

# One Daylight Urban Environment



Daylight Simulation Pointcloud of Campus Hoenggerberg, Dr. Michael Walczak,  
Suzana Lapanovic, Prof. Hubert Klumpner Chair of Architecture and Urban Design, ETHZ, 2022

**By 2050, up to six billion people are expected to live in urbanising areas. Accelerating growth and increasing densification raise questions for architects and engineers, especially those whose work connects inside and outside spaces in the development of one climate neutral system. Challenges include the design of public, open, and green spaces, the provision of outdoor comfort, and the need for daylight control, among many more. Consequently, the shaping of urban environments requires an integrated understanding of various fields, especially those that focus on solar radiation, energy production, and heat/cold islands to mitigate climate change. Our capacity to shape daylight in urban transformation processes will decide if we will achieve Carbon Neutrality.**

Provision of daylight – essential for our health and well-being for living and working – in such densified cities, where inhabitants spend an increasing amount of time indoors, is becoming an imperative for urban design. Inclusive urban environments require high degrees of social- environmental sustainability to provide a high quality of life to all people.

To make cities and human settlements more inclusive, safe, resilient, and sustainable we propose sharing key principles and analysis methods for exploring science, technology and policy. How can urban design of comfortable 'inside-out' environments reduce energy use and associated climate change effects? What factors decide the layout of a city? What is the role of daylight in urban design? How does it affect people, their behaviour, and their health? Where do people choose to spend their time indoors and outdoors, taking into account their mobility patterns? What are the qualities and quantities of daylight they experience in buildings, as well as the environmental qualities and programs of public spaces? And, how can urban planning create opportunities for daylight access in cities, whether it's inside or outside of buildings?

Daylight assessments have been established in performance-driven design, however with a strong focus on indoor environments. Connecting inside and outside into one environmental system is at the core of the "Inside – Out" Daylight in Sustainable Urban Design Conference.

In this interdisciplinary conference call for papers and posters, we invite you to engage in bridging inside and outside daylight spaces, and to assess existing and future case studies in their environmental context from your professional perspective.

## Objectives

- Collecting a series of topic-based questions evaluating daylight in the context of architecture, urban design, education, energy-use, software development, orientation and massing of open spaces, site selection and analysis, net-zero buildings, views, glare, land, 3- and 4D visualization experiences, metrics and validation, human behaviour, well-being, comfort, perception, health, spatial quality, environmental factors, materials, time, and more.
- Opening conversations on the ways in which daylight - inside and outside - contributes to our quality of life. What are the urban public and private spaces to experience daylight?

- Cross-referencing topics that have a quality to be considered together with daylight, e.g.: built and natural environment, climate, energy, social, policy, and more.

- Defining possible quantitative and qualitative directions for daylight metrics in urbanisation topics.

Responding to this challenge, the "Inside – Out" Daylight in Sustainable Urban Design Conference will be linked to the ETH Forum Wohnungsbau "Intergenerational Living - From Idea to Implementation" 2023, taking place on the previous day, March 10, 2023. Under a common theme, the two-day event will provide a platform to share knowledge and experiences across fields and levels of inquiry. The colloquium will bring academic rigour and propose ideas within international and national frameworks, while also providing participants with the chance to share and discuss their work with both their peers as well as internationally renowned practitioners.

Intending to make sense out of the causes and effects, parallels, and unfolding phenomena at the heart of urbanisation processes related to daylight in our contemporary era, the "Inside – Out" Daylight in Sustainable Urban Design Conference seeks diverse, intersecting and hybrid voices. Presenters will share and discuss their ideas under one of three tracks: 'Inside Daylight', 'Outside Daylight', and 'Inside-Out Daylight'. Experts participating in the ETH Forum Wohnungsbau 2023 conference will serve as moderators, facilitating discussion and adding elements of their practice to the research findings, discussions and empirical evidence revealed by doctoral works.

We invite architects, landscape architects, urban planners, designers, artists, sociologists, economists, ecologists, engineers and researchers in the field of daylight and urbanisation to bring together their knowledge, experience and lessons learned in the development of new approaches and ideas.

Saturday

11 March 2023  
9.30 h – 17.00 h  
HYBRID

ETH Zurich  
ONA Fokushalle  
Neunbrunnenstr. 50

8093 Zurich  
Switzerland

Homepage:

[daylight.arch.ethz.ch](http://daylight.arch.ethz.ch)



## Important Dates

- > Abstract submission: 2022 December 31th
- > Acceptance notice: 2023 February 06th
- > Latest registration of presenters: 2023 February 15th
- > Final poster submission: 2023 February 28th
- > Final presentation submission: 2023 February 28th

## Call for Abstracts (Papers and Posters)

### Three thematic tracks

**Inside Daylight:** Daylight in indoor environments, e.g.:

- Effects: Impact of daylight on health, well-being, and performance of building occupants, and effects on the energy-demand of buildings,
- Architectural design and policies: Daylight as a design parameter, innovative methods to design with daylight,
- Technologies: Innovative building components, materials, and controls for the optimized utilization and modulation of daylight in buildings

**Outside Daylight:** Daylight in the open spaces of our built environments, e.g.

- Human impacts: Effects on human well-being, health, comfort, and behavior in urban environments,
- Urban habitats: Effects of daylight, its obstruction on urban ecosystems and its 3- and 4D visualization experiences,
- Technologies and methods: Approaches to predict and control the impact of urban development on daylight conditions,
- Planning and policies: Software development, metrics, validation, examples and methods for policy-making and planning for daylight in urban environments.

**Inside-Out Daylight:** The interplay of interior and exterior daylight conditions, e.g.

- Interdependencies: Planning decisions for optimal daylight conditions and their effects inside and outside buildings,
- Transitions: Effects of and planning with transitions between indoor and outdoor environments,
- View: Connectivity with the outside and view content,
- Design and policies: Software development, metrics, validation, methods and examples for addressing daylight indoors and in open spaces.

### Information for authors and presenters

The submission of contributions to the conference is organized in two phases:

- Short abstracts proposing oral or poster presentations at the conference shall be submitted until 31.12.2022, 23:59 CET. Authors will get informed about acceptance for oral or poster presentation by 06.02.2023.
- Authors of accepted abstracts that led to oral or poster presentations at the conference will be invited to submit a short paper manuscript before 30.04.2023 for online publication.

### Submission of abstracts

Please submit your abstracts of max. 500 words through the online conference system:

<https://indico.cern.ch/e/InsideOut>

("Submit new abstract") latest 31. December 2022 23:59 CET. Please note the additional instructions on the submission page.

### Evaluation and selection of abstracts

Abstracts will be selected for acceptance by the selection committee based on a double-blind review by international experts in the field. Attention will be given in particular to the novelty, relevance and scientific soundness of the contributions. The scientific committee may invite authors to change the presentation format from oral to poster presentation. Authors get informed about the scientific committee's decision by 6. February 2023.

The authors of the accepted abstracts will then be invited to prepare their presentations or posters for the conference. Note that acceptance of abstracts is subject to the registration of at least one author as a presenter at the conference latest by 15. February.

We highly encourage PhD students and Post-Doc researchers to apply (max. 5 years after completion of PhD).

## Submission of poster material

Selected poster presenters will be asked to submit the poster using an ETH poster template (PDF, 150 DPI, DIN A1 Format) representing their ideas and research within the full presentation submission deadline, to be shown collectively in the space of the conference.

## Oral presentation

Selected papers shall be presented at the conference venue in one of three parallel sessions corresponding to the thematic tracks. The presenter(s) are to be identified during abstract submission and register and confirm attendance latest February 15th.

## Submission of paper manuscripts

The authors of all contributions presented at the conference will be invited to submit a manuscript summarizing their research. Each manuscript will undergo one further double-blind review by international experts, leading to the decision by the selection committee to either accept (potentially subject to revisions) or decline the submission. The same criteria will be applied as in the selection of abstracts.

**Online publication of the accepted manuscripts is planned for August.**

## Conference Venue

ETH Zurich, ONA Building  
Neunbrunnenstrasse 50  
8050 Zurich-Oerlikon  
Switzerland

## Fees for audiences

No fees

## Organizing Committee

Prof. Hubert Klumpner  
Professor of Architecture and Urban Design  
Dr. Michael Walczak  
Klearjos Eduardo Papanicolaou

Prof. Dr. Arno Schlueter  
Professor of Architecture and Building Systems  
Dr. Lars O. Grobe (Velux Stiftung Daylight Fellow)

## Selection Committee

ETH Zurich

Prof. Hubert Klumpner  
Professor of Architecture and Urban Design, LUS  
Dr. Michael Walczak  
Klearjos Eduardo Papanicolaou  
LUS Institute for Landscape and Urban Studies  
NSL Network City Landscape

Prof. Dr. Arno Schlueter  
Professor of Architecture and Building Systems, ITA  
Dr. Lars O. Grobe (Velux Stiftung Daylight Fellow)  
ITA Institute of Technology in Architecture

EPFL  
Dr. Jan Wienold  
Laboratory of Integrated Performance in Design

Judit Solt, Dipl. Arch. ETH SIA  
Chefredaktorin TEC21 – Schweizerische Bauzeitung

## Partners

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**LUS** Institute of Landscape and Urban Studies  
Institut für Landschaft und Urbane Studien

**NSL** Netzwerk Stadt und Landschaft  
Network City and Landscape

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Prof. Hubert Klumpner



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