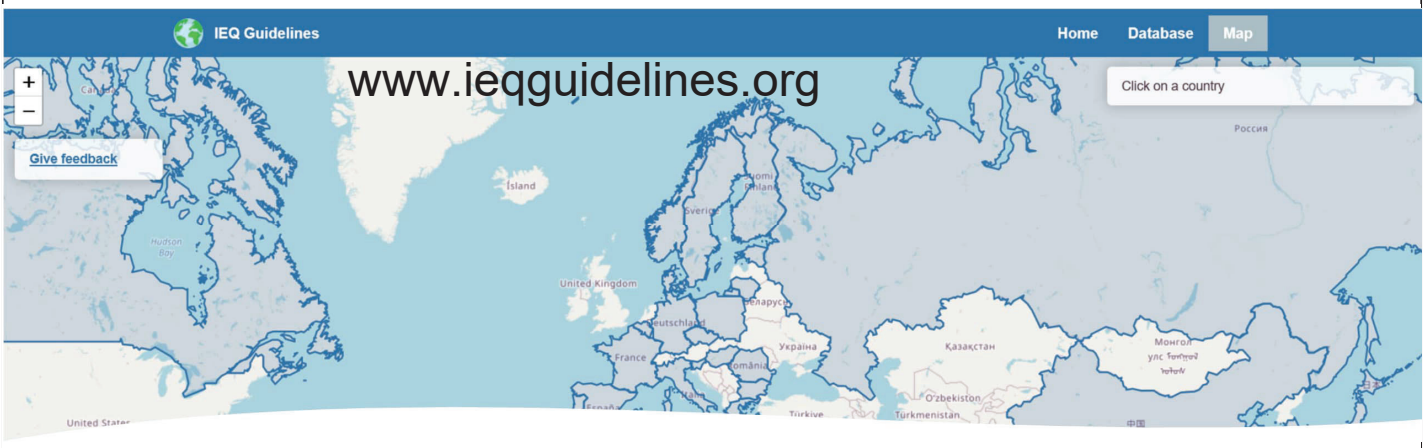


ISIAQ Indoor Environmental Quality Guidelines Database - Consolidating Guidelines and Standard

Prof. Ulla Haverinen-Shaughnessy, University of Oulu, Finland

Background

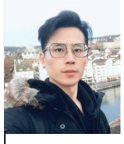
April 2022
e13028

- Prior to the Indoor Air 2018 conference, a group of ISIAQ members discussed the challenges related to compiling international guidelines
  - Challenges include language barriers, difficulty in obtaining guidelines, varying degrees of quality, and questions about comparing guidelines with many key differences including health endpoints, climate, and common building types
- To help overcome these challenges, an ISIAQ Scientific and Technical Committee (STC34) was officially launched in September 2020
- More background presented in Indoor Air Editorial

Primary objectives

1. **To continuously collect and organize information about IEQ guidelines worldwide**
2. **To develop an open, functional database to share information about the guidelines.**
3. To review existing guidelines and to develop recommendations.

STC34 officers



Current members

- Ulla Haverinen-Shaughnessy (chair), Finland / USA
- Marzenna Dudzinska (vice chair), Poland
- Xiaojun Fan (secretary), Singapore
- Ian Cull, USA
- Ju-Hyeong Park, USA/South-Korea
- Sani Dimitroulopoulou, UK
- Oluyemi Toyinbo, Nigeria
- Henna Maula, Finland
- Piet Jacobs, The Netherlands
- Amelia Staszowska, Poland
- Christina Higgins, UK
- Samy Clinchard, France/Finland
- Suchismita Bhattacharjee, India/USA
- Gurkipal Singh, India
- Sotirios Papathanasiou, Greece/Spain
- Albert Donnay, USA/Canada
- Steven Emmerich, USA

If you wish to participate or join the committee, send us an email
info@ieqguidelines.org
Next committee online meeting is November 5, 2026 @1PM UTC

Other contributors

- Anubha Goel (India)
- Quan Jin (China / Sweden)
- David Hemming (UK)
- Mizuho Akimoto (Japan)
- Steven Caulfield (USA)
- Jocelyn Moore (Canada)
- Marcel Schweiker (Germany)
- Maneerat Ongwandee (Thailand)
- Emilie Frealle (France)
- Andrea Cattaneo (Italy)
- Yangang Xing (UK)
- National contacts
- Guests

THANK YOU

Working groups

Working group, launched	Members
Indoor air, 9/2020	I. Cull, S. Papathanasiou, A. Donnay
Outdoor air, 11/2023	M. Dudzińska, O. Toyinbo, S. Dimitroulopoulou
Ventilation, 2/2024	X. Fan, S. Emmerich, J.-H. Park, P. Jacobs, R. Shaughnessy
Thermal comfort, 02/2024	S. Bhattacharjee, U. Haverinen-Shaughnessy
Acoustics, 11/2023	H. Maula, C. Higgins, I. Cull
Lighting, 11/2023	A. Staszowska, S. Bhattacharjee, G. Singhn

- Note different starting times / level of maturity and completeness of the datasets

IEQ guidelines database

www.ieqguidelines.org

Halton

Supported by a grant from Halton Foundation.

- Data from >40 countries
- IAQ database has over 800 data entries

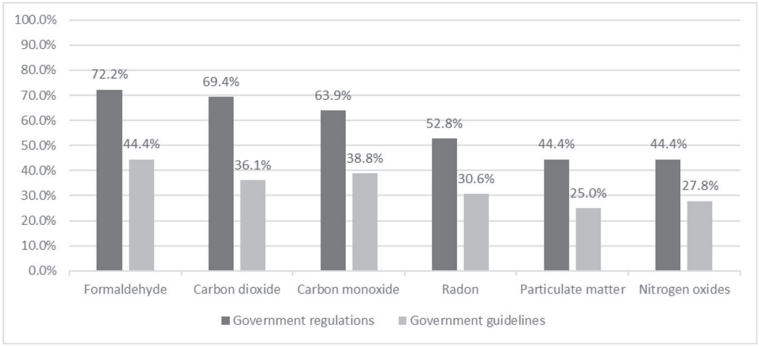
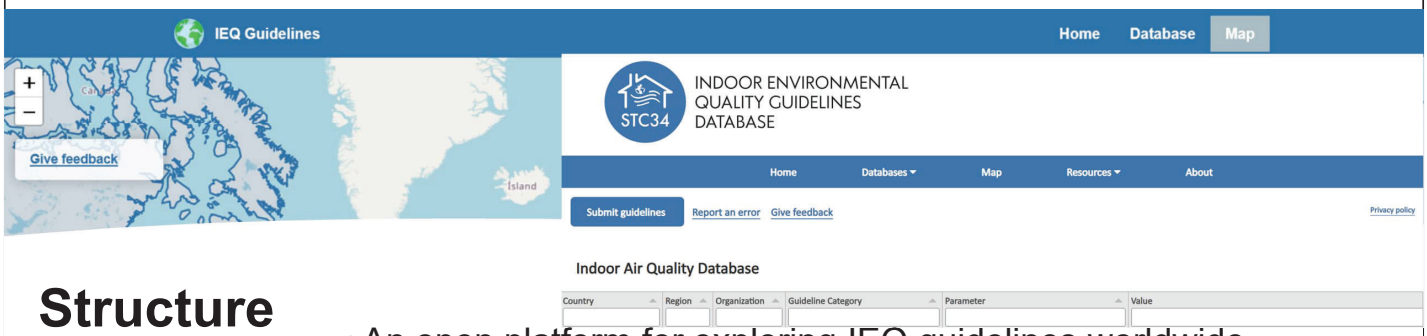
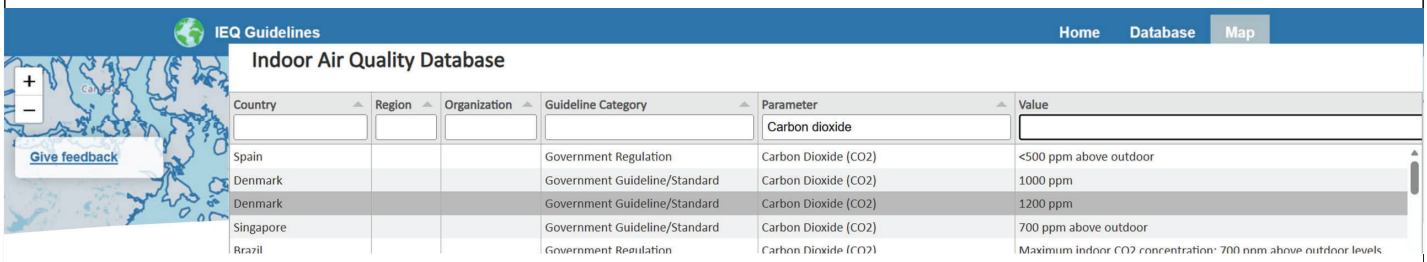


Figure. Percentage of countries with government regulations and guidelines of selected pollutants in the database. Note the uneven coverage of different pollutants and regulatory approaches.



Structure and navigation

- An open platform for exploring IEQ guidelines worldwide
- Organized into six thematic areas: indoor air quality, outdoor air quality, ventilation, thermal comfort, acoustics, and lighting
- Information collected from national and international guidelines, standards, and regulations
  - **References to original documents for further information**
- Searchable database with filtering options
- Interactive map for exploring guidelines by country
- Data can be uploaded and downloaded, provided that the terms of the Creative Commons license are respected
- Reporting errors and giving feedback



A practical example

Exploring Guidelines Across Countries

- Select a parameter of interest, such as CO_2
- Identify available guidelines from different countries
- Consider the type of document, building context, and underlying rationale
- Examine differences in guideline values and their intended applications
- Consult the original sources before interpreting differences
- Key message: Similar numerical values do not necessarily represent equivalent requirements
  - Understanding the context remains essential before comparing the values or applying them in practice

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Lessons learned from developing the worldwide IEQ guidelines database

Samy Clinchard [a], Henna Maula [b], Piet Jacobs [c], Amelia Staszowska [d], Suchismita Bhattacharjee [e], Marzenna Dudzinska [d], Sani Dimitroulopoulou [f], Christina Higgins [g], Xiaojun Fan [h], Ju-Hyeong Park [i], Oluyemi Toyinbo [a], Ulla Haverinen-Shaughnessy [a j] Show more

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Challenges in consolidating guidelines and standards

- Availability and accessibility: documents may be difficult to locate, access, or translate
- Different regulatory frameworks: mandatory requirements versus voluntary recommendations
- Variability in scope: different building types, populations, and exposure scenarios
- Comparability: differences in metrics, averaging periods, and measurement methods
- Data quality and maintenance: verification, interpretation, and keeping information up to date

→ Consolidation requires more than collecting numerical limits

Research outputs

1. Dimitroulopoulou S, Dudzińska M, Gunnarsen L, Hägerhed L, Maula H, Singh R, Toyinbo O, Haverinen-Shaughnessy U. Indoor air quality guidelines from across the world: an appraisal considering energy saving, health, productivity, and comfort, Environment International, 178, 2023.
2. Haverinen-Shaughnessy, U., Dudzinska, M.R., Clinchard, S., Dimitroulopoulou, S., Fan, X., Jacobs, P., Maula, H., Staszowska, A., Toyinbo, O. and Park, J.H. Towards equitable and sustainable indoor air quality guidelines− A perspective on mandating indoor air quality for public buildings. Indoor environments, 2(1), p.100070, 2025.
3. Clinchard, S., Maula, H., Jacobs, P., Staszowska, A., Bhattacharjee, S., Dudzinska, M., Dimitroulopoulou, S., Higgins, C., Fan, X., Park, J.H. and Toyinbo, O., 2025. Lessons learned from developing the worldwide IEQ guidelines database. Indoor Environments, p.100124, 2025.
4. Dimitroulopoulou, S., Dudzinska, M., Emmerich, S., Jacobs, P., Maula, H., Toyinbo, O., Staszowska, A. and Haverinen-Shaughnessy, U., 2026. Indoor air quality legislation: A focus on the current standards. In New Perspectives in Indoor Air Quality, pp. 7-18, 2026. Elsevier.

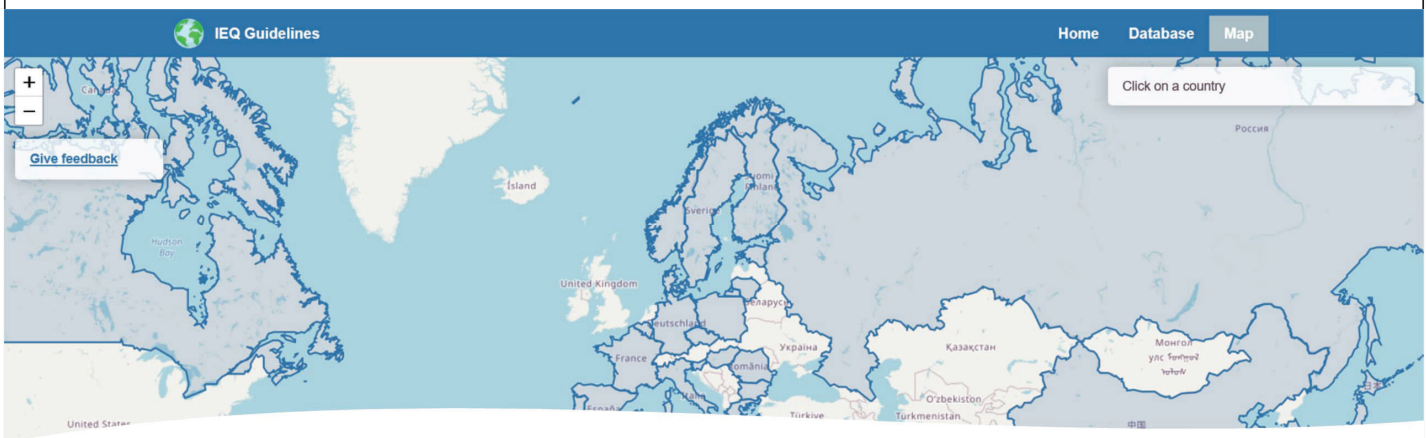
Future development and applications

- Building on the existing database
- Expand geographical coverage and improve completeness across IEQ domains
- Strengthen procedures for verifying and updating information
- Improve accessibility and usability for different stakeholders
- Support comparative research on IEQ guidelines and regulatory approaches
- Identify knowledge gaps and opportunities for evidence-based guideline development
- Encourage contributions from researchers, authorities, and practitioners
- Towards a more accessible and transparent evidence base for IEQ decision-making.

Final takeaway: consolidating guidelines improves accessibility and comparison, but is not the same as harmonizing standards

Next challenges: to move beyond consolidating existing IEQ guidelines and standards by systematically identifying similarities, differences, and knowledge gaps; to identify where harmonization is scientifically justified and feasible

Ultimately, the database can support evidence-based harmonization while recognizing legitimate regional and contextual differences.



The value of the database depends on continued international input, checking original sources and keeping entries current

You are welcome to:

- contribute information about guidelines,
- join the working groups, and participate in the meeting

send us an email **info@ieqguidelines.org**