Ergonomics in Design for All/ Newsletter

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Dear Members and Friends of the International Ergonomics Association (IEA),
Ergonomics in Design for All Technical Committee,
Welcome to our sixth year and nineteen newsletters:
it includes also info on researches.
Have a look at it, enjoy it!

With very best wishes, I wish you good luck with your work,
Isabella T. Steffan
IEA Ergonomics in Design for All TC
Chairperson

FROM THE CHAIR

This is our 19th newsletter since, with **Ken Sagawa**, we founded this IEA TC on Ergonomics in Design for All, in 2016.
The foundations had been laid at the 19th **IEA2015 Congress in Melbourne**, Australia, where we organised a Seminar on "Ergonomics and Design for All", with **Jennifer Long, Andrew Petersen, Allen Kong, Francesca Tosi**.
After that I organised, and chaired with **Alexander Rosemann**, a **IEA-FEES round table at Amersfoort**, on 24 November 2016 to share the Design for All concept and involve European Ergonomists in our TC. We started with few members, representing Italy, Japan, Australia, Germany, Norway. In 2017 there were17 members, nowadays there are more than 50, representing about 20 Countries, and our mailing list includes many other people interested on these issues.

We have a fruitful **Liaison with IEA TC "Visual Ergonomics" and with IEA TC "Slips, Trips and Falls"**. Some of us participated at the International Conference "Slips, Trips and Falls 2020" in Madrid, on 13-14 February, organised by the Slip Resistance Group of Spain (SRGS).

We have been very active in IEA congresses, organising special sessions, involving members also in peer reviews of pertinent papers of the Design for All track.

At **IEA2018 in Florence**, **Italy,** we had 4 parallel sessions on Ergonomics in Design for All; 1 Special Session on "International standards on Accessibility and Design for All: background and evolution"; 3 ISO meetings.
ISO meetings were: ISO TC159/WG2 "Ergonomics for people with special requirements"; ISO TC159/SC4/WG10 "Accessible design for consumer products"; ISO TC159/SC5/WG5 "Physical environment for people with special requirements".

At **IEA2021 Vancouver,** our IEA first hybrid event, because of the pandemic, Ken and I have been members of the Scientific Committee and active track chair: 36 papers applied on EinDfA track, it was one of the top ten ones that received the most submissions. We proposed and organized 4 Special Symposia.
They were on: "Different Approaches for Inclusive Design";" Opportunities and Challenges of Digital Technologies for Inclusion" (with 2 Slots, one Focused on ICT and Elderly); "Accessibility and Usability for All: Indoor Visual Environments" (a joint session together with Visual Ergonomics).

In our newsletters we have tried to give short information on Ergonomics, Accessibility and Design for All / Universal Design, also adding some in-depth focuses.

I would like to thank all the members of EinDfA, VE and STF's chairs for their support and trust over the years. **A special thanks go to Ken Sagawa** for his support and advice from him.

The IEA Ergonomics in Design for All TC will hold a **General Meeting on Thursday 23rd June at 11:00 GMT** as a virtual conference. It will include a report from the chair, elections, and a special talk from Ken Sagawa. More info will be given soon.

Enjoy the reading!

Isabella T. Steffan, IEA TC EinDfA chair

CONGRESSES and AWARDS

THE 2022 UIA INTERNATIONAL FORUM

The International Forum of Architects (UIA) selected the city of Madrid, Spain to host the 1st UIA International Forum in 18 – 20 May 2022: Affordable Housing Activation: Removing barriers, which is the second of international thematic events organized by UIA every 3 years.

UIA Architecture for All Work Programme Region hosted a webinar within the framework of the International AHA forum: **Removing Barriers: If Housing is Not Accessible, it is not Affordable or Sustainable**

Affordable Housing and removing barriers to the creation of inclusive communities. **Speakers:** Angela Rolfe, Jane Simpson, Delfin Jiménez Martín, Nieves Peinado Margalef, Kate Mc Gechan, Isabella Tiziana Steffan.

The Forum discussed relevant issues that block access to housing and will include specific consideration of discrimination, which in this field encompasses issues such as legislation and policies, development that excludes, secure possession, participation, etc.

Adequate housing was recognized as part of the right to an adequate standard of living in the 1948 Universal Declaration of Human Rights and in the 1966 International Covenant on Economic, Social and Cultural Rights. Other international human rights treaties have since recognized or referred to the right to adequate housing or some elements of it, such as the protection of one's home and privacy.

For housing to be adequate, it must, at a minimum, meet seven following criteria, including:

Affordability: housing is not adequate if its cost threatens or compromises the occupants' enjoyment of other human rights. **Accessibility:** housing is not adequate if the specific needs of disadvantaged and marginalized groups are not considered. See: 2022 UIA International Forum

More information

INTERNATIONAL ACCESSIBILITY SYMBOL DESIGN COMPETITION

In January 2022, the International Union of Architects (UIA) and Rehabilitation International (RI) launched a competition open to architects, graphic designers, architecture and graphic design students for the creation of a new international symbol of accessibility.

The **Second Prize** design (below to the left), by German graphic designer **Lena Seifert**, was selected for its "four-way design, indicative of equality and inclusivity".

The jury admired the **Third Prize** creation (below to the right), by Czech architecture student **Barbora Tučanová** for its enveloping and simple design with some reflection of the original wheelchair symbol".

The **winning entry** (above) was created by Ukrainian architect **Maksym Holovko.** It is "easily recognisable, demonstrating originality of form while indicating an openness, simply and powerfully conveyed using basic shapes and principles".

The winning designs will be submitted to ISO/TC 145 "Graphical Symbols" Work Group for consideration.

To view all the designs, please take a look at the online Gallery.

RESEARCH ON WHY INCLUSION, DIVERSITY, EQUITY AND ACCESSIBILITY FOR THE BUILT ENVIRONMENT MATTER.

By **Matteo Zallio**, M.Arch, Ph.D, Marie-Curie Senior Research Fellow, University of Cambridge | Department of Engineering

When we design an object, a piece of furniture, a living space, a technology, an experience, we have to ensure that the design process allows to create solutions that meet people's needs and aspirations. Designing buildings that are sustainable whilst supporting the comfort and well-being of occupants has been a prominent factor in recent years. However, more work to develop safer and more accessible buildings has to be done.

Research reported that Inclusive Design is generally misunderstood by architectural design professionals (A. Heylighen, V. Van der Linden, I. Van Steenwinkel, Ten questions concerning inclusive design of the built environment, Build. Environ. 114 (2017) 507‑517, https://doi.org/10.1016/j.buildenv.2016.12.008)

This represents one of the underlying factors that characterizes the design of buildings that do not fully meet the needs and expectations of a diverse audience. Therefore, **how can we design environments that guarantee inclusion, diversity, equity, and accessibility for all?**

Research directed by Dr. Matteo Zallio from the University of Cambridge, in collaboration with the International WELL Building Institute (IWBI), funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement N° 846284, aimed to tackle these imperative challenges by using a mixed-method approach grounded in ethnographic research.

A recent study (Zallio, M. and Clarkson, P.J., Inclusion, diversity, equity and accessibility in the built environment: A study of architectural design practice, Build. Environ. 114 (2021) Vol. 206 No. 108352, https://doi.org/10.1016/j.buildenv.2021.108352), found that accessibility is overall recognized and embraced in architectural design practice, however, the adoption of Inclusive Design is limited so far. Another challenging factor that was discovered brings the attention to the limited level of education and awareness that designers, architects and clients have regarding Inclusive Design.

These challenges were further validated with a large-scale survey (Zallio, M., & Clarkson, P. (2022). A validation study on the challenges that architectural design practitioners face when designing inclusively. https://doi.org/10.17863/CAM.82404) in which around 10% of survey respondents reported that clients and building owners are well informed about the benefits of designing inclusively. As a result of this biased perception the scarcity of client's awareness was understood as the dominant driver of the insufficiency of clients' requests and limited design of inclusive, accessible, equitable buildings.

In order to find a possible solution to tackle these challenges and help increase knowledge of Inclusive Design the research team, with the support of several expert stakeholders, developed the IDEA Toolkit, set of tools to advance Inclusive Design practice in the AEC (Architecture, Engineering, Construction) sector.

The IDEA toolkit (https://www.matteozallio.com/idea) helps on one hand building industry professionals to collect feedback from building occupants on inclusion, diversity, equity and accessibility with a novel approach. On the other hand, it provides an instrument - the Inclusive Design Canvas - to support teams in developing community engagement exercises and co-design processes by considering the variety of human capabilities and needs.

Early-stage validation results proved that these tools represent an impactful advancement in the field of Inclusive Design for designing environments that are inclusive and guarantee diversity, equity and accessibility for all (Zallio M., Clarkson P.J. (2022). The inclusion, diversity, equity and accessibility audit. A post-occupancy evaluation method to help design the buildings of tomorrow. Building and Environment, 2022, 109058, ISSN 0360-1323, (https://doi.org/10.1016/j.buildenv.2022.109058).

Guaranteeing inclusive environments for all is a fundamental step towards reaching the targets set by United nations with the Sustainable Development Goals and enable communities to thrive.

Figure 1: a practical session using the Inclusive Design Canvas.

FOCUS – RESEARCHES - 2

INCLUSIVE SIGNS | A CARD-BASED TOOLKIT TO GENERATE CREATIVE INCLUSIVE DESIGN CONCEPTS AND RESEARCH STRATEGIES

By **Emilio Ross**i, FHEA, Senior Lecturer in Product Design, Lincoln School of Design, University of Lincoln, United Kingdom

Can designers and stakeholders generate meaningful design strategies and controlled visions for the future inclusive society that overcome the idea of 'design for disabled people'? Is it possible to generate creative and innovative meta-design insights for future inclusive projects?

The design of inclusive and enabling artefacts (i.e.: products, services, systems of products, etc.) requires new creative processes able to interpret the complexity of Social Inclusion. Therefore, the design of inclusive artefacts needs new design metaphors able to guide designers in the creation of enabling solutions for all.

Specifically, Inclusive Signs is also the name of a card-based toolkit to generate creative and inclusive design concepts, meta-design insights and strategies. A Handbook, a set of 180 cards and a worksheet can be used to run creative brainstorming, workshops, discussions, as well as to find inspirational trajectories and meaningful values. The Inclusive Signs toolkit employs semiotic patterns to produce meaningful inclusive-oriented design meanings – inclusive signs precisely.

The creation of these inclusive signs is operated through instinctive combination of descriptive and visual concepts. Therefore, both designers, stakeholders, and design students can imagine future inclusive scenarios and new generation of enabling solutions in a new way.

The Inclusive Signs project is an open access project developed by Emilio Rossi. All materials are distributed under CC BY-NC-SA 4.0 license, and available in three languages: English, Chinese, and Italian. All available resources – (i) the Inclusive Signs handbook, (ii) the set of visual and descriptive cards, and (iii) the worksheet – provide useful instructions and guidance on how to generate inclusive meta-design concepts through the Inclusive Signs toolkit.

Figure 1. Inclusive Signs: Descriptive Cards and Visual Cards.

Figure 2. Inclusive Signs: Handbook.

See more: inclusive signs (website)

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Promoting Ergonomics in Design for All is a core activity of our EinDfA TC.
You can find information about objectives, domains of interest, members of the TC here:

https://iea.cc/member/ergonomics-in-design-for-all-eindfa/