

Generalities and definitions

“Universal Design” is a strategy, which aims to make the design and composition of different environments and products accessible and understandable to all, as well as usable by all people, to the greatest extent in the most independent, natural and possible manner, without the need for adaptation or specialized design solutions.

According to the definition of the Council of Europe Resolution Res AP (2001) 1, the terms “design for all”, “integral accessibility”, “inclusive design”, “design without barriers”, “design

Trans-generational” and “accessibility for all” are to be considered converging towards the term “Universal Design”.

About 10% of the world population consists of persons with disabilities (over 650 million) and moreover about 80% of these lives in developing countries.

Some data that highlight the need for a design for all:

- 44.6 million people in Europe (one over six) aged between 16 and 64 years is suffering from a permanent health problem or disability.
- This represents the 16% of the overall EU working age population.
- 63% of the people with disabilities are older than 45 years. Nearly 30% of the population in the age group between 55-64 years is suffering from a disability.
- The incidence of disability will increase as the European population ages.
- 50% of disabled people is employed compared to 68% of non-disabled.
- Only 15.9% of disabled people has some form of assistance to work.
- At the same time, 43.7% believes it can work if provided with adequate support.

The disability is the result of an interaction between a non-inclusive society and the individual person. For example a person using a wheelchair might have difficulty getting jobs not because of the wheelchair, but because there are environmental barriers such as inaccessible buses or staircases that impede access.

ISO Guide 71: 2014 - “Guide for addressing accessibility in standards”

Attention to these issues has always been high, especially in the ISO framework, so that we are already at the second revision of ISO Guide 7 (2014), radically upgraded from the previous version (2001). To understand how things have evolved over the last fifteen years, just compare the titles of the two versions:

- Guidelines for standards developers to address the needs of older persons and persons with disabilities;
- Guide for addressing accessibility in standards.

In the latest version, just talking about accessibility, without reference to disability, to emphasize strongly that accessibility is a value and a goal for all people and that where materialized in technical solutions, everyone benefits.

The guide is intended to integrate the Joint Political Declaration, providing a set of accessibility targets and describing the capabilities and characteristics of people to help those who develop technical standards to identify the accessibility needs of different users in different contexts of use.

This guide identifies two complementary approaches to address accessibility in a specific rule. An approach on accessibility goals and an approach based on the skills and characteristics of people.

In both cases and using both approaches, accessibility requirements and recommendations to be included in the standard concerned, are identified.

Clause 6 defines the accessibility objectives among which:

- Suitability for the widest range of users.
- Conformity with user expectations.
- Support for individualization.
- Accessibility.
- Perceptible.
- Comprehensibility.
- Controllability.
- Usability.
- Error Tolerance.
- Equitable Use.
- Compatibility with other systems.

Clause 7 lists abilities and physical and cognitive characteristics of people:

- Functions of the view.
- Hearing functions.
- Functions of touch.
- Functions of the taste and odour functions.
- Immune system functions.
- Physical characteristics and capacity.
- Body size.
- Movement: the upper body of structures functions and skills for the use of the hand.
- Movement: the lower body structures functions.
- Power and muscular endurance.
- Voice and speech.
- Cognitive abilities.
- Description.
- Impairments and limitations.
- Design considerations.

Clause 8 finally defines how to use the above information in order to integrate them in standards:

- Provide multiple means of information presentation and user interaction.
- Fixed set parameters to accommodate the widest range of users.
- Set parameters adjustable to accommodate the widest range of users.
- Minimize the complexity.
- Provide individual access to a system.
- Eliminate unnecessary limits or constraints on user interactions with the system.
- Ensure compatibility with assistive devices and assistive technologies.
- Provide alternate versions of a system.

ISO / TC 173 / SC 7 “Accessible design for assistive products”

The purpose of ISO / TC 173 / SC 7 is the standardization of accessible design for assistive products for the purpose, or generally available, for persons with disabilities, as defined in ISO 9999.

Accessible design is defined in Section 3.2 of ISO / IEC Guide 71 (edition 2001):

“Addresses the need of older persons and persons with disabilities in standardisation”.

Focused on the design principles of extending standard projects for use by persons with certain types of performance limitations to maximize the number of potential customers that can easily use a product, a building, or services that can be reached from the design of products, services and environments that are readily usable by most users without any changes, making products or services adaptable to different users (adapting user interfaces), and having interfaces standardized that they are compatible with special products for persons with disabilities.

Clause 8 of the ISO Guide 71 gives the factors to consider in the standardization of products, to be accessible. The purpose of this subcommittee should include these factors to consider in the product standards.

In particular, the purpose of the Subcommittee is best understood whereas the increase in the elderly population and the promotion of human rights of persons with disabilities, such as the United Nations Convention requires an accessible design of products, services, equipment and facilities.

The objective of the subcommittee is to meet this demand and to standardize the products (and services) as part of the TC 173 application. ISO standards published:

ISO 17049:2013	Accessible design -- Application of braille on signage, equipment and appliances
ISO 17069:2014	Accessible design -- Consideration and assistive products for accessible meeting
ISO 19026:2015	Accessible design -- Shape and colour of a flushing button and a call button, and their arrangement with a paper dispenser installed on the wall in public restroom
ISO 19027:2016	Design principles for communication support board using pictorial symbols
ISO 19028:2016	Accessible design -- Information contents, figuration and display methods of tactile guide maps
ISO 19029:2016	Accessible design -- Auditory guiding signals in public facilities

EU Strategy 2010 - 2020

In the preparatory work (*) to the COM (2010) 636 () 15.11.2010 “COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS”, a deep examination of the European population expectations about the elimination of barriers to facilitate usability of things places and services, was conducted.

(*) Preparation of a new EU Disability Strategy 2010-2020 Summary of the main outcomes of the public consultation

The results, summarized in table were the following:

EU should be involved:		
more or much more	Working area	less or much less
86%	Accessibility	2%
86%	Freedom and dignity	2%
84%	Free movement	1%
83%	Independent living	2%
83%	Participation in democratic and public life	2%
80%	Employment	3%
80%	Education	2%
78%	Standards of living and social protection	3%
75%	Healthcare	2%
74%	Culture, recreation, leisure, sport	3%

MS should do more or much more:	
93%	Accessibility
91%	Standards of living and social protection
91%	Employment
91%	Independent living
90%	Freedom and dignity
89%	Education
89%	Participation in democratic and public life
88%	Culture, recreation, leisure, sport
87%	Healthcare
81%	Free movement

Accessibility

The most favourite tools in accessibility were the legislation and its extent. Guidance and research lines were the least favoured instruments in this area. Greater involvement of people with disabilities has received votes “very effective or effective” by 78% of respondents.

As for the “actors”, the respondents see a clear need for a greater commitment of all established actors. 98% of respondents said that national governments should “do more” or “much more” in this context, for local governments and the private sector, this percentage was 91% and 88%.

For the EU, this share was 86%, ahead of non-governmental organizations (72%) and “other” (27%).

85% of respondents supported that the harmonization of laws and rules on accessibility of goods and services is important or very important

Independent living

In the field of independent living, avoid placement in residential institutions is the primary point raised by respondents. Among the measures to prevent this, the 90% approval was given to measures to increase the provision of community services and increase access to assistive technologies to support people with disabilities to live independently.

Support to families and to other operators has reached the 80% of favourable opinions. On the other hand, planning the closure of existing residential institutions has received relatively little support - only 49% of respondents believe that it would be “clearly” or “very” important to improve the ability of people with disabilities to live independently.

The awareness has received the ‘85% approval, the rules for the minimum quality of care services was supported by’ 80%. Providing personal budgets and retraining of staff from the institutions seemed useful respectively 75% and 74% of respondents. In addition to this, some participants made the comments in part by highlighting the central role, in the empowerment of persons with disabilities by the granting of personal assistants, and the need to ensure proper working conditions for assistants

The accessibility issues have had the highest percentage with 93% of responses highlighting a need for Member States to do more or much more. The standard of living and social protection and employment, and independent living (91%), even the freedom of dignity (90%) 89% in education and participation in democratic and public life, 88% in the culture and recreation and 87% in the health sector

From the above, the European Council adopted in 2010 the strategic document for the next ten years (until 2020 then). This document has the following objectives and consequent areas of interventions:

The Commission has identified eight main areas for action:

accessibility,
participation,
equality,
employment,
education and training,
social protection,
health and
external actions.

1 - Accessibility

“Accessibility” means the possibility for disabled people to have access, on an equal basis with others, to the physical environment, to transportation, to systems and information and communication technologies (ICT) as well as other services and facilities. In all these areas there are still significant barriers. On average, for example, only 5% of EU27 public websites is fully compliant with accessibility standards, although a higher percentage is at least partially accessible. Many TV stations still a few programs with subtitles and audio description.

Accessibility is a necessary prerequisite for participation in society and economy, but it is still a distant goal for the EU. The Commission proposes to use legislative and other instruments, such as standardization, to optimize the accessibility of the building structures, transport and ICT in accordance with the flagship initiatives “Digital Agenda” and “Innovation Union”. Respecting the principles of better regulation, it will explore the possible advantage resulting from the adoption of regulatory measures ensuring the accessibility of products and services, including measures to increase the use of public contracts (the effectiveness of which has been proven in the US). It will encourage the integration of the principle of accessibility and the “Design for All” in education and training programs for the professions concerned and help the development of an EU market for assistive technologies.

EU action will support and complement national measures to implement the principle of accessibility, to remove existing barriers and increase the availability and choice of assistive technologies.

Ensure wheelchair accessibility to goods, services including public services and assistive devices.

ITALY

In the light of the scenario presented in the above paragraphs and noting that at both European and international time scales and the dynamics of the development of specific standards of accessible products (that can be used by a wider range of people) has speed that do not always fit the needs of the most vulnerable consumers and considering the industry more careful in these aspects and then far-sighted, the UNI Furniture Committee has undertaken a courageous path. After a reflection on the state of affairs in our country and a thorough analysis of the many documents available on this subject, with a shared choice and a job that engaged us for almost two years, now we have drawn up and concluded a draft standard entitled:

“Furniture design, and their approaches to meet the needs of all people - Requirements”

The draft standard (in a short time it will be circulated for Italian public inquiry) aims to bridge a lack (not only in our country) of quantitative indication on the main dimensional and functional characteristics of the furniture and its insertion into the spaces in order to allow easy accessibility by persons regardless of their skill and/or disability.

The document covers the furniture in the following purposes:

- Public and private offices (e.g., offices, banks, post offices);
- Contract (e.g., shops, hospitals, bars, restaurants and nursing homes, hostels, hotels, resorts etc.);
- Schools (including: universities, museums, libraries);
- Domestic (private homes).

This document does not apply to residential buildings specifically designed to meet the needs of people with severe disabilities, or to temporary facilities, because usually these cases are and should be treated individually.

state of the art of standards and experience in Italy

Andrea Giavon

The requirements represent also a useful guideline for assessing the accessibility and usability of the existing furnishings and, where possible, as the basis for their improvement.

And 'the Furniture Committee's conviction that the recommendations and requirements included in the project will bring benefits to the usability of the furniture also from the population in general, for example, the elderly, or other situations of low/reduced mobility and function.

The project addresses the main living spaces in working environments, office and similar environments, and residential such as kitchen, living room and bedrooms.

The focus is obviously on furniture when placed inside the building, public or private.

High attention is obviously placed on cabinets and on shelves, both as regards the dimensions of the spaces of accessibility that especially the heights from the ground taking into account of the possible configurations of mobility of users by whom is standing with reduced capacity of movement to those on wheelchairs.

Special attention is also given to the visually impaired by defining visual contrasts that allow the recognition of the furniture to the walls.

It was not neglected the horizontal aspect of furniture that concerns the safety, strength and durability requirements as defined by European standards.

Even the kitchen has been the subject of dimensional requirements as regards the worktops, the functionality of the cabinets, including doors and drawers and of the manoeuvring areas and space. A similar approach was used for the living room and/or dining room and bathrooms with a special focus on the handles, hanger and towel racks and lockers.

The topic of the changing units is transverse from domestic to public, and now also in modern and advanced office. Therefore we set height requirements for both fixed and adjustable position, not forgetting the accessories items (soap, towels, etc.)

Finally, even the bedroom with the necessary elements such as beds and wardrobes were taken into account as both heights and provision recalling the relevant EN standards on mechanical safety.

We also felt that the document was the correct reference also to hold a series of useful information for its application but also for further developments that are now the useful recommendations and the near coming future may become requirements.

The project thus contains five informative annexes dealing with the following topics:

- Space allowances for people passing on an access route.
- Reach ranges (by persons).
- Use of the reflectance value of the (Y) light to evaluate visual contrast.
- Strength and durability requirements.
- Recommendations for the design and layout of the furniture for all.

The project was important bibliographical reference to standard English:

BS 8300 Design of buildings and Their approaches to meet the needs of disabled people. Code of practice