











	<p>Absence of the other visual signings</p> <p>*Absence of detectable warnings</p> <p>*Unreachable buttons</p> <p>*Absence of braille letters on the buttons</p>	<p>planning</p> <p>Too many transfer</p>
Facilities	<p>Long stairs</p> <p>Long walking trails</p> <p>Inappropriate fare collection equipments</p> <p>Inappropriate information equipments</p> <p>Absence of crowd reducing equipments</p> <p>Insufficient seats</p> <p>Insufficient transfer to other transportation types</p> <p>* Inappropriate design of the stop to enter the vehicle</p> <p>* Turnstile at the pass to the platform</p> <p>*Absence of detectable warning lines</p> <p>*No ramp or elevator to reach the platform</p> <p>*Not reaching the ticket machines</p> <p>* Insufficiency in the indoor design of elevators</p>	<p>Help/behaviour of the worker</p> <p>Inadequate information for passenger</p> <p>Not guiding the crowd flow</p> <p>Insufficient transfer to other transportation types</p> <p>*Non usage of the Braille alphabet on printed tariff</p>

Source: mentioned in Gümüş, D. 2001, pp. 76-78, for the original source look at US Department of Transportation 1973

\*Not included in the original text, added problems after the observations in Istanbul, 2013

**FIELD STUDY: PROBLEMS OF ACCESSIBILITY TO ISTANBUL METRO BUS FACED BY WHEELCHAIR USERS**

In this work, the accessibility problems faced by wheelchair users in Istanbul metro bus, is analyzed. Every disabled group has with the accessibility different needs. In this work, the physically disabled accessibility problems were researched, because they are thought to be the most

disadvantages, reasoned by their moving difficulties. This line contains 26 stations. This research is a descriptive analysis, so the accessibility problems were signified by making observations and measurements in every station. In every station 5 criteria about the physical features of metro bus in Istanbul, TSE 12576 (Intercity Roads-Street-Main Street for Handicapped and Elderly People, Design Rules for Precaution and Signing on Squares and Roads) criteria were taken. Values/statements shown on these criteria and standards are (Table 3):

**Table 3.** Accessibility Criteria and Standards of TSE 12576.

Analysed Criteria	TSE 12576 standards (June 2012)
Over-/underpass to enter-exit the metro bus platform	Stairs and ramp or elevator
Access to the over-/underpass from surroundings	Stairs and ramp or elevator
Wheelchair pass at the turnstiles	Width $\geq$ 800 mm
Floor covering on the platform	The covering materials on the station floor should be flat, stable, nonslip and durable
Get off get in (waiting) area on the platform	For bus stations the get off-get in area(waiting) width is 150 cm

The wheelchair users' accessibility on the Avcılar-Zincirlikuyu metro bus line evaluation results were shown in Table 4. The researchers are made in April 2013.

As it is understood from Table 4, most of the stations have no elevators or improper ramps. Elevators are provided only in 8 stations (1 elevator is out of order)(30,7 %) (Avcılar, Şirinevler, Zeytinburnu, Okmeydanı, Mecidiyeköy, Zincirlikuyu, Beşyol, Sefaköy). 4 stations are in partly (15.3%) accessible situations, because the floor covers of the platforms are defective or the common waiting platform width is under the standards. Only 2 of the evaluated stations (Sefaköy, Zincirlikuyu) can be qualified as probable to the criteria (%7,7). Additionally, because in some stations (like Edirnekapı), whereas an elevator going to the platform is available, the access to the overpass is provided by stairs, thus the accessibility is not accepted. In one station a platform lift is provided, but during the observation it is out of order.

**Table 4.** *The Accessibility of Wheelchair Users on the Avcılar-Zincirlikuyu Metro Bus Line.*

Station	Entrance to the Platform	Access to the Over-/Underpass	Turnstile pass	Floor covering of the platform	Get off get in-waiting area on the platform
Avcılar	With elevator	3 elevators	85 cm	Def.	Sufficient $\geq 150$ cm
Şükrü Bey	Stairs	1 direction ramp/ 1 direction stairs	80 cm	Def.	Sufficient $\geq 150$ cm
İBB Sosyal Tesisleri	Stairs	Stair on both direction	80 cm	Good	Sufficient $\geq 150$ cm
K.Çekmece	Stairs	Stair on both direction		Good	Sufficient $\geq 150$ cm
Cennet Mh	Stairs	Steep ramp on both directions:14%	85 cm	Good	Sufficient $\geq 150$ cm
Florya	Stairs	Stair on both direction	85 cm	Good	Sufficient $\geq 150$ cm
Beşyol	With elevator	Steep ramp on both directions:17%	85 cm	Good	Sufficient $\geq 150$ cm
Sefaköy	With elevator	Elevator on both directions	80 cm	Good	Sufficient $\geq 150$ cm
Yenibosna	Stairs	Steep ramp on both directions:12-18%		Good	101-78 cm Narrowed down by the flower pots
Şirinevler	With elevator	Elevator on both directions	85 cm	Def.	Sufficient $\geq 150$ cm
Bahçelievler.	Stairs	Stair on both direction	85 cm	Good	Sufficient $\geq 150$ cm
İncirli	Stairs	Narrow ramp width on both directions:120cm	80 cm	Good	121 cm
Zeytinbur.nu	With elevator	Steep ramp on both directions:13%	85 cm	Def.	120cm narrowed down by the ticket booth
Merter	Stairs	Stair on both direction	85 cm	Def.	85-65 cm
Cevizlibağ	Stairs	Stair on both direction	60 cm	Def.	90cm narrowed down by the water machine



## Wheelchair Users' Accessibility Problems in Public Transportation- Case of Metro Bus

Topkapı	Stairs	Steep ramp on both directions:10%	82cm	Good	Sufficient ≥150cm
Bayrampaşa	Stairs	Stair on both direction	67 cm	Def.	85 cm
Edirnekapı.	With elevator	Stair on both direction		Def.	180-80 cm
Ayvansaray	Stairs	Stair on both direction	108 cm	Good	Sufficient ≥150cm
Halıcıoğlu	Stairs	Stair on both direction		Good	Sufficient ≥150cm
Okmeydanı	Lift with platform(out of order)	Lift with platform on 3 directions (out of order)		Def.	Sufficient ≥150cm
Darülaceze	Stairs	Stair on both direction		Def.	80cm narrowed down by the stairs
Okmeydan Hastane	Stair	Stair on both direction		Def.	78cm narrowed down by the stairs
Çağlayan	Stairs	Stair on both direction		Def.	90 cm
Mecidiyeköy	With elevator	Stair on both direction	90 cm	Def.	Sufficient ≥150cm
Zincirlikuyu	With elevator	Elevator on both directions	90 cm	Good	Sufficient ≥150cm

def. means defective

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Figure 1.



Figure 2.

**Figure 1, 2.** Çağlayan Metrobus Station-Floor covering deficiency, Zincirlikuyu Metrobus Station-40 cm height kerb to reach the

**Figure 3, 4.** Too narrow platform (80 cm)Edirnekapı, Too narrow entrance for wheelchair users (67 cm) Bayrampaşa.



**Figure 3.**

**Figure 4.**

**Figure 5, 6.** Too high ramp (14%) Cennet Mahallesi, Elevator Sefaköy (good provision). elevator.



**Figure 5.**

**Figure 6.**

**Figure 7.** Ramp on the way to Söğütlüçeşme Station (Photograph: Selhan Usal, 2013).



## CONCLUSIONS AND RECOMMENDATIONS

Whereas the metro bus is the most recent vehicle joining the Istanbul intercity public transportation and came into service after enact of the 5378 numbered law, it is not accessible to especially wheelchair users. During the observation, in total 8 stations (30,7%) were partly accessible and completely accessible. Despite our research did not involve the whole metro bus line, adding the information that there is no elevator on the Anatolian side, it shows an important picture of the whole line.

Additionally to the criteria determined above, common accessibility problems of disabled people such as high kerbs, inappropriately designed ramps and floor

covering on pedestrian paths etc. should be remembered. For example, in the Zincirlikuyu station the disabled passengers should climb on 40 cm high pavements to reach the elevator placed on Büyükdere Caddesi. In this situation it is inevitable to redesign the pavements according to accessibility standard and the ramps must be provided at kerbs with a convenient grade. Furthermore the insufficiency or absence of wayfinding elements on the platform makes the individuals problems in finding the direction of the way to go. The visibility and readability of the information signs should be an obligation for highly legible and comprehensible urban environments.

To bring the platform width to the standard level and remove the floor covering defects are actually very low cost, but it is a result reached by conscious and willing technical personals. It is not a design problem; it is a management problem. The standard width of the platform is many times obstructed by adscititious elements (water machine, flower pots, etc.). Instead of putting them arbitrary, municipalities should them allow under the standards. The stations' floor covering defects, are a result of the insufficient maintenance and repair works of the municipality.

Compared with developed countries, lacks and insufficiencies are widely corrected to our law and standards. But punitive sanctions given to false/deficient applications at the supervision are still not clear. To this topic the Accessibility Observation and Supervision Regulation (Erişilebilirlik İzleme ve Denetleme Yönetmeliği) (Official Gazette: 28713) came into force in 20.07.2013 is thought to be contributing. Moreover, evidenced by some researches empathy is needed during the design process. It "provides important messages towards designing for and with people who have specialized needs" (Strickfaden and Devlieger, 2011, p.225). Since the accessibility is not provided with all elements, it is like a make-up for the city, and it will be not permanent and helpful.

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## RESUME

Assoc. Prof. A. Nilay EVCİL is currently a member of the Faculty of Engineering and Architecture in Beykent University. Her major research interests focus on urban design, quality of life in cities, design for all and designing for disabled, public spaces and accessibility, housing environments and gated communities. Dr. Evcil completed her Ph.D. degree in 2001, her MSc degree in 1996 and her BSc in 1992 in I.T.U.. She has (co)/authored in many international scientific journals, conference papers and chapters in referreed books.

S. Selhan YALÇIN USAL is an Assistant Professor in the Faculty of Architecture at Halic University, Istanbul. She received her PhD in Interior Design from Mimar Sinan Fine Arts University, Istanbul. Her research interests include consuming design and place, universal design and also interior design education. Usal has published proceedings about her research areas and published articles in Journal of Interior Design and Procedia Social and Behavioral Sciences and elsewhere.