The voice of blind and partially sighted people in Europe

Statement regarding the inclusion of touch screen systems in the draft prEN 81-70

5 March 2015

Referring to the letter of Mr Gerhard Schiffner, convenor of CEN TC 10/WG 7, from 19 February 2015, we would like to again comment on the intention of including touch screen systems for the use with lifts in EN 81-70. We kindly request to take our statement into account during the drafting of the standard.

1. Relevance of the usability of controls for the accessibility of elevators

The European Blind Union (EBU) has taken the issue very seriously right from the start and is keen to give constructive feedback. In order to achieve the best results for a widest range of users and to meet the requirements of the Convention on the Rights of Persons with Disabilities, which EN 81-70 also refers to in its introduction, the following **three principles** cannot be given up:

a) For the accessibility of an elevator, the usability of its controls is exactly as relevant as its physical accessibility. Therefore, it is not possible to compromise regarding essential minimal usability requirements (see item 2.) - as well as for example regarding minimal dimensions of lift cars or door widths - in a standard, that sets criteria for accessibility according to the Convention on the Rights of Persons with Disabilities.

b) The advocacy of persons with disabilities has its competence in judging the usability for the group of persons it represents based on the available information (description of a system, results of tests etc.). If there is a reason to believe, that a system or product is not usable, the advocacy can provide information on the factors that are responsible for the lack of usability and deduce requirements (see item 2.), which need to be achieved. It is neither its duty nor its competence to elaborate technical solutions in order to meet the requirements and therefore achieve usability. The EBU cannot provide proposals for technical solutions, because this is clearly the competence area of lift manufacturers.

c) In the EBU's view, it is absolutely unjustifiable to adopt solutions in a standard, only because they are being widely implemented. If

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P

there is reliable proof (results of representative testing or empirical studies with users), that compared to conventional systems a solution does not cause any reduction of elevators' accessibility, there is no objection to adopting it in a standard. If this proof is not provided, there is no justification of adopting it in the standard and therefore define it as an approved element of accessible elevators.

Regarding the widely used touch sensitive controls at elevators, blind and partially sighted persons as well as e.g. older persons face severe problems. These operating panels are being installed in newly built residential buildings as well as in public buildings (e.g. hospitals). They make an autonomous, unassisted use of elevators impossible for a huge group of persons, impair them in their daily lives and therefore clearly conflict with the requirements of the Convention on the Right of Persons with Disabilities.

As long as manufacturers do not provide a solution for touch sensitive and touch screen operating controls, which verifiably and reliably does not cause any deterioration compared to conventional operating controls with push buttons, the EBU cannot agree with their definition as a solution providing accessibility.

2. Minimal requirements for the usability of controls in elevators for the widest range of users

In order to make an elevator usable,

- the system has to have a simple structure and has to be intuitively comprehensible,
- the operating control has to be easy to detect, access, be identified and operated,
- the function of the element to operate the system must be clearly recognizable,
- there must be clear feedback on the controls' operation and the registration of the call and
- the error-proneness has to be as low as possible.

In order to ensure these criteria for the widest range of users (persons with diverse cultural, language, cognitive, sensoric or motoric requirements), specific design principles have to be taken into account during the development (see CEN/CENELEC Guide 6 "Guide for addressing accessibility in standards" for details). Especially the

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P

provision of all kinds of information for the perception with two or more senses is extremely important.

Conventional operating controls designed according to EN 81-70 at the landings as well as in the car meet the requirements above:

- The system is very simple – at the landings the command for calling the elevator is given, inside the car the destinated floor is selected.
- The positions of the call control adjacent to the lift door and the operating controls for floor selection inside the car are clearly defined – therefore, detection and access are provided. The push buttons can be distinguished from their surrounding surface visually as well as tactile and therefore enable the user to identify the operating control by vision as well as by touch. Defined dimensions and operating forces make a reliable and targeted operation of the buttons possible.
- By marking the buttons with visual and tactile simple, internationally easily comprehensible defined symbols (numbers, characters, pictograms) and applying them within the self-explanatory system, the function of the buttons is clearly recognizable.
- The feedback on the buttons' operation and registration of the call is ensured and perceptive with many senses – tactile (pressure point), visually (e.g. light), possibly acoustically and/or by the released action (e.g. movement of the car) – without the need to understand the local language.
- As long as the elevator is not out of order or the operating panel is damaged, the error-proneness at operating the controls is extremely low, because the unintended operation of a button is very unlikely even with a sensoric or motoric impairment.

The conventional solution represents a kind of technical implementation through which the minimal requirements can be met. If a touch screen solution is designed in a way, that it verifiably (!) meets the requirements in the same way, there is no objection to its adoption in the standard as a solution providing accessibility of elevators.

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P

Regarding alarm systems we recommend to consult the advocacy of people with hearing impairments and deaf people in order to ensure that all their requirements are met.

3. Specific issues regarding requirements in EN 81-70

3.1. Groups of persons in the standard's scope

In its normative Annex B, the current edition of EN 81-70 contains the statement, that persons with a combination of disabilities are excluded from the scope of the standard.

This provision is not compatible with the Convention on the Rights of Persons with Disabilities. Moreover, it applies to the huge group of older persons, who are very likely to be affected by a combination of several impairments (motoric, sensoric, cognitive). According to the introduction of EN 81-70 it is a main objective to respond to the demographic change in society and the increasing number of older people.

Therefore, in EBU's view, the clause regarding the exclusion of persons with a combination of disabilities from the scope of EN 81-70 in Annex B has to be deleted without replacement and all solutions described in the standard have to come up to the requirements of this group of persons.

3.2. Requirements regarding visual contrast, lighting and tactile marking

In order to ensure visual accessibility, minimal requirements for lighting and visual contrast have to be determined as normative.

Minimal requirements for contrast:

- LRV-difference ≥ 30 between the active part of a button and its surrounding surface
- LRV-difference ≥ 60 between inscriptions/symbols and their background/surrounding surface

Minimal requirements for lighting:

- Illumination ≥ 200 lx at all operating controls at landings and in the car (no reflections or glare)

The option of applying Braille in addition to tactile marking with relief symbols (numbers, characters, pictograms) shall at least be mentioned in a note.

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P

If applied in a height of 110 cm over floor level or below, tactile markings have to be installed with an inclination backwards (from a vertical layer) of min. 45° and max. 60°. Application in a height lower than 80 cm over floor level shall be avoided.

3.3. Requirements for touch screens in destination control systems

The EBU is not aware of any examples or user tests for the system for destination controls with touch screen as it is described in the California Building Code – neither in Europe nor on an international level. The little information we could get from our colleagues in California prove our assumptions regarding the lack of usability in practice (see below). Therefore, the proposition, that this system is verifiably user friendly or accessible, cannot be attested.

By means of the description we have to point out, that at least four issues are assessed as problematic in relation to accessibility:

- Increased complexity and less intuitive usability compared to conventional call control systems – not usable for people, who are not sufficiently familiar with the system
- Expected difficulties at detecting the assigned elevator
- Language barrier
- Not usable for persons with a combination of hearing and seeing impairment

However, the argument regarding the need for uniformity among systems that are already on the market in order to make it more user friendly and the possibility to achieve a positive impact by setting minimal requirements in the EN 81-70 is comprehensible.

Therefore, the EBU agrees upon the adoption of suitable minimal requirements in EN 81-70 under the following conditions:

a) The area of application has to be clearly restricted through a “shall”-determination: Destination control systems with touch screens may exclusively be applied in building sections, where access for the general public is not possible or generally only possible when accompanied or instructed by staff.

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P

b) For identification of the assigned elevators minimal criteria for visual and tactile marking with capital letters have to be defined (font type and size, position etc.).

c) The position and height of attachment of the operating control as well as – if necessary – the provision of a tactile floor guidance system has to be defined and the principles on along which paths it should lead, have to be described.

d) For visual display on the screen clear requirements regarding usage, design and arrangement of symbols (size of symbols, font type, contrast), illumination of the screen as well as measurements to avoid reflexions on the screen have to be defined.

e) The temporary activation button (TAB) must be a push button according to table 2 of EN 81-70 and its position in relation to the touch screen has to be standardised.

f) The TAB has to be marked not according to its assumed target group (“persons with disabilities”) but according to its function (“audio-output”). It is recommended to use a loudspeaker symbol instead of the “international symbol of accessibility”.

g) Detailed requirements for the quality of the speech output via loudspeakers have to be defined (speech transmission index, adjustment of rate of speaking, minimal and maximal volume in a defined distance, direction of sound radiation).

h) In order to ensure a maximum of uniformity regarding the operation irrespective of the manufacturer, the structure of the menu navigation as well as its operation by pressing the TAB have to be defined in detail. The structure has to be kept as simple as possible (e.g. step 1: activation of audio-mode – start of acoustic instruction, announcement of available floors; step 2: selection of floor – verbal confirmation of selection, announcement of assigned elevator and its position). It has to be defined, after how many seconds the button for input (e.g. floor selection) has to be pushed, what happens when there is no input during the whole announcement of floors (e.g. repetition of the announcement) and how it is dealt with malfunction.

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P

3.4. Requirements for touch screens for floor selection inside the car

Due to missing verifiably usable solutions and increased security requirements inside the car compared to the area outside at the landings, the use of operating controls with touch screen in lift cars are **not accepted**.

This statement reflects the common position of the European Blind Union (EBU) and its member organisations. It is based on the information provided by CEN/TC 10/WG 7 and the current edition of EN 81-70 and does not claim to be exhaustive. The EBU and its member organisations will be pleased to support CEN/TC 10/WG 7 if any user tests are to be carried out.

For further information please do not hesitate to contact Ms Doris Ossberger at +43 1 982 75 84 – 203 or via email at barrierefrei@blindenverband.at.

With kind regards,

DI Doris Ossberger

Officer for Accessibility Consulting at the Austrian Federation of the Blind and Partially Sighted (BSVÖ)

on behalf of the European Blind Union (EBU)

EBU is a non-governmental, non-profit making European organisation founded in 1984. It is one of the six regional bodies of the World Blind Union. It protects and promotes the interests of blind and partially sighted people in Europe. It currently operates within a network of national organisations of the visually impaired in 44 European countries.

6 rue Gager Gabillot 75015 Paris (France)
Tel: +33 1 47 05 38 20 Fax: +33 1 47 05 38 21 E-mail: ebu@euroblind.org
European Blind Union – Registered non-profit organization N° 105073 P