



16th Advanced Building Skins Conference & Expo 21-22 October 2021, Bern, Switzerland



CONFERENCE DAY 1

13:45 OPENING SPEAKERS

- » Carl Maywald, Vector Foiltec, Germany; Member of the Conference Committee, Advanced Building Skins Conference
- » Gordon Geddes, Lynx Systems Ltd, Sydney, Australia

14:00 KEYNOTE SPEAKER

- » Andrew Whalley, Chairman at Grimshaw Architects, New York

ROOM ARENA

ROOM PANORAMA 1

ROOM PANORAMA 2

Opening + Keynote

14:30 **Solar Façades -
B1 Academic Viewpoint**

14:30 **New Forms of Concrete
A1 for Building Envelopes**

14:30 **Dynamic Glazing for
C1 Sustainable Building Skins**

16:15 **Double Skin and
A2 Cavity Façades**

16:15 **Integrating Solar
B2 Technologies into Façades**

16:15 **Glass for Advanced
C2 Building Envelopes**

CONFERENCE DAY 2

ROOM ARENA

ROOM SZENARIO 1

ROOM SZENARIO 2

08:30 **Complex Façades
A3 for Mega-Structures**

08:30 **Products and Technologies
C3 for Enhanced Daylight Control**

08:30 **Skins from
B3 Fabrics and Foils**

10:45 **Smart Materials and
C4 Adaptive Building Skins**

10:45 **Building Membrane
B4 Cladding Systems**

10:45 **Parametric Design
A4 and Digital Fabrication**

14:00 **Products for Advanced
B5 Building Envelopes**

14:00 **Retrofitting the
C5 Building Envelope**

14:00 **Designing High-performance
A5 Building Skins**

16:15 **Living Building Skins
B6**

16:15 **Innovative Solutions for Deep
C6 Renovation of Buildings**

16:15 **Roundtable on Façade Design -
A6 The Client's and Design
Team's Views**

21 OCTOBER 2021, CONFERENCE DAY 1

14:30 NEW FORMS OF CONCRETE FOR BUILDING ENVELOPES

Session A1

Room: **Panorama 1** Chair: Fabian Ochs, University of Innsbruck, Austria

Mineral foam insulation for sandwich wall panels

- » Advantages of mineral foam
 - » Pure mineral sandwich façade
 - » Application of mineral foam in the precast plant
- Stefan Carstens, Technical University Kaiserslautern, Germany

Balcony as part of the building skin

- » Ultra-high performance concrete thin balconies
 - » Unitised curtain walling system with integrated balconies
 - » Façade performances and components integration
- Roberto Fabbri, BIG - Bjarke Ingels Group, Copenhagen, Denmark

Translucent concrete for façades

- » Mechanical properties of translucent concrete
 - » Visibility of translucent façades from different angles and distances
 - » Installation methods of translucent concrete
- Andreas Roye, Lucem GmbH, Aachen, Germany



15:30 Coffee Break



21 OCTOBER 2021, CONFERENCE DAY 1

14:30 SOLAR FAÇADES - ACADEMIC VIEWPOINT

Session B1

Room: Arena Chair: Dieter Moor, ClearVue Technologies, Australia

Colored unglazed solar thermal panels for aesthetic integration in building façades

- » Unglazed solar panels as active façades
 - » Parametric study on the optical properties of coatings
 - » Aesthetic integration and acceptable thermal performances
- Zakaria Aketouane, NOBATEK/INEF4, Bordeaux, France

Experimental study of BIPV in Brussels

- » Modelling of solar irradiance on BIPV
 - » Influence of different parameters on efficiency
 - » Comparison between BIPV technologies
- David Uyttebroeck, Université Libre de Bruxelles, Belgium

Architectural integration of photovoltaics in high-rise office buildings - A case study in Milan

- » Transforming building façades into energy producers
 - » PV integrated into old windows or new building curtain walls
 - » Monocrystalline, polycrystalline and amorphous solar cells
- Paolo Giussani, Studio di Ingegneria Rigone, Milano, Italy

Bio-inspired design of adaptive solar photovoltaic façades

- » Biomimetic design methodology
 - » Influential parameters of a PV façade
 - » Living organisms for the design of bio-inspired PV façades
- Julie Ratovonkery, University of Savoie Mont-Blanc, Le Bourget Du Lac, France

Structural color coatings for BIPV and solar collectors

- » Costs and performance loss of colored BIPV
 - » Upscaling and testing on a façade
 - » Accelerated life-time tests
- Zeger Vroon, Zuyd University, Netherlands

BRIEF PRESENTATIONS

Energy Matching Platform for harvesting renewable energy in buildings

- » Jennifer Adami, Eurac Research, Bolzano, Italy

New options for designing semi-transparent PV-modules for building integration

- » Johannes Eisenlohr, Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany

Solar and green strategies for the redevelopment of urban districts

- » Elisabeth Fassbender, Technical University of Munich, Germany



15:30 Coffee Break

21 OCTOBER 2021, CONFERENCE DAY 1

14:30 DYNAMIC GLAZING FOR SUSTAINABLE BUILDING SKINS

Session C1

Room: **Panorama 2** Chair: Paul Verbunt, eyrise B.V., Netherlands

Integrating PV and dynamic glass - A high-rise façade retrofit

- » Integrating photovoltaics into façades
- » Integrating dynamic glass: First steps and prototypes
- » Retrofitting the high-rise PPN building, Geneva
Raul Corrales, Biff SA, Lausanne, Switzerland

Impact of electrochromic windows in energy savings and illuminance of glass façades

- » Electrochromic solutions versus shading systems
- » Energy efficiency of glass façade buildings
- » Building energy simulations
Michaela Detsi, National Technical University of Athens, Greece

Smart window solutions for building retrofitting

- » Retrofittable glazing with controllers for advanced shading systems
- » Smart dynamic glazing to maximize daylight and thermal comfort
- » Near-infrared selective electrochromic windows
Michele Manca, Leitat, Barcelona, Spain

User experience with dynamic liquid-crystal window technology

- » Dynamic glazing by liquid-crystal technology
- » User experience and interaction
- » Well-being and light-wellness
Paul Verbunt, eyrise B.V. , Veldhoven, Netherlands



15:30 Coffee Break



21 OCTOBER 2021, CONFERENCE DAY 1

16:15 DOUBLE SKIN AND CAVITY FAÇADES

Session A2

Room: Arena Chair: Paolo Rigone, Politecnico di Milano, Italy

Room comfort and energy efficiency of an active double skin façade

- » Design of active double skin façades and test results
- » Energy use in residential areas with high-rise buildings
- » Comparison of functionality and cost with existing façades
Claudio Meisser, HyWin GmbH, Wollerau, Switzerland

Double skin façades: Naturally ventilated small and big cavities - A case study in Milan

- » Double skin façades improve thermal and acoustic performance
- » Inner skin, outer skin or single module façade: A comparison
- » Double skin facades natural ventilation of the cavity
Paolo Rigone, Politecnico di Milano, Italy

Functionality and performance of a triple-cavity building skin system

- » Holistically integrated intelligent building skin system
- » The DNA technology for intelligent building skins
- » Intelligent building skins functioning as a platform
Gordon Geddes, Lynx Systems Pty Ltd, Sydney, Australia

Double Skin façades for building retrofit: An energy analysis

- » Holistic refurbishment of existing buildings
- » DSF modelling for dynamic energy simulations
- » Building energy consumption and indoor comfort rates
Camilla Lops, University G. d'Annunzio, Pescara, Italy

Closed Cavity Façades for improving energy efficiency and indoor environmental quality

- » From the Double Skin Façades to the Closed Cavity Façades
- » The impact on the building performance and indoor environmental quality
- » The risk of cavity overheating and condensation
Michalis Michael, University of Cambridge, United Kingdom

BRIEF PRESENTATION

From residual stone to green grid skin façades

- » Soheyl Sazedj, University of Lisbon, Portugal



17:45 End of Conference Day 1



18:00 Meeting TensiNet & Friends
Room: Panorama 2



19:30 Conference Dinner

21 OCTOBER 2021, CONFERENCE DAY 1

16:15 INTEGRATING SOLAR TECHNOLOGIES INTO FAÇADES

Session B2

Room: **Panorama 1** Chair: Dieter Moor, ClearVue Technologies, Australia

Photovoltaics for a listed building in the center of Zurich

- » Costs and efficiency of a 800m2 roof with terracotta PV
 - » Lessons learned
- Gregory Bugnon, Solaxess SA, Switzerland

High-efficient colored solar panels

- » The challenge and the solution
 - » Production process and benefits
- Rafic Hanbali, Kromatix S.A, Switzerland

Window-integrated PV panels for a greenhouse

- » Reasons for a PV-powered greenhouse
 - » Challenges during realization
 - » Results after six months of operation
- Dieter Moor, ClearVue Technologies, Perth, Australia

Window PV - A missing part of BIPV

- » Window PV - A new PV application for buildings
 - » Energy yield of window PV
 - » Solar blind technology
- Urs Muntwyler, Ingenieurbüro Muntwyler, Switzerland

From BIPV to BEPV

- » Architectural limitations of BIPV
 - » BEPV – Building Exposed Photovoltaics
 - » Combining PV with other façade materials
- Peter Kuczia, Architect, Osnabrueck, Germany

Building regulations and the impact of PV in the UK

- » Unitised BIPV façades
 - » Enabling mass adoption by off-site fabrication
 - » UK building regulations
- Hamish Watson, Polysolar Ltd, Cambridge, United Kingdom

Energy-generating facades without compromise

- » Active/non-active façade compatibility
 - » Production process
 - » Active solutions
- Bassel Glore, AGC Glass, Belgium

BRIEF PRESENTATIONS

BIPV handbook for solar buildings' stakeholders

- » Paolo Corti, SUPSI, Canobbio, Switzerland

High-quality solutions of building-integrated solar technology – An international competition 2020

- » Roland Krippner, Technical University, Nürnberg, Germany



17:45 End of Conference Day 1



18:00 Meeting TensiNet & Friends
Room: **Panorama 2**



19:30 Conference Dinner

21 OCTOBER 2021, CONFERENCE DAY 1

16:15 GLASS FOR ADVANCED BUILDING ENVELOPES

Session C2

Room: **Panorama 2** Chair: Blair Payson, Olson Kundig, Seattle, United States

Advanced façade engineering for extreme climates

- » Solar control glass
- » Human-centric glass design
- » Visual and non-visual effects of glass spectral transmission
Benjamin Beer, Werner Sobek, Dubai, United Arab Emirates

Bird-friendly glass

- » Threat posed by glass facades
- » What are regulators and customers doing to address this problem?
- » Solutions and their advantages and disadvantages
Oskar Thompson, Saint-Gobain Building Glass, London, United Kingdom

Bird-collision deterrent glazing based on a PVB interlayer

- » Bird-friendly laminated glass solutions
- » Results of flight-tunnel tests
- » Alternative solutions on the market
Stéphanie Godard, Eastman, France

Transparent dream

- » Smart transparency in building envelopes
- » New interpretation of the original buildings
- » Envelope transparency design for building refurbishment
Daniel Diez, MVRDV, Rotterdam, Netherlands

Design of a revolving glass floor for observation and thermal performance

- » Revolving glass floor maximizing visual transparency
- » Structural glass floor designed for serviceability
- » Thermal performance ensuring occupant comfort
Blair Payson, Olson Kundig, Seattle, United States

Application of thin glass and polycarbonate as laminated safety glass

- » Potential of thin glass-polycarbonate composite
- » Test method results as laminated safety glass
- » Analysis of further properties
Sebastián Andrés López, University of Siegen, Germany

BRIEF PRESENTATION

Curving minimalist windows: Options and challenges

- » José Matos, panoramah, Geneva, Switzerland



17:45 End of Conference Day 1



18:00 Meeting TensiNet & Friends
Room: Panorama 2



19:30 Conference Dinner

22 OCTOBER 2021, CONFERENCE DAY 2

08:30 COMPLEX FAÇADES FOR MEGA-STRUCTURES

Session A3

Room: Arena Chair: Lucio Blandini, Werner Sobek AG, Stuttgart, Germany

Complex façades at the edge between research and best practice

- » Highrise façades
- » Sustainability
- » Adaptivity

Lucio Blandini, Werner Sobek AG, Stuttgart, Germany

Conceptual technology

- » Designing complex façades with increasing environmental objectives
- » Visual simplicity of a complex architectural concept
- » Complex glass, steel, concrete structures

Walter Grasmug, Chaix & Morel, Paris, France

Supergreen superstructures: A new paradigm

- » Reducing construction's ecological footprint
- » Greened superstructures as environmental catalysts
- » Supergreen architecture as urban life refuge

Martin Reuter, ingenhoven architects, Duesseldorf, Germany

Innovative in-façade solutions – Design, sustainability and constructability

- » Deconstructing façades to create high-performance
- » Providing tolerances to resolve geometry while beautifying
- » Material choices for complex enclosures

Carl Knutson, Perkins+Will, Washington, D.C., United States

Realization of dynamic glazing in 3D façades

- » Dynamic glazing by liquid crystal technology
- » Light shading with shapes and free form
- » Color design and glare

Bruce Nicol, eyrise B.V., Veldhoven, Netherlands



10:00 Coffee Break

22 OCTOBER 2021, CONFERENCE DAY 2

08:30 SKINS FROM FABRICS AND FOILS

Session B3

Room: **Szenario 2** Chair: Carol Monticelli, Politecnico di Milano, Italy

Tensile structures in Europe: Tendencies, challenges, sustainability and life cycle

- » Advantages and limits of membranes as construction material
- » From cradle to cradle: reuse and recycling
- » Assessment of eco-efficiency

Carol Monticelli, Politecnico di Milano, Italy

Batumi Stadium: from design to installation

- » Aesthetical design of a stadium with tensioned fabric
- » Implementation steps
- » Advantages of tensioned fabric systems

Fevzi Dansik, Asma Germe Membran Sistemleri Mim.,
Istanbul, Turkey

New design language for urban architecture: Bus stations, tram stations, transfer hubs

- » Increasing mobility requires rethinking of traffic concepts
- » Sustainable energy concepts for pneumatic structure
- » Special design methods for valuable and lasting solutions

Gerd Schmid, formTL, Germany

Why limited combustible membranes are important

- » The new Euroclass A2 - Limited combustible membranes
- » Fire tests: Euroclass A2, B and E rated membranes
- » Related standards and tests - Importance of certificates

Allan Hurdle, AKH Services Ltd, Colchester,
United Kingdom

Lightweight design with spacer fabrics

- » Lightweight design with technical textiles for the building skin
- » 3D-textiles in architecture
- » FabricFoam: resilient material design with fabric and foam

Claudia Lueling, University of Applied Sciences,
Frankfurt, Germany



10:00 Coffee Break

22 OCTOBER 2021, CONFERENCE DAY 2

08:30 PRODUCTS AND TECHNOLOGIES FOR ENHANCED DAYLIGHT CONTROL

Session C3

Room: Szenario 1 Chairs: Verl Adams, Tokyo Metropolitan University, Japan
Pablo La Roche, CallisonRTKL, Los Angeles, United States

Developing an adaptive, responsive, expressive approach to kinetic solar shading

- » Adaptive design approach
 - » Responsive double-axis 360° rotational shading panels
 - » Expressive building façade display system
- Verl Adams, Tokyo Metropolitan University, Japan

Design process for high-performance envelopes

- » Shading and daylight case studies
 - » Computational design for high performance
 - » Climate analysis with CLIMATEscout
- Pablo La Roche, CallisonRTKL, Los Angeles, United States

Occupant-centric daylight and artificial lighting control strategy

- » Integration of daylight and artificial lighting control
 - » Multi-objective energy and comfort optimization
 - » User evaluation and energy performance analysis
- Vincent van Karsbergen, University of Innsbruck, Austria
- Stephan Moser, HELLA Sonnen- und Wetterschutztechnik, Austria

Add-on 3D printing for lightweight textile composites

- » Add-on 3D printing on fabric as a composite material
 - » Design approach for bespoke shading element
 - » Potential of add-on 3D printing in architecture
- Emmanuelle Sallin, ETH Zurich, Switzerland

Performance-driven design for an adaptive sun-tracking building skin

- » Reduced solar radiation reflection by adjusting façade elements
 - » Modular adaptive skin
 - » Parametric simulation analyses
- Miruna Vecerdi, Werner Sobek, Stuttgart, Germany



10:00 Coffee Break

22 OCTOBER 2021, CONFERENCE DAY 2

10:45 PARAMETRIC DESIGN AND DIGITAL FABRICATION

Session A4

Room: **Szenario 2** Chair: Lucio Blandini, Werner Sobek AG, Stuttgart, Germany

Shaping healthcare buildings using parametric simulations

- » Computational building form generation and parametric simulations
- » Impact of the building form on building performance
- » Integration of building skin with building systems
Andrea Frisque, Stantec, Vancouver, Canada

Digital fabrication design of a high complex façade using parametric tools

- » Digital fabrication design
- » Handling of highly complex façade geometries
- » Stone façade
Stefano Rossi, Maffei Engineering, Zürich, Switzerland

Simple strategies for complex structural glazing

- » High-performance envelopes in a cost-constrained environment
- » Innovative detailing through industry collaboration
- » A pragmatic, parametric process for louver façade deployment
Tomer Diamant, Teeple Architects, Toronto, Canada

Lightweight roofs on alp peaks

- » Complex form and parametric design
- » Design-engineering ETFE foil and steel structure
- » Digital fabrication and accelerated building process
Cornelius Schlotthauer, studio schlotthauer
matthiessen architecturemade, Hamburg, Germany

Automated panel standardization and planarization using iterative optimization

- » Planarizing panels on curved surface with physics engine
- » Standardizing panels, extracting data, cost evaluation
- » Automated updates with new parameters
Thibault Legras, Inhabit, Montreuil, France

Rationalising the design processes to deliver complex façade geometry

- » The Beijing Century City project
- » Rationalising design processes with parametric design
- » Streamlining workflow to deliver complex geometries
Mustafa Chehabeddine, Kohn Pederson Fox Associates, London, United Kingdom



12:30 Lunch

22 OCTOBER 2021, CONFERENCE DAY 2

10:45 BUILDING MEMBRANE CLADDING SYSTEMS

Session B4

Room: **Szenario 1** Chair: Carl Maywald, Vector Foiltec GmbH, Bremen, Germany

Low haze ETFE film for façade solutions

- » A new ETFE film for façades
- » New design and application options
- » Case study on the Johan Cruijff Arena Amsterdam
Ben Runhaar, AGC Chemicals Europe, Amsterdam, Netherlands

Do we need technical specifications for membrane structures?

- » Code of practice in membrane structures
- » Harmonised safety levels improve quality
- » Transforming a niche into an established building technology
Bernd Stimpfle, TensiNet, Germany

ETFE applications, durability of foils commonly used in tensile architecture

- » Ageing performance of ETFE foils in architecture
- » Longevity of ETFE foil building cladding systems
- » Mechanical and optical performance
Carl Maywald, Vector Foiltec, Bremen, Germany

Acoustic benefits of structural skins used as roof or façade construction

- » Long-term and short-term effects of noise on human health
- » Acoustic properties of structural skins
- » Improvement of indoor and outdoor acoustic comfort
Monika Rychtarikova, KU Leuven, Brussels, Belgium

Recent development in European ETFE design

- » Discussion on existing ETFE design methods
- » Development of a new design rule for ETFE structures
- » Proposals for unified test methods
Felix Surholt, Duisburg-Essen University, Germany

Frame-supported membrane structures

- » Inspirational projects made with frame-supported membranes
- » Fibre-reinforced membranes for frame-supported structures
- » Case studies
Maxime Durka, Sioen, Belgium

Analytical calculation of membranes and foils for building skins

- » Complete and accurate structure formulation
- » Form finding of mechanically and pneumatically stressed surfaces
- » Hybrid structures and their static calculation
Jurgen Holl, technet, Stuttgart, Germany



12:30 Lunch

22 OCTOBER 2021, CONFERENCE DAY 2

10:45 SMART MATERIALS AND ADAPTIVE BUILDING SKINS

Session C4

Room: Arena Chair: Olga Mesa, Roger Williams University, Bristol, United States

Smart textile sun-shading

- » Adaptive textile sun-shading
 - » Usage of smart materials in architectural applications
 - » Autarkic and energy-efficient operation
- Jens Bönke, Priedemann Facade-Lab, Germany

Performance of responsive and adaptive building skins

- » Functional and choreographic benefits of responsive skins
 - » Case studies on performative exchange from low to high tech
 - » Future potentials for qualitative and quantitative inputs
- Olga Mesa and Nathan Fash, Roger Williams University, Bristol, United States

Eco-solar transformer architecture

- » Smart building, ecofriendly transformable envelope
 - » Passive/active bioclimatic Mashrabiya photovoltaic façade
 - » Integrated LED units, light design, urban display
- Jorge Cruz Pinto, University of Lisbon, Portugal

Bioinspired building envelopes: Case study of an adaptive skin inspired by the morpho butterfly

- » Bioinspired framework for envelope design
 - » Physical characterization of envelopes
 - » Biological data collection for bioinspiration
- Tessa Hubert, NOBATEK/INEF4, Bordeaux, France

Structural origami for the building envelope

- » Morphing abilities within rigid links kinematics
 - » Achieving variable stiffening
 - » Lateral load as actuation strategy
- Valentina Beatini, Aarhus University, Denmark

Challenges with adaptive façades - A life-cycle perspective

- » Challenges in the life cycle of adaptive façades
 - » Planning procedures of adaptive façades
 - » Optimization and further development
- Michael P. Voigt, University of Stuttgart, Germany



12:30 Lunch

22 OCTOBER 2021, CONFERENCE DAY 2

14:00 DESIGNING HIGH-PERFORMANCE BUILDING SKINS

Session A5

Room: **Szenario 2** Chair: Ben Abel, Hilson Moran, London, United Kingdom

Solution for a thermally active structure

- » Energy efficiency via thermally active structures
- » Planar thermal function addressing human physiology
- » Additive construction via construction robotics
Julian Berchtold, Institute for Independent Studies, Zurich, Switzerland

Designing for longevity and quality with a low-carbon façade

- » Designing for a 100-year life
- » Façade design to maximise passive performance
- » Embracing future maintenance
Nick Hodges, FCBStudios, Bath, United Kingdom

A circular approach to building envelope design

- » Existing building envelope industry linear approach
- » Circular performance indicators to assess façade materials
- » Unitised curtain-wall test case
Laura Craft, Arup, Berlin, Germany

Comparison of summer temperatures in a domestic building between measured and modeled results

- » Domestic overheating
- » Model validation against measurement
- » Dynamic thermal simulation
Ben Abel, Hilson Moran, London, United Kingdom

Energy and life-cycle cost comparison of natural, mechanical and hybrid ventilation systems in schools

- » Comparing natural, mechanical and hybrid ventilation
- » Energy performance simulation
- » Life-cycle cost of different ventilation strategies
Stefan Fischer, WindowMaster Focair AG, Switzerland

BRIEF PRESENTATIONS

Methodology to generate sustainable hybrid façades

- » Niloofar Zolghadrasli, Texas Tech University, Lubbock, United States

Improving indoor air quality in classrooms via wind-induced natural ventilation

- » Mohannad Bayoumi, KAU, Jeddah, Saudi Arabia



15:30 Coffee Break

22 OCTOBER 2021, CONFERENCE DAY 2

14:00 PRODUCTS FOR ADVANCED BUILDING ENVELOPES

Session B5

Room: Arena Chair: Carl Maywald, Vector Foiltec GmbH, Bremen, Germany

Liquid composites - The key to safely and efficiently adding function to the building skin

- » Embedment of sensitive components using liquid
- » Fire behavior of liquid composite interlayers
- » Advantages of liquid composite interlayers in curved and cold-bent laminated glass

Chris Davis, Kömmerling, Germany

The airplane façade - Circular economy and upcycle strategies in large-scale envelopes

- » Implementation of upcycled aircraft fuselages
 - » Circular economy strategies in commercial architecture
 - » Integrated engineering and detailing solutions
- Silvia Prandelli, Populous Italia, Milan, Italy

Passive radiative cooling

- » Radiative cooling and application during daytime
- » Advantages over traditional cooling and air conditioning
- » Energy and CO2 savings potential

Sebastian Zehentmaier, Dyneon, Germany

An active detection system for moisture on façades

- » Prevent microorganism growth on the façade
- » Increasing the performance of the coating system
- » Reduction of the use of biocides on the building envelope

Ayman Bishara, RMI, Germany

Building skins to replace air conditioners

- » Fire resistant vacuum insulation exterior panels
- » Heat pipes for heat emission over the insulation
- » Cooling and heating over the insulation

Takuju Nakamura, Yazaki Energy Corp., Japan

BRIEF PRESENTATIONS

Mandatory building envelope product approvals

- » Lames Buckner, CBUCK Engineering, Palm Beach, USA

Embodied carbon content of façades

Matthew Tee, Eckersley O'Callaghan, London, UK

» Wind energy harvesting of passive buildings

David Serero, GSA Laboratory - ENSA, Paris, France

»

A modern thermal mass wall composed

- » Yasin Idris, Takenaka Corp., Tokyo, Japan

Bio-composites for window profiles

Arsenio Navarro, Aimplas, Spain



15:30 Coffee Break

22 OCTOBER 2021, CONFERENCE DAY 2

14:00 RETROFITTING THE BUILDING ENVELOPE

Session C5

Room: **Szenario 1** Chair: Fabian Ochs, University of Innsbruck, Austria

Bringing an icon into the future: The Willis Tower, Chicago

- » Major revitalization of an iconic supertall building
 - » Façade strategies to increase energy efficiency
 - » Enclosure strategies as pandemic response
- Stephen Katz, Gensler, Chicago, United States

Textile envelopes – A light and functional element with versatile applications

- » Protective function as a temporary structure
 - » Architectural retrofit of existing buildings
 - » Multifunctional and convertible envelope
- Alexander Hub, Alfred Rein Ingenieure GmbH, Stuttgart, Germany

Parametric modelling for automation in the energy analysis of existing buildings

- » Parametric modelling based on survey data
 - » Automatic point cloud analysis
 - » Energy certification
- Wissam Wahbeh, FHNW University of Applied Sciences and Arts Northwestern Switzerland

Past is prologue: A sustainable story of façade retrofit and transformation

- » A risk-cost-benefit analysis to salvage existing façades
 - » Maintain embodied memory/energy of functional buildings
 - » Older buildings have value: Retrofit as sustainable option
- Marta Bouchard, Atelier Ten / Intep Integrale Planung, New York, United States



15:30 Coffee Break

22 OCTOBER 2021, CONFERENCE DAY 2

16:15 ROUNDTABLE ON FAÇADE DESIGN - THE CLIENT'S AND DESIGN TEAM'S VIEWS

Session A6

Room: **Szenario 2** Chair: David Frey, HOK, Los Angeles, United States

Jonathan Brown, MIRAL, Abu Dhabi, United Arab Emirates

- » Dynamic facade lighting as a content and revenue generating
- » Sustainability concerns and operational costs
- » Iconic design as a vehicle for branding and promotion

Justin Frankel, HOK Dubai, United Arab Emirates

- » Developing architectural detailing into a buildable reality
- » The importance of mockups
- » Buildability and working with contractors

John Rhodes, HOK London, United Kingdom

- » Cost management - Form vs materiality
- » The theatre of facades
- » Elevational hierarchy

Maxime Coche, WSP, Dubai, United Arab Emirates

- » High-performance thermal and acoustic façade systems
- » 3D Forms and secondary steel work
- » Phased opening strategies

Neil Pickavance, John Moores University, Liverpool, United Kingdom

- » Planning and programme management of building envelopes
- » Managing client and contractor risk in building façades
- » Programming envelope design, procurement and installation
- » Football Academy at the Etihad Campus of Manchester City Football Club



17:45 End of Conference Day 2

22 OCTOBER 2021, CONFERENCE DAY 2

16:15 LIVING BUILDING SKINS

Session B6

Room: Arena Chair: Gabriel Pérez, University of Lleida, Spain

Positive effects of green building envelopes

- » Reducing the urban heat island effect
- » Filtering fine dust of the streets
- » Reducing the noise levels
Rudi Scheuermann, Arup, Berlin, Germany

Designing for a carbon neutral green roof system

- » Interdisciplinary design: Roofing and green systems
- » Design systems to maximize material service life
- » Maintenance programs to maximize the service life
Colin Tougas, RJC Engineers Ltd., Vancouver, Canada
Pearl Yip, PWL Partnership Ltd., Vancouver, Canada

BIM objects for "Smart" Urban Green Infrastructure (UGI)

- » Lack of available UGI BIM objects
- » Big differences between UGI BIM objects designs
- » Inclusion of ecosystem services in UGI BIM objects
Julià Coma Arpon, University of Lleida, Spain

Green roofs: An answer to an hot and dry climate?

- » Potential of biodiversity green roofs
- » Water management strategies
- » Building green roofs with low maintenance
Ralf Walker, ZinCo GmbH, Stuttgart, Germany

Green roof substrates and drainage layers

- » Thermal conductivity of substrates and drainage layers

- » Thermal transmittance and dynamic thermal response
- » Time shift and decrement factor
Antonio Gagliano, University of Catania, Italy

Smart living building skins

- » Transition to smart cities
- » Smart monitoring and control
- » Optimizing maintenance and ecosystem services
Gabriel Pérez, University of Lleida, Spain

Bio-technical air-treatment in building façade

- » Plant-based air filtration system
- » Preliminary results
- » Positive impacts and challenges
Heinz Gattringer, alchemia-nova, Vienna, Austria

BRIEF PRESENTATIONS

Precast concrete façade for façade greening

- » Fabian Penkert, TU Kaiserslautern, Germany

Energy saving potential of façade greening

- » Karin Hoffmann, TU Berlin, Germany



17:45 End of Conference Day 2

22 OCTOBER 2021, CONFERENCE DAY 2

16:15 INNOVATIVE SOLUTIONS FOR DEEP RENOVATION OF BUILDINGS

Session C6

Room: **Szenario 1** Chair: Francisco José Sánchez de La Flor, University of Cadiz, Spain

Towards NZEB refurbishment of a residential building in Cádiz, Spain

- » Integration of the centralized DHW and AHU facilities
 - » Evaporative cooling to improve thermal comfort in summer
 - » Design aspects and experimental tests
- Francisco José Sánchez de La Flor, University of Cadiz, Spain

Development of a circular deep-renovation façade module

- » Current practices in building envelope renovation
 - » Circular re-design of prefabricated deep façade modules
 - » Circular design strategies with biomimicry and urban mining
- Ivar Bergmans, ZUYD University of Applied Sciences, Maastricht, Netherlands

Building envelope kit with integrated hydronic heating and cooling system

- » All-in-one solution for deep renovation
 - » TRNSYS modelling
 - » Achieving NZEB status
- Emmanouil Katsigiannis, National Technical University of Athens, Greece

Vacuum Insulation Panels (VIPs) for use in buildings

- » Description of VIPs
 - » Case studies
 - » New development in VIPs
- Kenny Rottenbacher, va-Q-tec, Würzburg, Germany



17:45 End of Conference Day 2

SPONSORS OF ADVANCED BUILDING SKINS CONFERENCE & EXPO 2021



Kanton Bern
Canton de Berne



swissenergy

ILYNX

Tensitet

eyrise®
Dynamic Liquid Crystal Windows

vector foiltec
CREATE. SUCCESS.

Serge Ferrari | Stamisol

h+k

AGC

Kromatix™ 

SFT+
SWISS FASSADEN TECHNIK AG

 ClearVuePV

saflex 
ENHANCE YOUR VISION

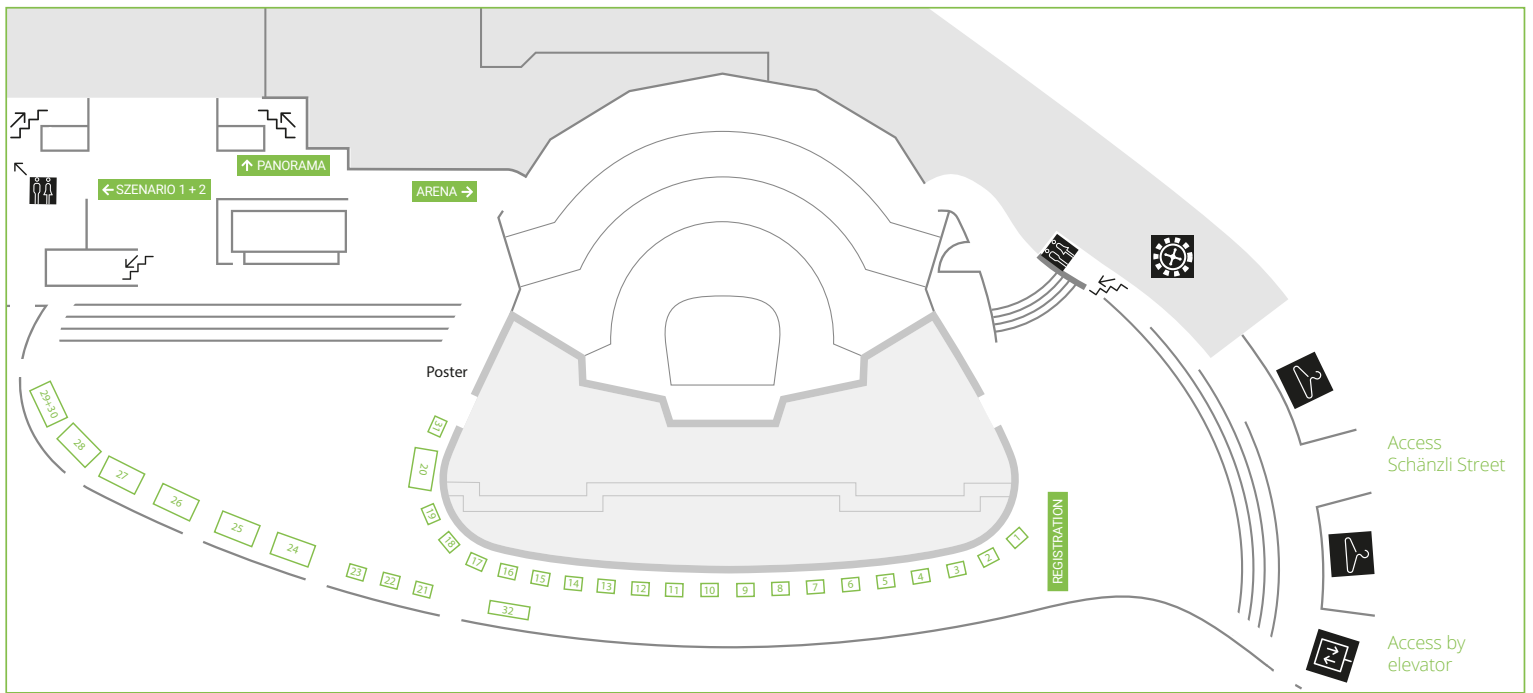
SOLAXESS
WHITE & COLOR SOLAR TECHNOLOGY

 SAINT-GOBAIN

SageGlass


ARMATHERM™
THERMAL BREAK SOLUTIONS

 H.B. Fuller |  KÖMMERLING



- | | | |
|--------------------------|-----------------------|----------------------------|
| 1. Supsi | 12. Sage Glass | 23. Vector Foiltec |
| 2. HOK | 13. Solarstone | 24. Tensinet |
| 3. Luccem | 14. Polysolar | 25. va-Q-tec |
| 4. Stahlton Bauteile | 15. AGC - Active Skin | 26. Seen |
| 5. Armatherm-Armadillo | 16. ClearVue | 27. Eastman Saflex |
| 6. WindowMaster | 17. Avancis | 28. Merck |
| 7. Kömmerling | 18. Solaxess | 29. Swiss Fassaden Technik |
| 8. Serge Ferrari | 19. SwissINSO | 30. Swisspor |
| 9. Saint-Gobain | 20. Lynx | 31. Salvagnini |
| 10. Jansen | 21. Dyneon | 32. BIPV Award 2020 |
| 11. Yazaki Energy System | 22. AGC Chemicals | |