european facade network

THE FUTURE ENVELOPE
Towards Zero Carbon Buildings
Bolzano 2022

AN EFN CONFERENCE

THE FUTURE ENVELOPE TOWARDS ZERO CARBON BUILDINGS

PROGRAMME

15-16 DECEMBER 2022
NOI Techpark - Bolzano/Bozen

Organised by

eurac research

POLITECNICO MILANO 1863


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ABOUT THE CONFERENCE

The building sector has a high environmental impact while over 80% of buildings that exist today will be standing in 2050 and therefore to achieve carbon neutrality target this sector must face important challenges. Building envelopes can contribute substantially to achieving carbon neutrality, as this building system (i) contains several types of materials, (ii) has a shorter lifetime compared to the building structure, (iii) has a strong impact on operational energy demand, indoor comfort and user wellbeing and (iv) can enable on-site solar energy harvesting.

In the last decade, research on envelope technologies has been mainly driven by the need to optimise operational energy use and integrate renewable energy technologies, and concepts such as Nearly Zero Energy Buildings have been pursued. However, in order to reach the 2050 Climate Neutrality target, future envelopes must be developed with a more ambition vision.

Indeed, the impact of materials used in building envelopes, according to their sources and biodegradability/recyclability potential has become a relevant design parameter. Nevertheless, the achievement of this target is not limited to a right choice of materials: CO_2 emissions depends also on (i) the fabrication processes (needed energy and its source, generated waste, transport distances and means), (ii) the operational energy of buildings, (iii) the durability of buildings and their components, (iv) generated waste during all processes, (v) and on what happens to the envelope components when they reach their End of Life. Besides, it is imperative to promote economic investment in adequate technologies to reduce the carbon footprint, therefore profitable business models must be developed to boost circular economy.

The Future Envelope “Towards Zero Carbon” conference of Bolzano (15-16 December 2022) calls all stakeholders along the value chain of innovative building envelope to discuss together, enlightened by 16 excellent speakers, on the performances, the technological innovations, the exemplary front runner cases and the challenges to move towards “Zero Carbon” buildings.

MORE INFO AT www.tinyurl.com/thefutureenvelope

WHEN

15-16 December 2022

WHERE

NOI Techpark - A. Volta Straße/Via A. Volta 13/A
39100 Bozen/Bolzano

ORGANISED BY

Eurac Research and Politecnico di Milano

For Italian professionals registered to Associations of Engineers and Architects in Italy, **PROFESSIONAL COURSE CREDITS:**

- for Engineers: **6 CFP**
- for Architects: **10 CFP**

CONFERENCE FEES

TYPE OF FEES	FULL	REDUCED EFN partners, students
EARLY BIRD Start: 28 September End: 13 November at 23:59	**€ 120** per person	**€ 100** per person
REGULAR Start: 14 November End: 11 December at 23:59	**€ 170** per person	**€ 120** per person

CHANGED DATE!

CONTACT US AT thefutureenvelope@eurac.edu

REGISTER AT tinyurl.com/thefutureenvelope-registration

SPONSORS

FINSTRAL
rothoblaas Solutions for Building Technology
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TULiPPS Solar System Solutions
alpeva
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COLLABORATIONS

in collaborazione con: KlimaHaus CasaClima®
UNICMI
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TECHPARK SÜDTIROL/ALTO ADIGE

ORGANISING COMMITTEE

STEFANO AVESANI - Eurac Research

Master degree in Environmental Engineering at the University of Trento and Doctor of Technical Science at the Faculty of Building Engineering of the University of Innsbruck, is a Senior Researcher at the Institute for Renewable Energy at the Eurac Research in Bolzano/Bozen. He now coordinates the research activities in the field of building envelopes.

MIREN JUARISTI GUTIERREZ - Eurac Research

She has a PhD in “Environmental & Technological Design in Architecture” from University of Navarra, she is a postdoctoral researcher at the Institute for Renewable energy. Her research topics focus on the development of technological concept for advanced opaque façade systems. These concepts are adaptiveness, responsiveness, resilience, prefabrication, energy efficiency and circularity.

ENRICO SERGIO MAZZUCCHELLI - Politecnico di Milano

Associate Professor of Building Engineering at the Department of Architecture, Built environment and Construction engineering (DABC), PoliMi. His research activities mainly focus on design and performance analysis of innovative building façades components and systems, resilient buildings design, integration of building services and renewable energy systems, buildings retrofit strategies.

WELCOME PRESENTATIONS

WOLFRAM SPARBER - Eurac Research

Head of the Institute for Renewable Energy of Eurac Research. He acts as Vice President of the Association of European Renewable Energy Research Centers. He is member of the Clean Energy Industrial Forum chaired by the DG ENERGY of the EU Commission, and is consultant for the Innovation Landscape for Smart Electrification of End-use Sector coordinated by IRENA.

PAOLO RIGONE - UNICMI and Politecnico di Milano

Technical manager of UNICMI (Italian National Union of Metal Construction and building envelope industries), Associated Professor of Technical Architecture at the Politecnico di Milano, chairing the courses of “Design of the Building Envelope” and “Advanced Building Envelope Components Engineering”.

ANNALISA ANDALORO - Alperia

Researcher in Buildings Energy Efficiency with a track record in managing international research projects. Research interests include: technology transfer and exploitation of research results, innovative business models and envelope technologies. Scientific director of the executive master FACE and Innovation Manager at Alperia Group (leading multiutility in South Tyrol).

ANDREA GASPARELLA - Free University of Bozen-Bolzano

Full professor in Building Physics and Building Energy Systems at the Faculty of Science and Technologies of the Free University of Bozen-Bolzano since 2015, where he has served also as vice-dean for studies and director of many study programmes. He is currently director at large of the International Building Performance Simulation Association and president of IBPSA-Italy.

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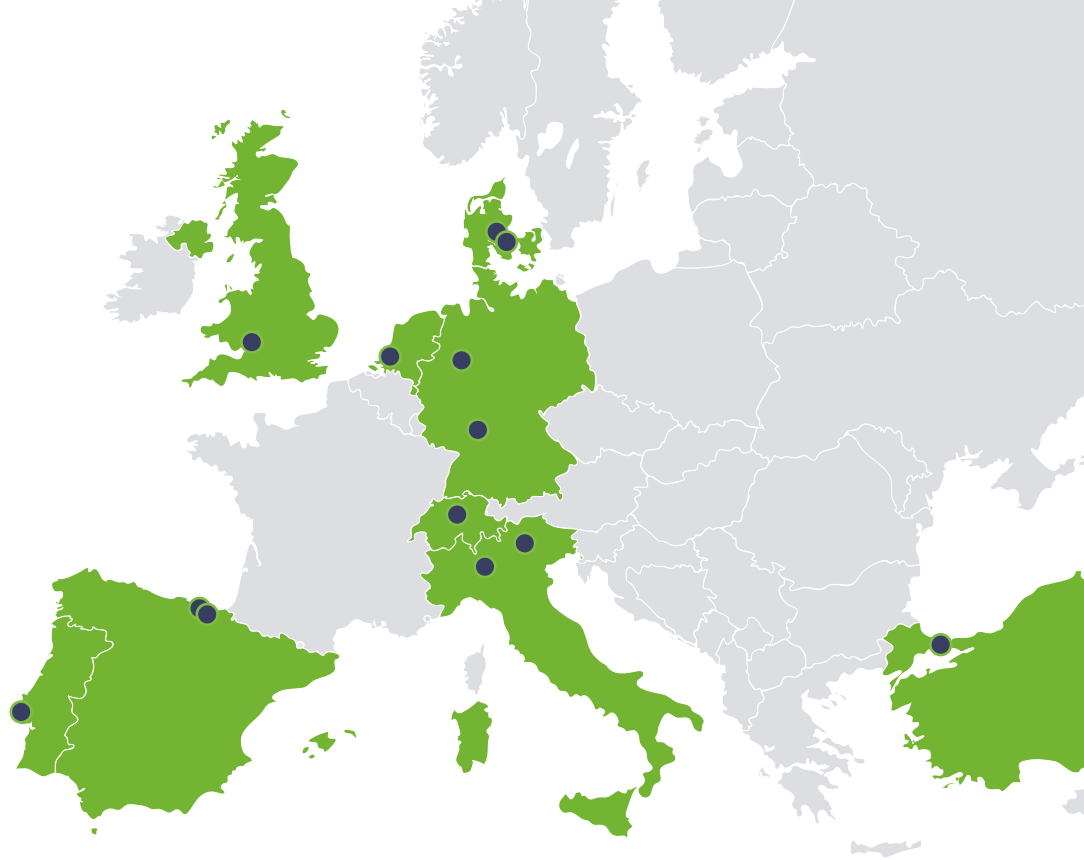

9 Countries

13 Partners

ABOUT EFN

The European Façade Network (EFN) seeks to advance and promote façade design and engineering at a European level and beyond. This is achieved through inclusive collaborative working between its members and alumni, resulting in skills and knowledge transfer/sharing in: undergraduate and/or postgraduate education in façade design and engineering; conferences and workshops rotated between EFN member institutions, publications through the Journal of Facade Design and Engineering (JFDE) and related peer reviewed international journals; industry informed research at Masters, Doctoral and EU level; industry driven experimental façade testing; technology transfer among EFN members and companies.
On 26 November 2018, EFN members signed in Lucerne (CH) the Memorandum of Understanding on establishing the European Façade Network.

AARHUS UNIVERSITY · eurac research · Lucerne University of Applied Sciences and Arts HOCHSCHULE LUZERN · İTÜ · POLITECNICO MILANO 1863 DIPARTIMENTO DI ARCHITETTURA, INGEGNERIA DELLE COSTRUZIONI E AMBIENTE COSTRUITO · tecnalia MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

TH OWL TECHNISCHE HOCHSCHULE OSTWESTFALEN-LIPPE UNIVERSITY OF APPLIED SCIENCES AND ARTS · TECHNISCHE UNIVERSITÄT DARMSTADT · TU Delft · UNIVERSIDADE NOVA DE LISBOA · Universidad del País Vasco Euskal Herriko Unibertsitatea · SDU · UWE Bristol University of the West of England

MORE INFO AT www.europeanfacadenetwork.eu

CONFERENCE PROGRAMME

DAY ONE	THURSDAY, DECEMBER 15TH 2022
9:30-10:30	Conference registration
10:30-10:50	Welcome **Wolfram Sparber** - Eurac Research **Paolo Rigone** - Politecnico di Milano and UNICMI
10:50-13:15	**1ST SESSION** Performance Evaluation **Chaired by Roberto Lollini** - Eurac Research
	The relevance of envelope materials in the urban environment **Emanuela Giancola** - CIEMAT
	Hot to enable the road to Zero Carbon **Matteo Orlandi** - ARUP
	Sustainability as a design parameter: tools, metrics, know-how **Claudia Di Noi** - GREENDELTA
	How can zero carbon buildings be put into practice? **Ulrich Klammsteiner** - KlimaHaus Agentur
13:15-14:15	Networking lunch
14:15-15:15	**SPONSOR SESSION** Companies and products presentation in the light of the "Zero Carbon" challenges **Rothoblaas - Finstral - Rubner - Alpewa - Tulipps**
15:15-15:45	Coffee break
15:45-17:45	**2ND SESSION** Envelope technologies towards Zero Carbon **Chaired by Miren Juaristi Gutierrez** - Eurac Research
	Development process of a biobased envelope in the European project BASAJAUN **Maria Fuente Gonzalez** - TECNALIA
	Adaptive façade concepts for sustainable buildings **Daniel Arztmann** - SCHÜCO and TH-OWL
	GreenThermoWall: the next vertical garden generation **Jordi Serramia** - SingularGreen
	Building of sustainable envelopes with innovative precast concrete components **Piero Bernabé** - PROGRESS
17:45-18:45	Lab visits - subject to registration

CONFERENCE PROGRAMME

DAY TWO	FRIDAY, DECEMBER 16TH 2022
8:00-8:30	Conference registration
8:30-9:00	Welcome and focus on education **FACE 5th edition, course launch presentation** **Annalisa Andaloro** - Alperia **University courses for buildings practitioners towards zero carbon** **Andrea Gasparella** - Free University of Bozen-Bolzano
9:00-10:45	**3RD SESSION** Lighthouse experiences **Chaired by Ulrich Klammsteiner** - Agenzia CasaClima / KlimaHaus Agentur
	The challenge in decarbonising, optimising operational and embodied carbon in façade design to achieve net zero **Carlo Battisti** - Living Future Europe **& Marina Kindelan** - AESG
	Active envelopes against energy poverty **Gorka Álvarez Ugalde** - Ruiz Larrea Arquitectos
	The new biobased architecture: prefabricated straw buildings **Linda Comerlati** - Edifici di Paglia Italia
	72 flats in Bolzano: a refurbishment using prefabricated wood façades **Manuel Benedikter** - Architect
10:45-11:15	Coffee break
11:15-13:30	**4TH SESSION** Challenges **Chaired by Enrico S. Mazzucchelli** - Politecnico di Milano
	Challenge scenarios and trend indicators for building envelope innovation **Martino Milardi** - Università Mediterranea RC
	Glass-up casting: a novel approach for recycling "as-is" glass waste into volumetric glass components **Faidra Oikonomopoulou & Telesilla Bristogianni** - TU Delft
	User-centred and zero carbon façade design: are they conflictive requirements? **Alessandra Luna Navarro** - TU Delft
13:30-13:40	Conference closure **Ulrich Knaack** - TU Delft & TU Darmstadt

1ST SESSION

Performance Evaluation

The session focuses on key aspects of building envelope performances towards the Zero Carbon target, from the mutual connections among relevant urban factors, to the microclimate and the customization of materials in light of buildings' energy performance; from a sustainability and LCA building envelope design approach to roadmaps towards global performance targets.

SPEAKERS

EMANUELA GIANCOLA
CIEMAT

Emanuela works as senior researcher at CIEMAT. She is specialised in dynamic simulation models of buildings, optimisation of the energy performance of buildings and neighbourhoods, thermal comfort evaluations and climate assessment. She deals with façade technologies characterised by the dynamic behaviour and with embedded solar energy exploitation devices.

MATTEO ORLANDI
ARUP

He is an Associate Director of Arup Italy. Building Engineer as background, he is responsible for the Digital Services Portfolio. He has been defining and rolling out the Digital Transformation Strategy for the Italy Group and the development of the Digital Services offering across businesses with focus on data driven and evidence-based solutions across projects in the built environment.

CLAUDIA DI NOI
GREENDELTA

Building engineer and architect by education, she has been working as a sustainability consultant at GreenDelta in Berlin since 2017. She leads sustainability assessment tasks in large EU innovation projects (construction, energy, raw materials) and conducts research and studies on LCA, social LCA and LCC.

ULRICH KLAMMSTEINER
Klimahaus Agentur

Since 2018 he has been the technical director of the Agency for Energy Südtirol - CasaClima, where he has been leading the field of energetic building certification since 2007. He has contributed significantly to the development of the Klimahaus / CasaClima standard and initiative since its beginning in 2002.

CHAIR OF THE SESSION

ROBERTO LOLLINI - Eurac Research

Roberto Lollini is responsible for the research group 'Energy Efficient Buildings' within Institute for Renewable Energy at Eurac Research in Bolzano/Italy. He worked since 1995 to 2009 in the Italian National Research Council at Institute for Construction Technologies. He is board member of Built for People partnership between ECTP, WGBC and EC.

2ND SESSION

Envelope technologies towards Zero Carbon

The session offers an in-depth overview of advanced building envelope technologies towards Zero Carbon, with specific focus on bio-based materials and innovative technologies for opaque and transparent building envelopes, outlining the main potentialities and trends in the fields of construction and research.

SPEAKERS

MARTA FUENTE GONZALEZ
TECNALIA

MSc Mechanical Engineering. Executive MBA. Research, design and development of Constructive Products and Systems, especially lightweight construction (timber or steel based) and industrialised construction. Senior expert in Building Acoustics. Lecturer at multiple Master all over Spain, training activities, and international conferences / scientific congresses.

DANIEL ARZTMANN
SCHÜCO and TH-OWL

Daniel works for Schüco were he gained experience in façade consultancy for high rise projects and in façade system design. Today, he is head of the international building physics department. He has a diploma in architecture and a master of façade engineering and is a professor at OWL University in Detmold, Germany.

JORDI SERRAMIA RUIZ
SingularGreen

Jordi is a Spanish architect, inventor and entrepreneur specialized in the integration of architecture and nature. Founder and CTO of Urbanarbolismo and Singulargreen, companies that develop, design and build nature-based solutions: vertical gardens, green roofs, natural swimming pools and other singular green projects.

PIERO BERNABÉ
PROGRESS

Throughout his career as a structural engineer, one main focus was developing solutions for the structural and thermal bridge-free connection of concrete façade elements. Currently he holds the position as CEO of PROGRESS AG, the leading manufacturer of precast concrete elements in northern Italy.

CHAIR OF THE SESSION

MIREN JUARISTI GUTIERREZ - Eurac Research

She has a PhD in “Environmental & Technological Design in Architecture” from University of Navarra, she is a postdoctoral researcher at the Institute for Renewable energy. Her research topics focus on the development of technological concept for advanced opaque façade systems. These concepts are adaptiveness, responsiveness, resilience, prefabrication, energy efficiency and circularity.

3RD SESSION

Lighthouse experiences

The session discusses, through best practice demo cases, the challenge in decarbonising, optimising operational and embodied carbon in façades design, the role of the building envelope in order to face energy poverty, bioclimatic construction strategies, industrialized construction and public housing for near zero energy consumption, and the prefabrication with bio-based materials towards the Zero Carbon target.

SPEAKERS

CARLO BATTISTI & MARINA KINDELAN
Living Future Europe & AESG

Carlo is sustainable innovation manager & consultant. He coordinated a Façades Working Group at IDM South Tyrol and directed the Façades Architecture Construction Engineering training program.
Since 2019 he is President at Living Future Europe.

Marina is AESG's Associate Façades Director, managing a multidisciplinary team of façade professionals. She has over 10 years of professional experience in various countries, with a solid background in façade systems, detailing and materials.

GORKA ÁLVAREZ UGALDE
Ruiz Larrea Arquitectos

Architectural Design Director at Ruiz-Larrea, a pioneering studio in bioclimatic and sustainable architecture solutions. Gorka has 20 years of experience in Europe and China designing and leading innovative architecture projects, focused on drastically reducing energy demand and user's comfort.

LINDA COMERLATI
Edifici di Paglia Italia

Linda Comerlati is the cofounder of the architecture studio Edifici di Paglia Italia www.edificidipagliaitalia.com together with Nicola Preti. The design studio provides design services, construction management and technical consultancy for new and restored buildings, through the use of natural materials such as wood, straw, hemp.

MANUEL BENEDIKTER
Architect

Manuel Benedikter owner of the eponymous architectural office plans, develops and realises, together with 9 employees, sustainable and energy-efficient buildings, often in timber construction. He is speaker at of the Klimahouse Agency, leads workshops for craftsmen and companies.

CHAIR OF THE SESSION

ULRICH KLAMMSTEINER - KlimaHaus Agentur

Since 2018 he has been the technical director of the Agency for Energy Südtirol - CasaClima, where he has been leading the field of energetic building certification since 2007.
He has contributed significantly to the development of the Klimahaus / CasaClima standard and initiative since its beginning in 2002.

4TH SESSION

Challenges

The session focuses on the main trends and future challenges related to building envelopes design, from building resilience against climate change effects, to innovative approaches for recycling construction materials, from the relation between a user-centred and Zero Carbon façade design approach, to the aspects of bringing Zero Carbon solutions to “reality”.

SPEAKERS

MARTINO MILARDI
Università Mediterranea RC

Manager of TCLab, Testing Laboratory for Building Envelope, is Associate Professor in Architectural Technology at Department of Architecture and Territory, Università Mediterranea Reggio Calabria. He is author of numerous publications and Scientific Responsible in many international research projects in the field of innovation in control of the performances regarding building envelopes.

FAIDRA OIKONOMOPOULOU & TELESILLA BRISTOGIANNI - TU Delft

Faidra Oikonomopoulou (Assistant Professor) and Telesilla Bristogianni (Researcher/Lecturer) from the Glass Research Group of the Technical University of Delft, are known and awarded for their research on innovative structural and architectural applications of cast glass. Their work evolves around the development of building systems using solid glass elements and the study of the structural properties of cast glass.
The two researchers have been involved in the realization of various innovative cast glass projects, including the Crystal Houses façade in Amsterdam (MVRDV), the LightVault (SOM and Princeton University) and the Qaammat UNESCO Pavilion in Greenland (Konstantin Arkitekter).

ALESSANDRA LUNA NAVARRO - TU Delft

Alessandra is assistant professor in Façade Design and Engineering at TU Delft and a chartered engineer in Italy and the UK. In her professional activity, she has been working in wide range of different buildings and façades. Her research was awarded with the Future Cities Fellowship at the University of Cambridge and funded by Arup, Permasteelisa and EPSRC.

CHAIR OF THE SESSION

ENRICO SERGIO MAZZUCCHELLI - Politecnico di Milano

Enrico S. Mazzucchelli, is Associate Professor of Building Engineering at the Department of Architecture, Built environment and Construction engineering (DABC), Politecnico di Milano. His research activities mainly focus on design and performance analysis of innovative building façades components and systems, resilient buildings design, integration of building services and renewable energy systems, buildings retrofit strategies.