



Advanced Building Skins Webinar

| A1 Smart Materials for Intelligent Building Envelopes <i>Chair: Daniela Trauninger, Danube University Krems, Austria</i> | B1 Green Walls <i>Chair: Andrew Jenkins, Queen's University Belfast, United Kingdom</i> | C1 Architectural Membranes for High-performance Envelopes <i>Chair: Timothy Liddell, Politecnico di Milano, Italy</i> | D1 Optimierung der Gebäudehülle mit nachhaltigen Fassaden <i>Chair: Roland Krippner, Technische Hochschule Nürnberg, Germany</i> |
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| <p>The intelligent pore in the building envelope for passive cooling <i>Daniela Trauninger, Danube University Krems, Austria</i></p> <p>SmartStability - Multi-agent-based simulation of smart building clusters <i>Monika Hall, University of Applied Sciences and Arts Northwestern Switzerland, Muttenz</i></p> <p>Brief presentations:</p> <p>Applications of smart mineral insulation material <i>Hannes Stolzechner, Geolyth, Austria</i></p> <p>Thermal performance of engineered wood flooring impregnated with phase-change materials <i>Damien Mathis, Ai Environnement, Paris, France</i></p> | <p>Reduction in building energy use as a result of food production within a double-skinned glazed façade <i>Andrew Jenkins, Queen's University Belfast, United Kingdom</i></p> <p>Green Walls 3D Modeling <i>Gabriel Pérez, University of Lleida, Spain</i></p> | <p>CAD-integrated approach for the design of structural membranes <i>Ann-Kathrin Goldbach, Technical University of Munich, Germany</i></p> <p>Programmable textiles for building façade applications <i>Timothy Liddell, Politecnico di Milano, Italy</i></p> <p>Brief presentation:</p> <p>Sustainable waterproofing of expansion joints <i>Tomasz Kozłowski, Soba Inter, Baden, Switzerland</i></p> | <p>Neuinterpretation des Fensterladens mit biogenen Werkstoffen <i>Roland Krippner, Technische Hochschule Nürnberg, Germany</i></p> <p>Intelligente Fassaden <i>Stefan Rappold, Behnisch Architekten, Stuttgart, Germany</i></p> <p>Hanfsteine: monolithische Bauweise für Langlebigkeit <i>Werner Schönthaler, Schönthaler Bausteinwerk, Eyr, Italy</i></p> |

| A2 Double Skin and Cavity Façades Chair: Bharat Patel, Harley Ellis Devereaux, Los Angeles, United States | B2 Biomimetics for the Building Envelope Chair: Estelle Cruz, CEEBIOS - French Network in Biomimetics, Paris, France | C2 Performance of the Building Envelope Chair: Ryan Krug, Pie Consulting & Engineering, United States | D2 Thermal Energy from the Building Skin Chair: Thomas Friedrich, Innogration GmbH, Germany |
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| <p>The next generation of closed-cavity façades <i>Bernhard Rudolf, Josef Gartner, Germany</i></p> <p>A Double Skin Cavity Façade for a sustainable mid-rise building retrofit <i>Daniel McKelvey, Ayers Saint Gross Architects, Baltimore, United States</i></p> <p>Sustainable architecture at the heart of the University of Calgary <i>Robert Claiborne, Dialog, San Francisco, USA</i></p> <p>Double skin façade with BIPV <i>Zoheir Haghighi, TU Delft, Netherlands</i></p> <p>Active Cavity Transition Façade – Interior sun shading for energy-efficient fully glazed façades <i>Paul-Rouven Denz, Priedemann Facade-Lab, Germany</i></p> <p>Performance of heat recovery using an Active Double Skin Façade <i>Michael Bulander and Kishore Patel, Harley Ellis Devereaux, Los Angeles, United States</i></p> <p>Brief presentation:</p> <p>Optimization of air cavity of a double-skin transparent façade for HVAC strategy <i>Jakub Curpek, Slovak University of Technology, Bratislava, Slovakia</i></p> | <p>Feedback of bio-inspired projects in real estate <i>Pauline Philippe, Elan, France</i></p> <p>Composite lightweight structures based on biological principles <i>Valentin Koslowski and Niccolò Dambrosio, Stuttgart University, Germany</i></p> <p>A bio-inspired solution to raise the efficiency of kinetic façades <i>Steven Ware, Art & Build Architects, Paris, France</i></p> <p>Quantitative evaluation of bio-inspired building skins <i>Estelle Cruz, CEEBIOS - French Network in Biomimetics, Paris, France</i></p> <p>Brief presentation:</p> <p>BRANE Architecture - Skin and bones as one <i>Eric Chan, EDArch Studio, Hong Kong, China</i></p> | <p>Implementing a quality assurance program for sustainable buildings <i>Don Neff, LJP Construction Services, Irvine, USA</i></p> <p>Measuring the impact of enclosure thermal bridging on whole building energy models <i>Ken Roko, RWDI, Portland, United States</i> <i>Chiara Pozzuoli, RWDI, Milano, Italy</i></p> <p>Thermal comfort modeling <i>Vikram Sami, Olson Kundig, Seattle, United States</i></p> <p>Energy Code Compliance and effects of more stringent codes on envelope design <i>Inna Dolottseva, Interface Engineering, USA</i></p> <p>Acoustic performance of façade components <i>Fabien Dalzin, Saint-Gobain, Compiègne, France</i></p> <p>Building Enclosure Commissioning <i>Ryan Krug, Pie Consulting & Engineering, USA</i></p> <p>Brief presentations:</p> <p>Customized cost-efficient building skin design <i>Adria Mateo Fornés, University of Lleida, Spain</i></p> <p>Evaluating energy, environmental impact and costs <i>Carlotta Dolzani, Agenzia per l'Energia, Italy</i></p> <p>Energy-efficient building envelope design features <i>Kuladeep Kumar, Indian Institute of Technology</i></p> <p>Voxel-based computational morphogenesis in urban context <i>Iiona Darmon, Nobatek/INEF4, France</i></p> | <p>Adjustable thermal insulation - The manufacturer's viewpoint <i>Michael Fischer, König Metall, Germany</i></p> <p>Application for a concrete based thermal storage element with vacuum insulation <i>Theresa Schmitt, Innogration GmbH, Germany</i></p> <p>Transient thermal behavior of switchable vacuum insulation panels <i>Martin Kiesche, TU Kaiserslautern, Germany</i></p> <p>Structure and properties of supported vacuum insulation <i>Jobst Kerspe, TEB-Kerspe, Germany</i></p> <p>Multifunctional components for energetic active use of the building envelope <i>Tillman Gauer, TU Kaiserslautern, Germany</i></p> <p>Decentralized thermal storage container <i>Thomas Friedrich, Innogration GmbH, Germany</i></p> |



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ADVANCED
BUILDING SKINS



energie schweiz
Unser Engagement: unsere Zukunft.

| A3 | Responsive and Adaptive Building Skins <i>Chair: Charles Cooke, Populous, London, United Kingdom</i> | B3 Dynamic Glazing for Sustainable Building Skins <i>Chair: Michele Manca, LEITAT Technological Center, Spain</i> | C3 Integrating Solar Technologies into the Building Envelope <i>Chair: Dirk Hengevoss, FHNW, Switzerland</i> | D3 New Forms of Concrete for the Building Envelope <i>Chair: Robert Schmitz, RPS Structural Engineering, LLC, Brookfield, United States</i> |
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| | <p>Responsive and interactive façades on the next generation of entertainment venues <i>Charles Cooke, Populous, London, United Kingdom</i></p> <p>Wind-induced noise caused by adaptive façade elements <i>Monika Rychtarikova, KU Leuven, Ghent, Belgium</i></p> <p>Agency in the presence of intelligence: the case of occupants and adaptive skins <i>Zein Al-Doughmi, Cardiff University, United Kingdom</i></p> <p>Adaptive façades impact on workplace comfort <i>Maria Meizoso, Arup, London, United Kingdom</i></p> | <p>Smart dynamic windows <i>Aline Rougier, University of Bordeaux, France</i></p> <p>Comparison of two dynamic glass technologies - liquid crystal and electrochromic <i>Aliki Papisifaki, Elementa Consulting, United Kingdom</i></p> <p>Electrochromic window: The importance of control <i>Tanguy Timmermans, Halio International, Belgium</i></p> <p>Advanced control strategies for active modulation of solar radiation in buildings <i>Fabio Favoino, Politecnico di Torino, Italy</i></p> <p>Designing for restorative spaces with dynamic glass <i>Eloïse Sok, Saint-Gobain, Courbevoie, France</i></p> <p>Passive and active coatings technology for glass <i>Rory Back, NSG Pilkington, Lathom, United Kingdom</i></p> <p>Brief Presentations on Solar Shading systems:</p> <p>Ceramic skin of Sant Pau Research Institute <i>Zuzana Prochazkova, pichArchitects, Barcelona, Spain</i></p> <p>Determining shading with a thermal comfort model <i>Anton Hendrix, BAU, Stockholm, Sweden</i></p> <p>Solar-thermal venetian blind for adaptive sun protection in a double-skin façade <i>Simon Frederik Haeringer, Fraunhofer ISE, Germany</i></p> | <p>Solar-aesthetics beyond glass <i>Claudio Gisepp, 3S Solar Plus, Gwatt, Switzerland</i></p> <p>BIPV as the primary energy source for future schools and offices <i>Dave Worsley, Swansea University, United Kingdom</i></p> <p>Transparent PV with quantum dots surface <i>Lovro Denona, ML System, Poland</i></p> <p>Multi-functional solar-roof membranes <i>Maximilian Rosner, DAS Energy, Austria</i></p> <p>Novel, semi-transparent BIPV-modules with new design features <i>Johannes Eisenlohr, Fraunhofer ISE, Germany</i></p> <p>Energy harvesting by invisible solar façade collector <i>Bart Erich, TNO, Eindhoven, Netherlands</i></p> <p>Brief presentation:</p> <p>Performance of semi-transparent PV windows <i>Roland Valckenborg, TNO, Eindhoven, Netherlands</i></p> | <p>Concrete curtain walls - Status, benefits and visions <i>Stephan Giesser, Solidian, Germany</i></p> <p>Fabric-formed concrete structures <i>Robert Schmitz, RPS Structural Engineering, LLC, Brookfield, United States</i></p> <p>Ultra-high performance concrete and carbon tendons for façades <i>Milan Schultz-Cornelius, TU Kaiserslautern, Germany</i></p> <p>Green Roof 2.0 <i>David Duffus, GR2 Architecture, Copenhagen, Denmark</i></p> <p>New development for a pre-stressed façade panel <i>Cristina Pardal March, Universitat Politècnica de Catalunya, Barcelona, Spain</i></p> <p>Brief presentation:</p> <p>Glassfibre reinforced concrete <i>Simon Hertzum, International Glassfibre Reinforced Concrete Association, United Kingdom</i></p> <p>Innovation in brickwork – The next generation of brick façades <i>Mike Wood, Telling Architectural Ltd, United Kingdom</i></p> |



| A4 | Advanced Building Skin Design <i>Chair: Michael Garrison, University of Texas at Austin, United States</i> | B4 Dynamic Façade Design with Simulation Tools <i>Chair: Per Sahlin, EQUA Simulation, Stockholm, Sweden</i> | C4 Colored Photovoltaics: Performance and Aesthetics <i>Chair: Janne Halme, Aalto University, Espoo, Finland</i> | D4 New Materials for the Building Skin <i>Chair: Sven Mumme, U.S. Department of Energy, Washington DC, United States</i> |
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| <p>Holistic approach to building envelope and mechanical system design <i>Sean O'Brien, Simpson, Gumpertz & Heger, New York, United States</i></p> <p>Two concepts for zero-net-energy buildings for affordable housing in Austin, Texas <i>Michael Garrison, University of Texas at Austin, United States</i></p> <p>Design for fabrication for a specialty mega-panel façade system <i>Sanjeev Tankha, Walter P Moore, Los Angeles, United States</i></p> <p>Dynamic morphing of traditional screen design <i>Muhammad Moussa, OBM International, Miami, United States</i></p> <p>Design recommendations for Bypass Double Skin Façades <i>Frank Wellershoff, HafenCity University Hamburg, Germany</i></p> <p>Nodable - 3D Printed nodes for freeform steel façades <i>Lia Tramontini, Jansen, Switzerland</i></p> | <p>Why shading must be dynamic <i>Anders Hall, Somfy, Sweden</i></p> <p>Glazing and shading that make the difference <i>Oskar Storm, Saint-Gobain Glass, Sweden</i></p> <p>Successful façade design by simulation <i>Sven Moosberger, EQUA Solutions, Switzerland</i></p> <p>Predictive controls for HVAC systems <i>Urs Grossenbacher, Pronoó AG, Switzerland</i></p> <p>Holistic, multi-dimensional analysis of shading impacts on an all-glass office building <i>Jason Kirkpatrick, Interface Engineering, San Francisco, United States</i></p> <p>Advanced daylight modeling of façade systems for energy and comfort analysis <i>David Geisler-Moroder, Bartenbach GmbH, Aldrans, Austria</i></p> <p>Activating optical behavior of cellular lattices in glass sandwich façades <i>Nebojsa Jakica, University of Southern Denmark, Odense</i></p> <p>Design of an angular selective and switchable textile shading system <i>Bruno Bueno, Fraunhofer ISE, Freiburg, Germany</i></p> | <p>Optimizing the performance of colored BIPV <i>Janne Halme, Aalto University, Espoo, Finland</i></p> <p>High-performing coloured BIPV modules with anti-glare coating <i>Thomas Kroyer, Fraunhofer ISE, Germany</i></p> <p>Digitally printed multi-colored BIPV <i>Dirk Hengevoss, FHNW, Switzerland</i></p> <p>Coloring of solar modules by a photonic pigment layer <i>Sebastian Barth, Merck, Germany</i></p> <p>Energy façades of tomorrow <i>Peter Röthlisberger, Solaxess, Switzerland</i></p> <p>Colored PV solutions for active façades <i>Laure-Emmanuelle Perret, EPFL, Switzerland</i></p> <p>Nano-particle coatings for directional low-loss colored PV <i>Verena Neder, Amolf, Amsterdam, Netherlands</i></p> <p>Brief Presentations on Photovoltaic-thermal systems for the building skin:</p> <p>Producing heat and power in the building skin <i>Corry de Keizer, TNO-SEAC, Eindhoven, Netherlands</i></p> <p>Envelope-integrated solar electric/thermal cooling system with storage <i>Mohannad Bayoumi, KAU, Jeddah, Saudi Arabia</i></p> | <p>Long-lasting protection through functionalized building materials <i>Pedro Kaiser, Evonik Resource Efficiency GmbH, Switzerland</i></p> <p>Advanced thermal management: A dynamic and tunable systems approach for building envelopes <i>Sven Mumme, U.S. Department of Energy, Washington DC, United States</i></p> <p>Digital ink print on 3D metallic effect powder coating <i>Dieter Holzinger, TIGER Coatings, Wels, Austria</i> <i>Nora Pollmann, TIGER Coatings, Wels, Austria</i></p> <p>The building envelope of the future <i>Werner Jager, Hydro Building Systems, Germany</i></p> <p>Circular economy optimised energy-efficient building skins for residential construction <i>Gerard Finch, Victoria University of Wellington, New Zealand</i></p> <p>Brief Presentation:</p> <p>3D-printed façade panel with integrated electric infrastructure <i>Hyunchul Kwon, ETH Zurich, Switzerland</i></p> | |



| A5 | Integrated 3D Design of a Timber Construction with PV <i>Lutz Schöne, LEICHT Structural Engineering</i> | B5 | Glass for Advanced Building Envelopes <i>Chair: Jeremy Deale, Architectus, Sydney, Australia</i> | C5 | Parametric Design and Digital Fabrication <i>Chair: David Frey, HOK, Los Angeles, United States</i> | D5 | Building Retrofit: Policies, Prefabrication, Projects <i>Chair: Leo Lau, Green Energy Technology R&D Center, Chengdu, China</i> |
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| <p>Infinite geometry and hybrid construction: An exceptional façade design <i>Lutz Schöne, LEICHT Structural Engineering, Germany</i></p> <p>From BIM to fabrication <i>Fabian Scheurer, Design-to-Production, Zurich, Switzerland</i></p> <p>Free-form timber façade <i>Franz Tschümperlin, SJB Kemptner Fitze, Switzerland</i></p> <p>The role of the local architect in a complex international project <i>Carolin Schaal, Itten + Brechbühl, Bern, Switzerland</i></p> <p>System design of a complex BIPV skin <i>Samuel Summermatter, BE Netz, Switzerland</i></p> | <p>Designing innovative high energy-performance glass façades <i>Jeremy Deale, Architectus, Sydney, Australia</i></p> <p>Current developments in building skin design – A façade contractor’s perspective <i>Erwin Trommer, Frener & Reifer, Italy</i></p> <p>Water-glass building envelope - Design and energy aspects of adaptive hybrid envelopes <i>Matyas Gutai, Loughborough University, United Kingdom</i></p> <p>IGUs with individual function and free design using 3D printing <i>Frank Schneider, OKALUX GmbH, Germany</i></p> <p>Reinforced annealed glass <i>Mithila Achintha, University of Southampton, UK</i></p> <p>Reactive thermoplastic spacer for energy-efficient cold-bent structural glazing façades <i>Christian Scherer, Kömmerling, Germany</i></p> <p>Brief presentations: Heat build-up on shadow box: Assessment with 1-D and 2-D finite elements tools <i>Simone Miriana, Eckersley O'Callaghan, UK</i></p> <p>Thermal stress in glazed façades <i>Wout Parys, Physibel, Ghent, Belgium</i></p> | <p>Pixelated façades, curvatures by simple parts <i>Roberto Fabbri, BIG - Bjarke Ingels Group, Copenhagen, Denmark</i></p> <p>Working with big data - The grid-shell glass roof at Changi Airport, Singapore <i>Cristobal Correa, BuroHappold Engineering, New York, United States</i></p> <p>Parametric design and digital fabrication - Case study <i>Stefano Rossi, Maffei Engineering, Zürich, Switzerland</i></p> <p>Mechanically enhanced parametric design of structures by iso-geometric analysis <i>Anna M. Bauer, Technical University of Munich, Germany</i></p> <p>Industry disruption 4.0 - Mass customisation and digitalisation <i>Vladimir Marinov, Define Engineers, London, United Kingdom</i></p> <p>Parametric performance analysis for cost optimization in design build delivery <i>David Frey, HOK, Los Angeles, United States</i></p> <p>Brief presentation:</p> <p>Front load optimization on complex façade design <i>Will Wang, Pelli Clarke Pelli Architects, United States</i></p> | <p>Optimising densification and renovation of the building stock in Switzerland <i>Lionel Rinquet, University of Applied Sciences and Arts, Geneva, Switzerland</i></p> <p>Refurbishment strategies considering the utilization cycle for institutional investors <i>Marvin King, Lucerne University of Applied Sciences and Arts, Switzerland</i></p> <p>Prefabricated net-zero energy retrofit of low-rise Canadian housing <i>Mark Carver, Natural Resources Canada, Ottawa</i></p> <p>Prefabricated modular façade elements for refurbishment with integrated heat pump <i>Fabian Ochs, University of Innsbruck, Austria</i></p> <p>Envelope retrofit of a university building <i>Graeme Duffus, DSRA Architects, Halifax, Canada</i></p> <p>Brief presentation:</p> <p>Refurbishment of Dutch post-war stacked residential houses <i>Frits Schultheiss, HAN University of Applied Sciences, Arnhem, Netherlands</i></p> | | | | |

| A6 | Envelope as Symbiotic Ecosystem <i>Chair: Matthew Fineout, Smart Architecture, Pittsburgh, United States</i> | B6 | Fluid-flow Façade Technology for Advanced Performance <i>Chair: Tin-Tai Chow, City University of Hong Kong, China</i> | C6 | Sustainable Design with Building Information Modeling <i>William Russell, BSK Architects, New York, United States</i> | D6 | Retrofitting the Envelope of Mid-20th Century Iconic Buildings <i>Christopher Jend, Pei Cobb Freed & Partners, New York, United States</i> |
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| <p>The Desert Rose - When poesy meets technology <i>Nassim Saoud, Trimble Consulting, Paris, France</i></p> <p>Building envelopes that minimizes energy <i>Matthew Fineout, Smart Architecture, United States</i></p> <p>Façade design for passenger comfort and energy efficiency in extreme climates <i>Mustafa Chehabeddine, Kohn Pedersen Fox Associates, London, United Kingdom</i></p> <p>Engineering, Modelling and Fabrication of a Complex Parametric Envelope: The Kuwait International Airport T2 <i>Lucio Blandini, Werner Sobek, Stuttgart, Germany</i></p> <p>Façade engineering and soundscape <i>Tommaso Crippa and Edoardo Dagnini, BuroHappold Engineering, London, United Kingdom</i></p> | <p>Liquid-flow glazed panel design <i>Tin-Tai Chow, City University of Hong Kong, China</i></p> <p>Spectral and thermal problems of Water Flow Glazing <i>Juan Antonio Hernandez, Technical University of Madrid, Spain</i></p> <p>Modular façade system for Water Flow Glazing façades <i>Veneta Novakova, Etem, Sofia, Bulgaria</i></p> <p>Thermal performance of water medium window <i>Yuanli Lyu, Xihua University, China</i></p> <p>Achieving nZEB by means of water-flow-glazing systems <i>Belen Moreno, Technical University of Madrid, Spain</i></p> <p>Heat-pipe embedded façade for domestic water heating <i>Wenjie Liu, City University of Hong Kong, China</i></p> | <p>Building envelope cost analysis with BIM and UniModel <i>Philip Larson, Project & Cost Control, United States</i></p> <p>Circular façade systems developed with BIM <i>Thomas Bögl, LIAG Architects & Engineers, Netherlands</i></p> <p>Element-based life cycle Information Modeling for curved building skins <i>Chihlin Hsu, Gomore Material Technology, Taiwan</i></p> <p>Sustainable façade design in New York landmarks historic districts <i>William Russell, BSK Architects, New York, USA</i></p> | <p>Sustainable redevelopment of an iconic 20th century office building <i>Ronan Phelan, Scott Tallon Walker Architects, Dublin, Ireland</i></p> <p>Recladding a mid-century modern icon for the 21st century workplace <i>Katherine Bojsza, Pei Cobb Freed & Partners, New York, United States</i></p> <p>Retrofitting of building envelopes with a view to heritage values <i>Michel Pregardien, University of Mons, Belgium</i></p> <p>Envelope retrofit of historical buildings <i>Raul Corrales, Biff SA, Lausanne, Switzerland</i></p> | | | | |
| End of Conference Day 2 | | | | | | | |

Presentations are in English, with the exception of session D1, which is in German.

Registration:

The registration fee is €89 for a single user, €180 for three users, and €880 for a company license. The price includes online access to every presentation for one year. Please [click here to register](#).

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