

Accessibility and usability of the built environment – Functional requirements

Fernando Machicado, UNE. Secretary of CEN/CLC JTC 11 (important contributions from Ms. Monika Klenovec and Mr. Soren Ginnerup)

Towards the 1st European standard on accessibility of the built environment REDE PROTUGUESA AMBIENTES SAUDÁVEIS, INTELIGENTES E AMIGÁVEIS

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Origin of the project

- January 2008, the EC launches M/420, 'Mandate to CEN, CENELEC and ETSI in support of European accessibility requirements for public procurement in the built environment'
- 2008, CEN and CENELEC accept M/420
- 2009, signature of the Grant Agreement for Action to develop Phase I
- November 2011: M/420 Phase I Final Joint Report (CEN/BTWG 207 + CENELEC/BTWG 101-5)
- January 2016: M/420 Phase II starts



Main conclussion of Phase I:

- Need to develope a European standard
- Covering the whole spectrum of the built environment

Phase I identifies the relevant International, European and National documents that should be considered

ISO 21542:2011 identified as the relevant base document

- ISO 21542:2011 is currently being revised
- ISO 21542 and prEN 17210 are independt documents, but with mutual influence

M/420 from I to II





Not only for nublic producement

- Not only for public procurement
- Applicable across the full expectrum of the built environment

M/420 Phase II



M/420 Phase II

- January 2016: M/420 Phase II starts
- Selection of a PT of experts: Drafting
- Creation of the CEN-CENELEC Technical Body:
 - CEN-CENELEC JWG 6... evolved into...
 - CEN-CENELEC JTC 11 Accessibility in the built environment

M/420 Phase II



3 interrelated documents:

- All of them are standardization documents
- Therefore, they all will be VOLUNTARY
- Relevant National standards and regulations have been considered when drafting the documents



1. prEN 17210, Accessibility and usability of the built environment. **Functional requirements**

- 1st European standard on this topic
- FUNCTIONAL REQUIREMENTS (i.e. no dimensions, slopes, etc)
- Avoid conflicts with the National standards:



2. TR1, Accessibility and usability of the built environment. Technical performance criteria and specifications

 Recommendations of set of values for minimum acceptable performance or a range/classes of technical values for minimum acceptable performance.

M/420 Phase II



3. TR2, Conformity assesment

- reference documents needed to assess conformity
- guidance on how and when accessibility should be assessed during all stages
- format template(s) for declaring conformity
- applicable to public procurement





Interrelations between the 3 documents

EN

- European
 Standard
- Functional requirements
- Stand-alone document

TR1

- Technical Report
- Technical criteria
- To be used complementing the EN.
- 100% parallel structure and content

TR2

- Technical Report
- To be used complementing the EN and TR1



Participation and consensus



Participation (34 countries, 43 NSBs)

Country	CEN Member	CENELEC Me	Country	CEN Membe	CENELEC Me
Austria	ASI	OVE	Lithuania	LST	LST
Belgium	NBN	CEB-BEC	Luxembourg	ILNAS	ILNAS
Bulgaria	BDS	BDS	Malta	MCCAA	MCCAA
Croatia	HZN	HZN	Netherlands	NEN	NEC
Cyprus	CYS	CYS	Norway	SN	NEK
Czech Repub	UNMZ	UNMZ	Polanu	PKN	PKN
Denmark	DS	DS	Portugal	IPQ	IPQ
Estonia	EVS	EVS	Republicori	ISKSIVI	ISRSM
Finland	SFS	SESKO	Romania	ASRO	ASRO
France	AFNOR	AFNOR-FrSS-	Serbia	ISS	ISS
Germany	DIN	DKE	Slovakia	UNMS SR	UNMS SR
Greece	NQIS/ELOT	NQIS/ELOT	Slovenia	SIST	SIST
Hungary	MSZT	MSZT	Spain	UNE	UNE
Iceland	IST	IST	Sweden	SIS	SEK
Ireland	NSAI	NSAI	Switzerland	SNV	Electrosuisse
Italy	UNI	CEI	Turkey	TSE	TSE
Latvia	LVS	LVS	United Kingo	BSI	BSI



- Austria, AS
- Belgium, NBN
- Denmark, DS
- France, AFNOR
- Germany, DIN
- Ireland, NSAI
- Italy, UNI
- Norway, SN
- Spain, UNE
- Sweden, SIS
- Switzerland, SNV
- UK, BSI

- EC
- AGE
- ANEC
- EDF
- ENAT
- SBS



MEETINGS:

- 1st (KO) 2016-10-14, F2F, Brussels (CCMC)
- 2nd 2017-04-05, F2F, Madrid (Fundación ONCE)
- 3rd 2017-04-19, G2M
- 4th 2017-05-05, G2M
- 5th 2017-11-07+08, F2F, Brussels (CCMC)
- 6th 2017-12-15, G2M
- 7th 2018-01-22, G2M
- 8th 2018-01-26, G2M
- 9th 2018-02-27+28, G2M
- 10th 2018-12-10+11, F2F, Madrid (Fundación ONCE)
- Open Workshop 5th June, Brussels



prEN 17210, Accessibility and usability of the built environment. Functional requirements

- February 2017, NWI proposal
- March 2017, 1st draft
- April 2017, NWI approved (JTC)
- July 2017, NWI approved (BTs)
- September 2017, 2nd draft
- October 2017, Clause 16 complete.
- November 2017-February 2018, solve comments
- December 2018, 3rd draft
- February 2019, 4th draft

prEN 17210 is a response to M/420



- ❑ Main goal: contribute to the implementation of UN CRPD
- prEN 17210 is a voluntary standard and provides functional requirements and recommendations of an accessible and usable built environment – following a design for all approach, including persons with disabilities

can be used ...

- as criteria for awarding public contracts (in support of the Public Procurement Directives)
- to assist primarily public procurers, also architects, engineers, facility managers, ergonomists and other stakeholders in their areas of work
- ✓ to require, specify, design and assess conformity, using a common framework and language, thus ensuring accessibility for all
- \checkmark $\,$ and e.g. for accessibility building legislation $\,$







prEN 17210 provides functional requirements and recommendations:

- formulated with qualitative terms and describing objectives which have to be reached = "protection goals";
- prEN 17210 has a different approach to many national standards on accessibility and usability in the built environment with no technical specifications or measurements;
- prEN 17210 is based on the diversity of a wide range of users;
- prEN 17210 does not describe how these functional requirements should be met – thus it's <u>not intended to</u> <u>conflict with national accessibility standards.</u>





prEN 17210 with a new approach



- "Rationale": provides an explanation to each topic = "Why should we do this?"
- **Functional requirements and** recommendations expressed with "shall"or "should": "The following requirements and recommendations apply:
- "Figures support better understanding about functionality", show different solutions
- Enhance aspects of good and safe design, e.g. for handrail support elements

10.3 Handrails

10.3.1 Rationale

Handrails are means of support, stability and guidance for the user, and they are a basic tool to enable safe travel up and down stairs, a flight of steps or a ramp, on stepped and sloped paths, and also in lift cars. Functionality and safety of users is of great importance when designing and installing handrails.

10.3.2 General

The following requirements and recommendations apply:

a) Handrails shall be provided on both sides of stairs or ramps to provide support to right and left-handed persons as well as persons with functional limitations on one body side and also for persons when using the stairs at the same time, standing next to or passing each other.

10.3.5 Profile of handrails

The following requirements apply:

- a) The size and profile of the handrail shall allow easy grip for adults and children.
- b) Handrails shall have a surface which provides adequate resistance to hand slippage and does not cause damage or injuries to user's hands.
- c) Handrails shall be fixed to the wall or other fix-points allowing adequate distance for users to hold the rail without difficulty and avoid hurting their fingers.





d) Square

rounded

nrofile

c) Elliptical

profile



- a) Small b) Medium circular nrofile
 - size profile

e) Rectangulai rounded nrofile



f) Space between hand and handrail support elements

prEN 17210 Structure & content

Introduction

- 1. Scope
- 2. Normative references
- 3. Terms and definitions
- 4. Legal and policy background and associated benefits
- 5. Diversity of users and design considerations
- 6.-15. Basic functional requirements (FR) on accessibility in the built environment

16.-20. Specific environments (supplementing basic FR)

Bibliography

Annex A (informative) Fire safety for all in buildings and assisted evacuation¹⁾

Annex B (informative) Management and maintenaince isseus²⁾ Annex C (informative) List of figures ¹⁾ ISO 21542:2011 (Annex D) / ²⁾ ISO 21542:2011 (Annex E)







prEN 17210 Structure & content

1 Scope

This EN describes common, minimum functional requirements and recommendations for an accessible and usable built environment:

- following the Design for all / Universal Design principles (including persons with disabilities),
- applicable across the full spectrum of the built environment
- relevant to the design, construction, refurbishment or adaptation.
- including also outdoor pedestrian and urban areas

NOTE 1 DFA/UD share a similar <u>inclusive design philosophy</u>. NOTE 2 Terms such as "design for all", "universal design", "accessible design", "barrier-free design", "inclusive design" etc. are often used interchangeably. NOTE 3 <u>Basic information on management and maintenance issues in Annex B</u>. NOTE 4 All figures are provided as examples and are described by its title and key. Some figures show incorrect examples (red cross). <u>List of figures in ANNEX C</u>.





5.3 Key areas for accessibility and usability of the built environment

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Main design consideration on accessible and usable ..._

- Pedestrian areas
- Approach to a building
- Entrances
- Routes in horizontal circulation
- Routes in vertical circulation
- Rooms
- Equipment and facilities
- Toilets and sanitary facilities
- Exits and evacuation routes, concepts for emergency planning/fire evacuation for all

To support public procurers, architects, engineers, facility managers, ergonomists etc. in their work!



Sections 6 to 15 on basic accessibility requirements:

- 6. Wayfinding
- **7.** Access in the outdoor environment (routes, street furniture, squares and plazas, plantings etc.)
- 8. Arrival and departure areas Parking areas (indoor & outdoor, cycle parking)
- **9.** Horizontal circulation in buildings (entrances, doors, windows, patios, terraces, surface finishes and materials)
- **10. Vertical circulation** in buildings and outdoors (ramps, stairs, handrails, lifts, lifting platforms, escalators & moving walks)
- **11. Specific areas, equipment and provisions** (service counters, seating, waiting & storage areas, kitchenettes, facilities for assistance dogs etc.)
- 12. Sanitary accommodation
- 13. User interface, controls and switches
- 14. Fire safety for all Evacuation and emergency exits
- 15. Environmental conditions in buildings (lighting, acoustic, indoor climate)

Sections 16 - 20 with key requirements to specific uses of buildings /built environment, additional to the basic requirements (6 to 15):

- 16. Accommodation (hotels, student accommodation, adaptable housing)
- **17. Cultural, leisure and sport buildings** (auditoriums, concert halls, libraries, museums, heritage buildings and sites, retail and shopping, sport facilities, restaurants etc., swimming pools, saunas)
- **18. Administrative, service and employment buildings** (conference venues, offices, healthcare and educational buildings, laboratories, banks, post offices, industrial buildings, courts, police stations etc., religious buildings)
- **19. Outdoor and urban areas** (playgrounds, garden, parks etc., beaches)
- **20. Transport facilities** (taxi, bus and coach, metro/underground, tram/light rail, airport, ports and cable car facilities; gas stations)

General figures approach





- Enhanced visual overview in key design considerations
- Diverse set of persons depicted in figures
- Yellow tone dots indicating enhancing area of attention
- Different design solutions shown
- incorrect solutions occasionally included and commented

Enhanced visual overview



5.3.3 Accessible and usable approach to buildings



Keys: Functionality as main focus

- 1 accessible route for approach to building
- 2 easy to locate, e.g. entrance visible from approach route
- 3 good signage, use of fonts and symbols clearly legible at a distance
- 4 clear pedestrian routes separate from vehicles and cyclists, e.g. separation by kerb or architectural features
- 5 short distances from parking to entrances, e.g. designated parking places for cars, vans and bicycles
- 6 even, firm and slip-resistant surfaces
- 7 no steps or obstacles, e.g. level access or use of ramps
- 8 good lighting, e.g. highlighting of main routes, non-glare
- 9 good visual contrast, e.g. visual contrast between path and adjacent area, signage with good contrast

Example solutions



6.3 Example use for visual contrasts



a) Example of high contrast b) Example of moderate contrast c) Examples of high contrast in signage

Keys: Functionality as main focus

- 1 high contrast light on dark marking for hazards e.g. stairs
- 2 moderate contrast between floor, lighter wall, darker door frame and door for orientation purposes
- 3 legible signs with dark signboards on light walls, light signboards on dark walls, very dark pictograms on light background, or opposite

Correct and incorrect solutions



Examples of gratings



a) Gratings with small mesh size allowing unhindered movement of wheels, walking sticks and shoe heels



b) Incorrect solution: wide mesh size gratings trapping wheels, walking sticks and shoe heels

Figure 27 — Examples of gratings



Design solutions including incorrect examples



Example handrail profiles with different characteristics as to allowing a power grip for children and adults (Fig. 83 and 84)



prEN 17210, Accessibility and usability of the built environment. Functional requirements

• 18th April 2019 – 11th July 2019: Enquiry vote,

i.e. National vote via CEN and CENELEC Members (NSBs). **IPQ is the CEN and CENELEC Member for Portugal**

- September 2019, 11th meeting of JTC 11
- If the document is supported, it can be available in December 2019
- If the document does not receive enough support, will not be available before November 2020



prEN 17210, Accessibility and usability of the built environment. Functional requirements

We need a good European standard

We need it now

As a tool to promote accessibility of the built environment throughout Europe.



HANK YOU

Fernando Machicado

nicado@une.org