A1 Parametric Design and Digital Fabrication

Parametric curtain wall design – a case study: Tianjin CTF finance centre
Thomas Kinzl, Skidmore, Owings & Merrill LLP, Chicago, USA

Customizing a mixed-use building in real time: the Finance Centre Tower, Manila, Philippines
Aleksandar Sasha Zeljic, Gensler, Chicago, USA

Work differently for different work: changing the way we collaborate to achieve artfulness in the façade
Kristofer Leese, Belzberg Architects, Santa Monica, USA

Computational design in lightweight membrane skins
Kais Al-Rawi, Walter P Moore, Los Angeles, USA

A2 Complex Geometries, Advanced Building Techniques and Materials

Innovation and structural engineering
Michael Stein, schlaich bergermann partner, Stuttgart, Germany

Prototypical opaque cladding systems: a mutilayered approach
Matt King, T/E/S/S, Paris, France

Glass challenges – past, present, and future
James O’Callaghan, Eckersley O’Callaghan, London, UK

The façade is only one half of the story
Wolfgang Kessling, Transsolar Energietechnik, Munich, Germany

A3 Additive Manufacturing: 3D Print of the Building Envelope

High performance 3D printed façade with integrated energy: built works and advancements in computational simulation
Maged Guerguis, Skidmore, Owings & Merrill, Chicago, USA

Fluid Morphology – 3D-printed functional integrated building envelope
Moritz Mungenast, Technical University Munich, Germany

At scale optimization for additively manufactured metal structural components
James Warton, HKS Architects Inc., Dallas, USA

A4 Responsive and Adaptive Building Skins

Self-aware façades within evolving networks
Omar Renteria, EYP, New York, USA

Autoreactive components in double skin facades
Philipp Molter, Technical University Munich, Germany
Mapping of LCA parameters as a tool for the design of sustainable cycle-based adaptive building skins  
Manuela Crespi, Sapienza University of Rome, Italy

Active, passive or interactive? human-building interactive facade system for behavioral change of occupants  
Qianning Zhang, Solar Energy Research Institute of Singapore, Singapore

Programming skins (Pro-Skin): cyber-physical façade systems reactive to environmental conditions  
Arash Soleimani, Kennesaw State University, USA

Design and evaluation of architectural shapes in extreme environments  
Lenka Kormanikova, Technical University of Kosice, Slovakia

A5 Smart Materials for Adaptive Façades

Design optimization of a self-shading smart material morphing building skin  
John Brigham, Durham University, UK

Application of the dynamic characteristics of shape-memory polymers to climate adaptive building facades  
Dale Clifford, California Polytechnic State University, USA

Architectural application of wood-based responsive building skins  
Ben Bridgens, Newcastle University, UK

Color change temperature in thermochromic façades for the energy efficiency of buildings  
Maria Gavira, IETcc, Madrid, Spain

A6 Design Methods for Sustainable, High-Performance Building Façades

Innovative tilted-glass building skins for improving environmental performance  
Brad Wilkins, Gensler, Singapore

Developing innovative facades with improved seismic and sustainability performance  
Larry Bellamy, University of Canterbury, Christchurch, New Zealand

Performative aspects of geometrically complex building enclosures  
Matthew Fineout, Smart Architecture, Pittsburgh, USA

Affordable and cost-effective high-performance housing - the field of dreams eco community  
Jörg Rügemer, University of Utah, Salt Lake City, USA

Is computer programming beneficial to architects and architecture students for complex modeling and informed performative design decisions?  
Rania Labib, Texas A&M University, College Station, Texas, USA

Lessons learned from forensic investigation of skin failures  
Karim Allana, Allana Buick & Bers, Inc., Palo Alto, USA

Vertical distribution of reflected solar radiation and re-radiation on buildings  
Kengo Kawasaki, National Institute of Technology, Gifu College, Japan
Advanced building envelopes: design and construction methods
Massimiliano Nastri, Politechnic of Milan, Italy

World expositions and building skins: energy-efficiency concepts and aesthetics
Tomasz Krotowski, Institute of Architecture and Urban Planning, Lodz, Poland

A7 Adaptive Building Skins for Energy Saving and User Comfort
The design and the evaluation of a prototype of responsive wall system
Giuseppe Losco, University of Camerino, Italy

Experimenting with sustainable building skins in an existing building
Francesca Olivieri, Universidad Politécnica de Madrid, Spain

Comparison between a dynamic simulation model of a solar air heater and experimental measurements
Nuno Simões, ITeCons, Coimbra, Portugal

Sensitivity analysis for the daylight simulation of complex façades
Sergio Altomonte, Faculty of Engineering, University of Nottingham, UK

Adaptive forms and materials for energy efficient building skins in different climate zones
Monica Rossi-Schwarzenbeck, HTWK Leipzig, Germany

How I-MESH can improve cool façade optimization in order to reduce the urban heat island phenomenon
Federica Ottone, University of Camerino, Italy

B1 Policies for Energy-efficient Construction and Refurbishment
Refurbishment of building envelopes on a district level
Jure Erzen, Local energy agency of Gorenjska, Slovenia

The true value of building envelope retrofit
Ian Miller, Pretium Anderson Waterloo Inc., Breslau, Canada

Market potential and acceptance of building integrated PV (BIPV) solutions – a practical approach
Martin Boesiger, Haute école spécialisée de Suisse occidentale de Fribourg, Switzerland

The effects of energy standards and labelling program on the air-tightness and thermal performance of windows
Minjung Bae, Korea Institute of Civil Engineering and Building Technology, South Korea

B2 Energy Efficiency Investments: From EU Regulations to Individual Households’ Decisions
Maintenance strategies and life cycle costs of renewable energy systems
Imre Kocsis, Faculty of Engineering, University of Debrecen, Hungary

The relationship between renewable energy consumption, net energy import, greenhouse gas emission and human capital
Judit Kiss, Faculty of Engineering, University of Debrecen, Hungary
How to build our houses in order to consume the minimum energy
Balázs Kocsi, School of Informatics, University of Debrecen, Hungary

Role of biomass in buildings' energy management conference on advanced building skins
János Szendrei, Faculty of Engineering, University of Debrecen, Hungary

Renewable energy and the lack of professionals in the European building industry
Róbert Sztányi, Faculty of Engineering, University of Debrecen, Hungary

B3 Building Refurbishment: Strategies, Technologies, Performance

Strategies for the refurbishment of heritage-listed post-war facades
Florian Mähl, osd GmbH & Co. KG, Frankfurt, Germany

Double skin suitable for Mediterranean climate in school-gym buildings
Margherita Finamore, Municipality of Pesaro, Italy

Improving energy and structural performance of existing buildings through engineered skins in deep renovation interventions
Chiara Passoni, Università di Bergamo, Dalmi, Italy

Integrating efficient technologies in building envelopes: the EU funded project Pro-GET-onE
Annarita Ferrante, University of Bologna, Italy

Eco-adaptive building skin: design methodology & computational tools for eco-adaptive envelopes
Davide Ventura, Sapienza University of Rome, Italy

B4 New Forms of Concrete for Modern Building Envelopes

Sprayed concrete for complex geometry façades
Valeria Postorino, Postorino & Associates Engineering, Milan, Italy

Aerogel mortars and possibilities for their application
Daniel Sanz Pont, ETH Zurich, Switzerland

Manufacture and assembly of a thin, lightweight, low impact, prototype precast geopolymer sandwich panel for the retrofit cladding of existing buildings
Roisin Hyde, Queen’s University, Belfast, UK

Super green2: An architect's journey into the world of material development and sustainable design
Elizabeth Gilligan, Queen’s University Belfast, United Kingdom

Returning to source. linen lace and concrete collaborations
Ruth Morrow, Queen’s University, Belfast, UK

Fiber cement façade: a new building in the historical center of L’Aquila, Italy
Francesco Giancola, 2Studio Ingegneria e Architettura, L’Aquila, Italy
B5 Concrete as Multi-Functional Material serving Building Energy Efficiency

Biomimetic solutions to design multi-functional envelopes
Estelle Cruz, Centre Européen d’Excellence en Biomimétisme, France

B6 Thermal Performance of PCM for the Building Skin

Ventilation units with PCM for double-skin BiPV façades
Jakub Curpek, Faculty of Civil Engineering STU in Bratislava, Slovakia

PCM melting temperature optimization for passive cooling and heating
Alvaro de Gracia, University Rovira i Virgili, Spain

Thermal properties of a four-pane window filled with phase change material
Martin Zalesak, Tomas Bata University, Zlin, Czech Republic

Development of PCM-enhanced mortars for thermally activated building components
Lorenzo Olivieri, Instituto de Ciencias de la Construcción Eduardo Torroja, Spain

Experimental and numerical analysis on thermal performance of multifunctional façade containing PCM
Romeu Vicente, Dep. of Civil Engineering, University of Aveiro, Portugal

Lightweight construction solutions incorporating PCM: temperature regulation effect and determination of thermal conductivity
Ricardo Almeida, CI&DETS - Polytechnic Institute of Viseu, Portugal

B7 Aerogel-based Solutions for the Building Envelope

High performance aerogel concrete
Lorenz Ratke, Institute of Materials Research, DLR Cologne, Germany

C1 New Materials for the Building Skin

High performance building envelopes with retro-reflective materials
Federico Rossi, CIRIAF, Perugia, Italy

Impact of the building envelope on energy footprint of closed greenhouses
Ronil Rabari, Simon Fraser University, Surrey, Canada

Grip fixing instead of adhesive – facade4zeroWaste exterior insulation finishing systems as a sorted recyclable façade system with reclosable fastener fixation
Ferdinand Oswald, Institute of Architecture Technology, TU Graz, Austria

New energy-efficient heat-insulating materials for protecting structures
Zhmagul Nuguzhinov, KazMIRR Institute of Reconstruction and Development, Kazakhstan
C2 Membranes for High Performance Building Skins

Advantages of ETFE in terms of acoustic comfort in atria and large halls
Monika Rychtáriková, KU Leuven, Belgium

Texlon ETFE green building factsheets – product data base for LEED, BREEAM and DGNB
Carl Maywald, Vector Foiltec GmbH, Bremen, Germany

Viscoplastic forming for ETFE cushions
Minger Wu, Tongji University, Shanghai, China

Coupling façade and structure: engineering a breathable skin
Steve Lewis, Walter P Moore, Los Angeles, USA

ETFE skin, expressive potential: the Rosa Parks Station in Paris
Giacomo Di Ruocco, University of Salerno, Italy

C3 Textile Architecture

Smart façades – innovations in textile architecture
Patrycja Bosowski-Schönberg, Low and Bonar GmbH, Germany

Tensile wrap for an office building in Ecuador
Katja Bernert, Low and Bonar GmbH, Germany

C4 Kinetic Architecture and Dynamic Daylight Control

Designing kinetic facades for fully glazed buildings: achieving daylight optimization and cooling load reductions
Jalal Semaan, Heriot-Watt University, UK

Bio-kinetic and power-collecting shading device
Andreas Hammer, Mainz University, Germany

Performance of automated solar shading with parametric design process
Phetcharin Phongphethkul, Thammasat University, Thailand

Metereosensitive user-controllable skin for dynamic façades
Matilde Tavanti, Politecnico di Milano, Italy

C5 Advanced Building Skin Design for Optimized Daylighting

Daylighting of indoor spaces and its effect on human circadian system
Lucia Mankova, Slovak University of Technology, Bratislava, Slovakia

Sharp shadow on the historic façade as relevant tool for presenting historical value
Andrea Vargova, Slovak University of Technology, Slovakia

Space to gaze
Hans Joachim Frey, iconic skin, Gersthofen, Germany
Impact of adaptive building facade design on audio-visual comfort inside and outside the buildings
Nelly Moenssens, Dep. of Architecture, KU Leuven, Belgium

Developing a method for driving the solar control mechanism selection
Vitaliya Mokhava, Lund University, Sweden

Design for and with daylight: computational shading design for two healthcare applications in hot climates
Mili Kyropoulou, HKS Architects, Houston, USA

Multipane single and double skin transparent façade building performance in terms of indoor daylight, heating and cooling requirements
Katja Malovrh Rebec, Slovenian National Building and Civil Engineering Institute, Slovenia

Solar insolation requirement the reason for overheating in nearly zero energy apartment buildings
Hendrik Voll, Tallinn University of Technology, Estonia

An early design tool/method for assessing the performance of complex fenestration systems
Anton Hendrix, Lund University Faculty of Engineering, Sweden

C6 Smart Glazing for Advanced Daylight Control

A review of control methodologies for dynamic glazing
Eoin McLean, Dublin Institute of Technology, Dublin, Ireland

Smart façade design for high-rise buildings: energy saving using nanothermochromic glazing
Marina Aburas, University of Adelaide, Australia

Smart glass vs. fritted glass: analysis of glare control performance
Eloïse Sok, SageGlass, France

C7 Design, Construction, and Evaluation of Glass Façade Elements

System to certify windows/doors with burglary-resistant characteristics
Stephan Hofer, Bern University of Applied Sciences, Switzerland

Evaluation of in-situ measurement methods for air permeability of windows
Christoph Geyer, Bern University of Applied Sciences, Switzerland

Quantitative evaluation of beech and locust dowels in contemporary window systems
Camilla Mantovani, Bern University of Applied Sciences, Switzerland

Chasing transparency: simulating the visual implications of thermal decisions
Michael Martinez, Integral Group, Oakland, USA

Performance of reduced cooling load for a slim double skin façade with an air thickness of 20mm
Youngsub An, Kolon Global Corp., South Korea

Controlling anisotropy
Francis Serruys, Saint-Gobain Building Glass Europe, Brussels, Belgium
D1 Occupants’ Adaptation in Naturally Ventilated Buildings

Natural ventilation in Connecticut houses of the 1600s and 1700s
Theodore Sawruk, Dep. of Architecture, University of Hartford, USA

James Marston Fitch: modern pioneer of architecture aligned with climate
Michael Crosbie, Dep. of Architecture, University of Hartford, USA

Occupants’ adaptation and design parameters influencing behavioural actions of occupants in naturally ventilated sustainable timber buildings
Timothy Adekunle, Dep. of Architecture, University of Hartford, USA

Occupants’ adaptation in low-income naturally ventilated buildings: a case study of Abuja, Nigeria
Michael Adaji, University of Kent, Canterbury, UK

D2 Natural Ventilation 1

Thermal mass façades incorporating shading and ventilation
Ralph Roesling, RNT Architects, San Diego, USA

Building form and facade optimization for natural ventilation in educational facilities in hot-humid climates
Mohannad Bayoumi, King Abdulaziz University, Saudi Arabia

Effect of moisture build up on thermal conductivity of aerogel blankets
Atiyeh Hoseini, Simon Fraser University, Surrey, Canada

Passive cooling envelope design as low energy house of vernacular tropical architecture
Agung Murti Nugroho, Brawijaya University, Indonesia

Impact of building envelope design on energy consumption of the Auckland library
Bin Su, Unitec Institute of Technology, Auckland, New Zealand

A case-study of implementing natural ventilation in sustainable buildings
Jason Hegenauer, University of Hartford, USA

D3 Natural Ventilation 2

Energy recovering from sun-radiated ventilated façade’s warmed air flow
Ezio Arlati, Politecnico di Milano, Italy

Intelligent ventilated facade for reducing heating and cooling needs
Álvaro Ruiz-Pardo, Cádiz University, Puerto Real, Spain

Opacification risk of the intumescent gel in fire resistant glazing: design methodology for naturally ventilated, fully glazed atria
Jacopo Montali, AI Engineering, Torino, Italy
The current status of the airtightness performance of dilapidated houses in Korea and an analysis on the improvement of airtightness performance by the application of wind break
Suin Lee, KICT, Goyang-si, South Korea

D4 Models, Tools and Simulations for Sustainable Buildings

The relationship between building typology and solar energy harvesting potential
Ji Zhang, Solar Energy Research Institute of Singapore

Tools and strategies to improve climate-driven façade design in the tropics: a pilot project for Colombia
Rodrigo Velasco, Universidad Piloto de Colombia

Building performance simulation in architectural design
Jon W. Strunge, Søren Jensen Rådg. Ing., Denmark

Thermal comfort in buildings with advanced façade systems
Nicola Lolli, SINTEF Building and Infrastructure, Trondheim, Norway

An innovative approach for calibration of building simulation model based on collected environmental data: a case study
Giuseppe Ardito, Worcester Polytechnic Institute, USA

Full-scale climate measurement around the building façade
Peter Juras, Faculty of Civil Engineering, UNIZA, Zilina, Slovakia

D5 Building Design Optimization

Optimizing the performances of self-shading façades
Giovanni Zemella, Ove Arup & Partners, London, UK

Form follows performance
Joyce Chan, HOK, London, UK

The impact of different energy balancing methods on net zero energy buildings
Monika Hall, University of Applied Sciences Northwestern Switzerland

Understanding underground: a journey through simulations
Alfonso E. Hernandez, MEDIAM design collaborative, Houston, Texas

Simulation and optimization in free-form buildings: energy consumption reduction from the early stages of the design process
Gabriela Celani, UNICAMP, Campinas, Brazil

Application of passive strategies in façade design for energy efficient and cost-effective envelope in the context of New Delhi
Isha Anand, Morphogenesis, New Delhi, India
D6 Building Information Modeling

Iconic 3D architecture in the Middle East - latest developments in 3D BIM, computerized design and innovative fabrication technology
Thomas A. Winterstetter, Werner Sobek Stuttgart, Germany

Monitoring and improving the environmental efficiency, thermal performance, and IEQ of remote-region health clinics in Australia
Steve Burroughs, University of Canberra, Australia

Building skins, parametric design tools and BIM platforms
Wahbeh Wissam, University of Applied Sciences Northwestern Switzerland

D7 Green Walls and Roofs for Enhanced Building Skin Performance

Thermal and energy performance of a double-skin green facade: a case study in Shanghai
Feng Yang, Tongji University, Shanghai, China

Green façade system for indoor air purification
Hooman Parhizkar, National University of Iran, Tehran, Iran

Winter operation of vertical greenery systems for energy savings in buildings
Gabriel Pérez, University of Lleida, Spain

Improving cross-ventilation by integrating productive façade into tropical passive design
Chao Yuan, National University of Singapore

E1 Economics and Architectural Integration of PV into Facades

The uptake of BIPV within a project environment: practicalities of integrating solar technologies into building projects
Philippa Boyd, University of Reading, UK

Outcome of a BIPV case studies collection: integration concepts
Jennifer Adami, EURAC Research, Bolzano, Italy

Bridging the gap between technical and architectural requirements - experience from the planning and construction phase of the CIGS façade at the new ZSW building
Dieter Geyer, ZSW, Stuttgart, Germany

E2 Design Strategies for Advanced PV Facades

Innovative building integrated photovoltaic façade: description, advantages and challenges
Daniel Attoye, United Arab Emirates University
Building integration of photovoltaics at Nordic climate conditions
Anna Fedorova, Norwegian University of Science and Technology, Norway

The new architecture of a generative façade
Stephen Lau, National University of Singapore

Parametric analysis of BiPV façade coupled with transparent insulation
Miroslav Cekon, Brno University of Technology, Czech Republic

A separate solar-façade providing access-priority for pedestrians and cyclists in residential sector
Abbas Rahmani, Karlsruhe Institute of Technology (KIT), Germany

E3 Integrating PV as Shading Device

Individual autonomous blind control system with PV-slat sensors
Han Li, Kyushu University, Japan

Sun skins – towards a new typology of solar façades
Timo Carl, University of Kassel, Germany

Use of photovoltaic modules as static solar shadings: retrofit of a paleontological site in Rome
Marco Lovati, Eurac research, Bolzano, Italy

E4 BIPV Glazing: Products, Projects, Performance

Expanding the vision
Anna Colley, NSG Pilkington, Lathom, UK

Designed BIPV-elements with printed front-glass: simulation und experimental evaluation of the effect of printing on the electrical performance
Gabriele Eder, Österreichisches Forschungsinstitut für Chemie und Technik, Austria

C-Si photovoltaics integrated in buildings - PVSITES experience
Teodosio del Caño, OnyxSolar, Spain

E5 Cross-fertilization between Aesthetics and Performance of PV

New module concept for aesthetic PV integration with better shadow performance
Lenneke Slooff, ECN, The Netherlands

Brick modules for improved aesthetics in PV introducing the Dutch solar design project
John van Roosmalen, ECN, The Netherlands
E6 New Developments in BIPV: Technical Issues and Performance Analysis

The integration of BIPV adaptive flakes into the building envelope
Enrico Sergio Mazzucchelli, Politecnico di Milano, Italy

Perovskite sensitized solar cells, the new generation of photovoltaic technology
Fabio Giucastro, School of Architecture of Siracusa, Italy

Advanced technology and material compositions for BIPV rethinking solar
Matthias Schoft, Sunman, Shanghai, China

Experimental analysis of the performance of a BIPV curtain wall component
Jonathan Lehmann, KU Leuven, Belgium

Building integrated photovoltaics: a review of materials science challenges and opportunities
Bjørn Petter Jelle, Norwegian University of Science and Technology, Norway

E7 Performance Modeling of BIPV Systems

Methodologies and tools for BIPV implementation in the early stages of architectural design
Marco Lovati, EURAC, Italy

Performance assessment of various BIPV concepts
Wiep Folkerts, SEAC, The Netherlands

F1 Prefabrication: From Complex Façade Design to Building Retrofits

A systematic review of prefabricated enclosure wall panel systems: focus on technology driven for functional requirements
Gonçalo Correia Lopes, Universidade de Aveiro, Portugal

Retrofitting with light prefabricated modules
Silvia Giammetta, Politecnico di Torino, Rivoli, Italy

Prefabricated wall panels for exterior energy retrofit of existing Canadian homes
Jessica Webster, Natural Resources Canada, Ottawa, Canada

Façade integrated MVHR heat pump
Fabian Ochs, UIBK - EEB, Innsbruck, Austria

Recycling discarded shipping containers for reliable building envelopes: a design case for senior citizens in the Solar Decathlon China 2017
Xingxing Zhang, Dalarna University, Falun, Sweden
F2 Vorgefertigte Holzfassadenelemente für urbane Bauten

Retrofit and new build with prefabricated timber envelopes
Maximilian Schlehlein, Gumpp & Maier GmbH, Deutschland

Neubau und energetische Sanierung als ein vorgefertigtes Element
Heiko Seen, Holzunion, Deutschland

Facade design with wood
Hansueli Schmid, Techn, Lignum – Holzwirtschaft Schweiz

F3 Steigerung der Gebäudehülle-Performance

Bauwerkintegrierte multivalente energiefassade – solares heizen und mehr
Manfred Starlinger, ims Ingenieurleistungen, Deutschland

Innovative products and technologies for the building skin-integrating solar technologies into the building membrane
Stefan Krause SMK Ingenieure, Chemnitz, Deutschland

Untersuchung einer verglasten doppelfassade mittels gekoppelter 3d CFD-simulation und thermisch-energetischer gebäudesimulation
Moritz Zwahlen, Gruner Roschi, Köniz, Schweiz

Cooling energy savings potential of adaptive building envelopes
Tobias Henzler, Universität Stuttgart, Deutschland

Bauen mit Strohbällen
Margareta Schwarz, Sankt Martin in Passeier, Italien

Approach to economic implementation of brick shells from planar prefabricated brick
Alexander Pick, Technical University Darmstadt, Deutschland