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INTERNATIONAL SCIENTIFIC CONFERENCE  
ON CONTEMPORARY GLASS FACADES  
– ZAGREB 2023

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International Scientific Conference on Contemporary Glass Facades Zagreb 2023 was a part of the research project *Development of a double facade with hermetically sealed cavity (H-CCF)*, implemented by the private company KFK d.o.o. in cooperation with the University of Zagreb Faculty of Architecture as a scientific partner. The project is funded by the European Union from the European Regional Development Fund under the project code KK.01.2.1.02.0218. International Scientific Conference on Contemporary Glass Facades Zagreb 2023 was held in person on 23 May 2023 in the Antunović Hotel, Zagrebačka avenija 100 A, Zagreb, Croatia.

The project *Development of a double facade with hermetically sealed cavity H-CCF* started on February 21, 2020, and ends on August 21, 2023. The Faculty of Architecture as a research institution for research and development and the company KFK d.o.o. for research, development and innovation participated in the project. The Faculty of Architecture research team consisted of scientific project manager Zoran Veršić, Josip Galić, Ivona Cvitković, Marin Binčki, Lucija Stepinac, Hrvoje Vukić, Mateja Nosil Mešić and Dora Petrac. The KFK d.o.o. team consisted of project manager Marijo Tomić, coordinator Ivica Kušević, Antonijo Zeljko and many others.

Glass facades, as transparent parts of the contemporary building envelope, represent the focus of research papers in the Book of Conference Proceedings. Glass facades directly affect the realization of visual, sound and microclimatic comfort of interior space. When designing a glazed facade, it is important to check all the advantages and disadvantages in order to optimize the final solution depending on the location and purpose of the building, orientation, regime of use, etc. Glass facades are characterized by their parameters (bearing structure, composition, type of glass, sun protection...) and should adapt to the conditions of the location and the requirements of the space they protect from external influences. The health and well-being of users and the quality of indoor environment are among the key categories affected

by the performance of contemporary glass facades and assessed by the building's sustainability analysis throughout their entire life cycle. The four main parameters that define the key aspects of indoor environment quality are: indoor air quality, the degree of thermal comfort throughout the year, the quality of artificial and natural light (and the associated visual comfort) and the building's capacity to isolate occupants from internal and external noise sources. Glazed facades, with their characteristics, directly affect all the mentioned parameters and are very often the focus of scientific interest. Glazed facades are complex systems that require maintenance over a long period of time, and the long-term quality of the user's comfort in the space clearly depends on the facade solution.

Single and double (ventilated) skin facades do not represent a new element in architecture, but recently double skin facades with hermetically sealed cavities have been introduced. A new type of closed cavity facades (CCF) was researched in *Development of a double facade with hermetically sealed cavity (H-CCF) project*, in order to integrate benefits of both single and double (ventilated) skin facades: lower maintenance costs, larger depth to the outside, wind-protected sun blinds, reduced need to heat the inside of the building, lower cooling needs, no condensation risks, etc. The project originated from the observed market trends and inquiries from current and potential customers to make the current type of CCF independent of additional units (compressors, filters, air dryers, etc.). Existing facades with a closed cavity prevent condensation on the inner surfaces of the glass (in a closed cavity) by supplying prepared dry and purified air, requiring active maintenance and service. The project scientific research showed that the idea of an H-CCF facade with passive maintenance of dry air inside a closed cavity has its likely practical application and development potential.

The Conference was organized to present the development of the H-CCF facade and contemporary glass facades in general, primarily to exchange research experiences in this area and connect European researchers. This is

the first Conference in Croatia organized by the University of Zagreb Faculty of Architecture on the topic of contemporary glass facades, and further development of this theme is expected in the future. Twenty authors in nine research groups have presented their papers and published them in the Book of Conference Proceedings. These papers present a valuable tool for understanding the state of the art of contemporary glass facades. Some of the research papers were written in collaboration with students. By getting involved in the research process, students become more aware of the role of the glazed facade in the life cycle of the building. Scientific conferences such as this one provide a great possibility to share knowledge between students, professors, researchers, practitioners and building industry.

The titles of the published papers within the Book of Conference Proceedings are: The Effect of Glass Facades: Users' Comfort; Closed Cavity Façades – the Experience; Multilayered Glass Facades; Evaluating Mechanical Properties of Laminated Glass Under Pure Shear Using 3D RVE Analysis; Investigating Heat Development in Shadow Box Facade Systems: A Mockup Test Approach; Visual and thermal comfort optimization through WWR concept: office spaces in Podgorica, Montenegro; Role of the transparent surfaces of the envelope in formation of the identity and functional transformation of the residential architecture from the early 20<sup>th</sup> century in Sarajevo; Efficiency and Durability of Glazing and Sun Protection - on Preschool Education Buildings in Croatia; Environmental Product Declaration for curtain wall façades.

These research topics witness the scope of published materials. Analyzing and comparing contemporary glass facades from different points of view enables researchers to gain valuable insight into different types of glass facades in the context of a specific location and purpose of the building.

The total value of the project is HRK 67,849,821.53 / € 9,005,218.86 and was co-funded by the European Union from the European Regional Development Fund.