that there are significant problems with accessibility of disabled people in school buildings and that the economic life of most school buildings is completed. It is also likely that the intervention and / or strengthening to perform for unimpeded access to a significant portion of the school buildings will not be economical.

Table 1. Status of building elements for disabled individuals in the school buildings in Karabük center.

School Type	School Building	Strengthening made	Ramp for building entrances	Stairs on the building	Lifts on the building
1	Aydınlıkevler primary school	**X**	✓	✓	✓
	Şehit Alican Öztürk religious secondary school	**X**			
2	Beşbinevler Ömer Lütfü Özaytaç primary school	✓	**X**	✓	✓
3	Demir Çelik primary school	**X**	**X**	**X**	**X**
4	Demir Çelik 50. Yıl primary school	**X**	**X**	✓	**X**
	Fevzi Çakmak primary school	**X**			
5	Kurtuluş primary school	**X**	✓	✓	✓
	Şehit Adem Yavru primary school	**X**			
	Fazlı Yeşilyurt secondary school	**X**			
6	Gazi Mustafa Kemal primary school (built in 2010)	**X**	✓	✓	✓
	Mehmet Akif primary school	**X**			
	Beşbin Evler Şehit Cevdet Çay secondary school	**X**	**X**	✓	**X**
7	Çelik İş secondary school	✓			
	Öğlebeli Şehit Nazif Topsakal primary school / Osman Gazi secondary school	**X**			
8	Namık Kemal primary school	**X**	✓	✓	**X**
	Kurtuluş religious secondary school	**X**			
9	Şehit Mehmet Dinçel primary school	✓	✓	✓	**X**
10	Şehit Metin Arslan primary school	**X**	✓	✓	**X**

	Şehit Nurettin Seki primary school	X	✓	✓	✓
11	Mimar Sinan secondary school	X			
	Yavuz Sultan Selim secondary school	X			
	Anayasa primary school / secondary school	X			
12	Şehit Şendoğan Topçu primary school	X	X	✓	X
	Esentepe secondary school	X			
13	Şirinevler primary school	X	✓	✓	✓
14	Aydınlık Evler secondary school	X	X	✓	X
15	Cumhuriyet secondary school	✓	X	✓	X
16	Fevzi Çakmak secondary school / religious secondary school	X	X	✓	X
17	Kazım Karabekir religious secondary school	✓	X	✓	X
18	Mevlana religious secondary school	✓	X	✓	X
19	Şehit Ercan Hırçın secondary school	X	X	✓	X
	Kıymet ve Mustafa Yazıcı anatolian high school	X			
20	Soğuksu secondary school	X	X	✓	X
	75. Yıl Karabük anatolian high school	X	X	✓	X
	Karabük anatolian religious high school	X			
21	Karabük vocational and technical anatolian high school	X			
	Prof.Dr.Süheyl Ünver vocational and technical anatolian high school	X			
22	Alparslan Gazi anatolian high school	X	✓	✓	✓
	Cumhuriyet anatolian high school	X	X	✓	X
23	Kapullu Vali Nafiz Kayalı primary school / Kapullu Ertuğrul Gazi secondary school	X			
24	Demir Çelik anatolian high school	X	X	✓	X
25	Fevzi Çakmak anatolian high school	X	X	✓	X
26	Karabük Mehmet Vergili science high school	X	✓	✓	✓
27	Necip Fazıl Kısakürek vocational and technical anatolian high school	X	X	✓	X
28	Vakıfbank Zübeyde Hanım anatolian high school	X	✓	✓	✓
29	Yahya Kemal Beyatlı vocational and technical anatolian high school	X	X	✓	X
30	Cumayanı primary school / secondary school / religious secondary school	X	✓	✓	✓
31	Fatih Sultan Mehmet primary school / secondary school / religious secondary school	X	✓	✓	✓
32	Kartaltepe primary school / secondary school	X	✓	✓	X
33	Kayabaşı primary school / secondary school	X	✓	✓	✓
34	Toki Cevizkent Bahaddin Gazi primary school / secondary school	X	✓	✓	✓
35	Yunus Emre primary school / secondary school	X	X	✓	✓

Table 2. According to TS-9111 standard, the suitability of building elements in the school buildings in terms of accessibility (Ceylan, 2017).

School Type	School Building	Year of construction	Ramp for building entrances Standard 90cm	Stairs on the building Standard 180cm	Lifts on the building Standard 110x140cm
1	Aydınlıkevler primary school	2008	130	150	185x235
	Şehit Alican Öztürk religious secondary school	2016			
2	Beşbinevler Ömer Lütfü Özaytaç primary school	1976	--	180	170x225
3	Demir Çelik primary school	1955	--	--	--
4	Demir Çelik 50. Yıl primary school	1973	--	145	--
5	Fevzi Çakmak primary school	2006			
	Kurtuluş primary school	2009	100	200	140x180
	Şehit Adem Yavru primary school	2007			
	Fazlı Yeşilyurt secondary school	2009			
6	Gazi Mustafa Kemal primary school (built in 2010)	2010	80	150	230x150

7	Mehmet Akif primary school	1977			
	Beşbin Evler Şehit Cevdet Çay secondary school	1976			
	Çelik İş secondary school	1976	--	155	--
	Öğlebeli Şehit Nazif Topsakal primary school / Osman Gazi secondary school	2002			
8	Namık Kemal primary school	2010	200	180	--
	Kurtuluş religious secondary school	2015			
9	Şehit Mehmet Dinçel primary school	2002	120	155	--
10	Şehit Metin Arslan primary school	1957	100	180	--
11	Şehit Nurettin Seki primary school	2005	150	290	200x210
	Mimar Sinan secondary school	2007			
	Yavuz Sultan Selim secondary school	2005			
	Anayasa primary school / secondary school	2005			
12	Şehit Şendoğan Topçu primary school	1984	--	175	
	Esentepe secondary school	1984			--
13	Şirinevler primary school	2000	140	185	185x200
14	Aydınlık Evler secondary school	1993	--	150	--
15	Cumhuriyet secondary school	1953	--	170	--
16	Fevzi Çakmak secondary school / religious secondary school	1966	100	180	--
17	Kazım Karabekir religious secondary school	1995	--	155	--
18	Mevlana religious secondary school	1994	--	180	--
19	Şehit Ercan Hırçın secondary school	1992	--	125	--
	Kıymet ve Mustafa Yazıcı anatolian high school	2006			
20	Soğuksu secondary school	1964	--	250	--
21	75. Yıl Karabük anatolian high school	1999	--	325	--
	Karabük anatolian religious high school	1979			
	Karabük vocational and technical anatolian high school	1975			
	Prof.Dr.Süheyl Ünver vocational and technical anatolian high school	1992			
22	Alparslan Gazi anatolian high school	2008	150	270	180x230
23	Cumhuriyet anatolian high school	1990			
	Kapullu Vali Nafiz Kayalı primary school / Kapullu Ertuğrul Gazi secondary school	2002	--	280	--
24	Demir Çelik anatolian high school	2000	--	175	--
25	Fevzi Çakmak anatolian high school	1969	--	270	--
26	Karabük Mehmet Vergili science high school	2008	150	275	180x230
27	Necip Fazıl Kısakürek vocational and technical anatolian high school	1975	--	340	--
28	Vakıfbank Zübeyde Hanım anatolian high school	2007	150	290	200x210
29	Yahya Kemal Beyatlı vocational and technical anatolian high school	1975	--	140	--
30	Cumayanı primary / secondary / religious secondary school	2006	140	190	185x200
31	Fatih Sultan Mehmet primary school / secondary school / religious secondary school	2007	110	200	260x255
32	Kartaltepe primary school / secondary school	1988	100	150	--
33	Kayabaşı primary school / secondary school	2016	120	195	165x175
34	Toki Cevizkent Bahaddin Gazi primary school / secondary school	2010	170	185	210x230
35	Yunus Emre primary school / secondary school	1999	--	150	160x185

Here, it is should be appropriate to state that the width of the stairs in the school buildings is taken into consideration for bidirectional transitions, that the ramp width at the main entrances of the school buildings is taken into account for one-way transitions and that the elevator dimensions are taken into as the net width.

Results and Recommendations

The main conclusions and suggestions that can be obtained from this study are summarized below.

1) As a result of the research carried out, it is seen that the problems identified in the primary and secondary education buildings that built new and old in the Karabük centre are almost the same. Especially in the newly built buildings, the same problems are confronted by designers, practitioners and supervisors as a process indicator which is unfortunately not taken into consideration.
2) In most of the school buildings examined, it is seen that the gates and stairways in the main entrances were not arranged properly to the disabled individuals. This situation can be removed by suitable ramps and / or mechanical arrangements.
3) Ramps should be arranged at suitable places both inside and outside the building for the accessibility of individuals with disabilities. In addition, inadequate ramps and platform in building entrances should be widened.
4) Some school buildings in Karabük centre have elevators and ramps although there alternative solutions such as technological tools for the accessibility of the disabled are considered to be beneficial.
5) Rewarding the buildings and / or designs to which disabled individuals movements can comfortably / easily be provided is thought to contribute to creating more comfortable living space.
6) With this work performed, it is seen that primary and secondary school buildings affiliated to the Karabük Provincial Directorate of National Education when the construction years are considered are not in the sufficient security and therefore must be strengthened.
7) The findings of this study show that it would be beneficial to construct more modern school buildings by demolished instead of expensive intervention methods and retrofitting methods for the accessibility of disabled individuals to primary and secondary school buildings affiliated to Karabük Provincial Directorate of National Education.

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