

# Challenging Glass 8

23 – 24 June 2022

Ghent University, Ghent, Belgium

Location: Het Pand, Onderbergen 1, 9000 Gent, Belgium



Organising partners



CONCEPT PROGRAM

VERSION 12 MAY 2022

PROGRAM MAY BE SUBJECT TO CHANGE

## Program Overview Thursday – June 23<sup>rd</sup>

08:00 – 09:00	Registration & Coffee		
<b>Plenary session</b>	Chairs: Prof. Jan Belis, Dr Freek Bos, Prof. Christian Louter		Refter
09:00 – 09:15	Opening words by Jan Belis, Freek Bos, Christian Louter		
09:15 – 10:00	Keynote presentation: <b>Stéphany Le Rhun</b> , Eckersley O'Callaghan		
10:00 – 10:45	Keynote presentation: <b>Julian Jones</b> , Imperial College		
10:45 – 11:00	Group photo		
11:00 – 11:40	Coffee break		
<b>Parallel sessions</b>	Room A	Room B	Room C
<b>11:40 – 13:00</b>	CERTBOND COST ACTION CA18120	PROJECTS & CASE-STUDIES	NUMERICAL MODELLING & EXPERIMENTAL VALIDATION
13:00 – 14:20	Lunch		
<b>Parallel sessions</b>	Room A	Room B	Room C
<b>14:20 – 15:40</b>	CERTBOND COST ACTION CA18120	HYBRID & COMPOSITE GLASS COMPONENTS	STRENGTH & STABILITY
15:40 – 16:20	Coffee break		Foyer
<b>Parallel sessions</b>	Room A	Room B	Room C
<b>16:20 – 17:40</b>	JOINTS, FIXINGS & ADHESIVES	ARCHITECTURAL DESIGN & GEOMETRIES	DESIGN PHILOSOPHY & STRUCTURAL SAFETY
<b>19:00 – 22:30</b>	<b>Conference dinner*</b> at Monasterium Poortackere, Oude Houtlei 56, Ghent <i>* Please note that separate registration for the conference dinner is required.</i>		

## Program Overview Friday – June 24<sup>th</sup>

08:30 – 09:00	Registration & Coffee		
<b>Parallel sessions</b>	Room A	Room B	Room C
<b>09:00 – 10:20</b>	JOINTS, FIXINGS & ADHESIVES	INSULATING GLASS UNITS	DESIGN PHILOSOPHY & STRUCTURAL SAFETY
10:20 – 11:00	Coffee break		
<b>Parallel sessions</b>	Room A	Room B	Room C
<b>11:00 – 12:40</b>	LAMINATED GLASS & INTERLAYER PROPERTIES	GLASS IN FACADES	NUMERICAL MODELLING & EXPERIMENTAL VALIDATION
12:40 – 14:00	Lunch		
<b>Parallel sessions</b>	Room A	Room B	Room C
<b>14:00 – 15:20</b>	PROJECTS & CASE-STUDIES	THERMAL, ACOUSTIC & LIGHTING ASPECTS	STRENGTH & STABILITY
15:20 – 15:45	Coffee break		
<b>Plenary session</b>	Prof. Jan Belis, Dr Freek Bos, Prof. Christian Louter		Refter
15:45 – 16:30	Keynote presentation <b>Markus Feldmann</b> , RWTH Aachen		
16:30 – 17:15	Keynote presentation <b>Robert Capel &amp; Iris Rombouts</b> , Octatube		
17:15 – 17:30	Closing words by Jan Belis, Freek Bos, Christian Louter		
17:30 – 18:00	Drinks		
21:00	Social gathering (at own expenses)		

**Parallel sessions Thursday Morning – June 23<sup>rd</sup>**

**11:40 – 14:00**

Room	Room A	Room B
Theme	<b>CERTBOND COST ACTION CA18120</b>	<b>PROJECTS &amp; CASE-STUDIES</b>
Chair	<i>Chair: to be announced</i>	<i>Chair: to be announced</i>
<b>11:40 – 12:00</b>	CertBond - COST Action CA18120 - Reliable roadmap for certification of bonded primary structures <i>Chiara Bedon, Sofia Teixeira de Freitas</i>	Apple Marina Bay Sands: Utmost Transparency <i>Graham Coult, Alexandros Cannas, Sam Gregson, Lorenzo Santelli</i>
<b>12:00 – 12:20</b>	Adhesive Solutions for Cast Glass Assemblies: Ground Rules Emerging from Built Case Studies on Adhesive Selection and Experimental Validation <i>Faidra Oikonomopoulou, Telesilla Bristogianni</i>	The Story Behind Sky Pool <i>Graham Coult, Sam Gregson</i>
<b>12:20 – 12:40</b>	Comparison of Behaviour of Laminated Banister Panels with Embedded Connections <i>Michaela Zdražilová, Zdeněk Sokol, Martina Eliášová</i>	The New Slumped Glass Facade at Tiffany's Flagship Store <i>Chenyu Pu, Jason Wang, David Bott, Daniel Vos</i>
<b>12:40 – 13:00</b>	Examination of the Load-Bearing Behavior of a Bonded Edge Seal for Fluid-Filled Insulating Glass Units <i>Alina Joachim, Felix Nicklisch, Alexander Freund, Bernhard Weller</i>	Planning Phases of Glass Projects <i>Peter Lenk</i>
<b>13:00 – 14:20</b>	<b>Lunch</b> Foyer	

Room C	Room
<b>NUMERICAL MODELLING &amp; EXPERIMENTAL VALIDATION</b>	Theme
<i>Chair: to be announced</i>	Chair
Numerical Calculations of Thermally Induced Stresses in Insulating Glass Units <i>Gregor Schwind, Franz Paschke, Jens Schneider</i>	<b>11:40 – 12:00</b>
Experimental and Numerical Investigations on the Finite Strain Viscoelasticity of Standard PVB Alexander Pauli, Marcus Illguth, Frank Wellershoff, Geralt Siebert, Michael A. Kraus	<b>12:00 – 12:20</b>
Microscale Discrete Element Model for Simulating Bridging Behavior of Fractured Glass Laminates <i>Xing-Er Wang, Jian Yang, Shennan Peng, Yige Wang, Xiaonan Hou</i>	<b>12:20 – 12:40</b>
Numerical Study on Failure of Laminated Glass Subjected to Low-Velocity Impact <i>Petr Hála, Alena Zemanová, Jan Zeman, Michal Šejnoha</i>	<b>12:40 – 13:00</b>
<b>Lunch</b> Foyer	
	<b>12:30 – 14:00</b>

**Parallel sessions Thursday Afternoon – June 23<sup>rd</sup>**

**14:20 – 16:20**

Room	Room A	Room B	Room C	Room
Theme	CERTBOND COST ACTION CA18120	HYBRID & COMPOSITE GLASS COMPONENTS	STRENGTH & STABILITY	Theme
Chair	<i>Chair: to be announced</i>		<i>Chair: to be announced</i>	Chair
<b>14:20 – 14:40</b>	Influence of Elevated Temperature on the Mechanical Properties of Transparent Adhesive Glass-Glass Joints <i>Markéta Zikmundová, Martina Eliášová</i>	Robotic Large-Scale Additive Manufacturing of Thermoplastics for Thin-Glass Composite Elements <i>Daniel Pfarr, Silke Tasche, Christian Louter</i>	Effects of Composition on the Durability and Weathering of Flat Glass <i>Clarissa Justino de Lima, Brandon Aldinger, Peter de Haan, Telesilla Bristogianni, Fred Veer</i>	<b>14:20 – 14:40</b>
<b>14:40 – 15:00</b>	Integrated Connections for Glass-Plastic-Composite Panels: An Experimental Study under Tensile Loading at +23, +40 and +60 °C and Different Glass Build-ups <i>Julian Hänig, Bernhard Weller</i>	Application of an Iron-Based Shape Memory Alloy for Post-Tensioning Glass Elements <i>Vlad-Alexandru Silvestru, Zhikang Deng, Julien Michels, Lingzhen Li, Elyas Ghafoori, Andreas Taras</i>	Experimental Investigation into the Effect of Elevated Temperatures on the Fracture Strength of Soda-Lime-Silica Glass <i>Evelien Symoens, Ruben Van Coile, Jan Belis</i>	<b>14:40 – 15:00</b>
<b>15:00 – 15:20</b>	Prediction of Moisture Diffusion and Failure in Glass/Steel Adhesive Joints <i>Ioannis Katsivalis, Stefanie Feih</i>	Curtain of Glass – Textured by Stone <i>Michael Engelmann, Klaus Reuschle, Salvatore Muscatello, Thomas Sperandio</i>	Impact of Cutting Process Parameters on the Mechanical Quality of Processed Glass Edges <i>Paulina Bukieda, Bernhard Weller</i>	<b>15:00 – 15:20</b>
<b>15:20 – 15:40</b>	Pre- and Post-Failure Experimental Bending Analysis of Glass Elements Coated by Aged Anti-Shatter Safety Films <i>Silvana Mattei, Luca Cozzarini, Chiara Bedon</i>	Design, Engineering and Experimental Testing of Tubular Glass Columns <i>Rozemarijn Veenstra, Chris Noteboom, Faidra Oikonomopoulou, Mauro Overend</i>	Exploratory Study on the Load-Bearing Behaviour of Laminated Glass Beams Exposed to Fire <i>Maximilian Möckel, Katharina Lohr, Christian Louter</i>	<b>15:20 – 15:40</b>
<b>15:40 – 16:20</b>	<b>Coffee break</b> Foyer		<b>Coffee break</b> Foyer	

**Parallel sessions Thursday Afternoon – June 23<sup>rd</sup>**

**16:20 – 17:40**

Room	Room A	Room B
Theme	<b>JOINTS, FIXINGS &amp; ADHESIVES</b>	<b>ARCHITECTURAL DESIGN &amp; GEOMETRIES</b>
Chair	<i>Chair: to be announced</i>	<i>Chair: to be announced</i>
<b>16:20 – 16:40</b>	Application and Modelling of Adhesive Connections in Structural Glass – Existing Research and Development <i>Sahand Sartipi, Roman Wan-Wendner, Jan Belis</i>	Three-dimensionally (3D) Printed Sand Molds for Custom Glass Parts <i>Rena Giesecke, Benjamin Dillenburger</i>
<b>16:40 – 17:00</b>	High-Temperature Behavior of Silicone Sealants <i>Valérie Hayez, Georg Scheutz</i>	Topologically Optimized Cast Glass: A New Design Approach for Loadbearing Monolithic Glass Components of Reduced Annealing Time <i>Wilfried Damen, Faidra Oikonomopoulou, Telesilla Bristogianni, Michela Turrin</i>
<b>17:00 – 17:20</b>	Glass Façade and Structure Movements <i>Raul Corrales</i>	The Chronology of Historical Glass Constructions <i>Franziska Rehde, Maria Heinrich, Alexandra Schmölder, Katharina Lohr, Christian Louter</i>
<b>17:20 – 17:40</b>	Performance of Glass to Iron-based Shape Memory Alloy Adhesive Shear Joints with Different Geometry <i>Zhikang Deng, Vlad-Alexandru Silvestru, Julien Michels, Lingzhen Li, Elyas Ghafoori, Andreas Taras</i>	Thin Glass in Architecture - Possible Applications and Challenges <i>Özhan Topcu, Vladimir Marinov</i>
<b>End of presentations day 1</b>		
<b>19:00 – 22:30</b>	<b>Conference dinner</b> Please note that separate registration for the conference dinner is required.	

Room C	Room
<b>DESIGN PHILISOPHY &amp; STRUCTURAL SAFETY</b>	Theme
<i>Chair: to be announced</i>	Chair
Glass Up-Casting: A Novel Recycling Approach for Tranforming “as-is” Glass Waste Back to Glass Products <i>Telesilla Bristogianni, Faidra Oikonomopoulou</i>	<b>16:20 – 16:40</b>
Considerations for the Integration of Glass in Superyacht Structures <i>Danie Wium, Evert Lataire, Jan Belis</i>	<b>16:40 – 17:00</b>
Pilot Experiments for Multi-Criteria Human Comfort-Driven Structural Glass Design Assessment <i>Chiara Bedon</i>	<b>17:00 – 17:20</b>
Joint Research Project (in progress): Draft Standard for Determining the Thermal Stress of Glass and Glass-Glass PV Modules (BIPV) in the Construction Industry <i>Frank Ensslen, Gregor Schwind, et al.</i>	<b>17:20 – 17:40</b>
<b>End of presentations day 1</b>	
<b>Conference dinner</b> Please note that separate registration for the conference dinner is required.	
<b>19:00 – 22:30</b>	<b>19:00 – 22:30</b>

**Parallel sessions Friday Morning – June 24<sup>th</sup>**

**09:00 – 11:00**

Room	Room A	Room B
Theme	<b>JOINT, FIXINGS &amp; ADHESIVES</b>	<b>INSULATING GLASS UNITS</b>
Chair	<i>Chair: to be announced</i>	<i>Chair: to be announced</i>
<b>09:00 – 09:20</b>	An Interlayer Material Study for Interlocking Cast Glass Blocks <i>Maria Dimas, Faidra Oikonomopoulou, Marcel Bilow</i>	Design and Durability of Cold-Bent Insulating Glass Units <i>Pietro Demontis, Julia Endress, Viviana Nardini, Arnaud Vernier</i>
<b>09:20 – 09:40</b>	Experimental Investigation of a Transparent Interface Material for Glass Compression Members <i>Joseph Robert Yost, Matthew Cregan, Mohammad Bolhassani, Masoud Akbarzadeh, Yao Lu, Philipp Amir Chhadeh, Jens Schneider</i>	Investigations on the Cold Bending Behaviour of a Double Glazing Unit with a Rigid Edge-Spacer Frame <i>Tim van Driel, Chris Noteboom, Mauro Overend</i>
<b>09:40 – 10:00</b>	Development and Behavior of a Thin Fitting Connection for Lamination with Structural PVB <i>Thiemo Fildhuth, Pascal Joos, Thomas Wüest, Matthias Haller, Wim Stevels</i>	Numerical Analysis of TGU Windows Under Blast – GLASS-SHARD Outlook <i>Chiara Bedon, Martin Larcher, Alessia Bez, Claudio Amadio</i>
<b>10:00 – 10:20</b>	Design Base for a Frameless Glass Structure Using Structural PVB Interlayers and Stainless-Steel Fittings <i>Wim Stevels, Thiemo Fildhuth, Thomas Wüest, Matthias Haller, Roman Schieber</i>	The Performance of Vacuum Insulating Glazing Units Subjected to a Soft Body Impact <i>Isabell Schulz, Cenk Kocer, Franz Paschke, Jens Schneider</i>
<b>10:20 – 11:00</b>	<b>Coffee break</b> Foyer	

Room C	Room
<b>DESIGN PHILOSOPHY &amp; STRUCTURAL SAFETY</b>	Theme
<i>Chair: to be announced</i>	Chair
The Conjugate Beam Effective Thickness Method <i>Laura Galuppi, Adam J. Nizich, Andrea M. La Greca</i>	<b>09:00 – 09:20</b>
How to Exploit the Glass Mass for Damping a Building? <i>Michael Engelmann, Wulf Wulff, Thomas Lorenz, Simon Frey, Laurenz Wernicke, Yangwen Zhang, Thomas Schauer, Achim Bleicher</i>	<b>09:20 – 09:40</b>
Rapid Safety Assessment and Experimental Derivation of Damage Indexes for In-Service Glass Slabs <i>Chiara Bedon, Salvatore Noé</i>	<b>09:40 – 10:00</b>
Potentials and Limits of Simplified Models for Linearly Restrained Glass Balustrades under Static Loads and Impact <i>Emanuele Rizzi, Chiara Bedon, Alessia Bez, Claudio Amadio</i>	<b>10:00 – 10:20</b>
<b>Coffee break</b> Foyer	
	<b>10:20 – 11:00</b>

## Parallel sessions Friday Morning – June 24<sup>th</sup>

11:00 – 14:00

Room	Room A	Room B
Theme	LAMINATED GLASS & INTERLAYER PROPERTIES	GLASS IN FACADES
Chair	<i>Chair: to be announced</i>	<i>Chair: to be announced</i>
11:00 – 11:20	Reducing Carbon Footprint of Laminated Glass Through the use of Structural Interlayers <i>Björn Sanden, Jorge Hidalgo</i>	MICA (Monitoring Internal Comfort Application): A new BIM tool processing IEQ data input for building management and energetic optimizations <i>Luca Guidi, Giovanni Inghirami, Gerardo Masiello, Daniele Antonucci, Pasquale</i>
11:20 – 11:40	Thermal Rheological and Relaxation Characteristic of Composite Interlayer in Laminated Glass <i>Dongdong Xie, Jian Yang, Xinger Wang, Chenjun Zhao, Xianfang Jiang, Gang Li</i>	Slim Skins: Towards a New Glazed Façade System <i>Barbara Foolen de Oliveira, Arjen Veenstra, Maria Meizoso Aguilar, Mauro Overend</i>
11:40 – 12:00	Determination and Evaluation of the Interlaminar Shear Modulus of Polyvinyl Butyral with Fibre Optic Sensors <i>Thorsten Weimar, Christian Hammer</i>	Validation of a Simple Numerical Tool for Superimposition of Climatic Load and Wind Load in Closed Cavity Facades. Importance of a Coupled PE-Thermal-Mechanical Model <i>Guido Lori, Kjartan Van Den Brande,</i>
12:00 – 12:20	Determination of the Linear Viscoelastic Material Behaviour of Interlayers with Semi-Crystalline Structures <i>Miriam Schuster</i>	Experimental and Numerical Assessment of Permeability Functions in Closed Cavity Facades <i>Guido Lori, Kjartan Van Den Brande, Nathan Van Den Bossche, Henk De Bleecker, Jan Belis</i>
12:20 – 12:40	to be announced <i>Björn Sanden et al.</i>	Experimental Validation of a Numerical model for Closed Cavity Façade Glass Structural Calculation under Dynamic Cavity Temperature, Dry Air Flow and Wind Loads Effects <i>Guido Lori, Kjartan Van Den Brande,</i>
12:40 – 14:00	<b>Lunch</b> Foyer	

Room C	Room
NUMERICAL MODELLING & EXPERIMENTAL VALIDATION	Theme
Chair	<i>Chair: to be announced</i>
The clamp bender: A new testing equipment for thin glass <i>Marco Zaccaria et al</i>	11:00 – 11:20
Numerical Study on Post-Fracture Behavior of a Two- Sided Reinforced Laminated Glass Beam-Column Connection Prototype <i>Mirko Pejatovic, Robby Caspeelee, Jan Belis</i>	11:20 – 11:40
Silicone Structural Glazing Under Blast Loading <i>Valérie Hayez, Jon Kimberlain, Jie Feng, Sigurd Sitte, Mark Mirgon</i>	11:40 – 12:00
Evaluation Methods for Surface Compression Stress Measurements with Unknown Principle Stress Directions <i>Kerstin Thiele, Steffen Müller-Braun, Jens Schneider</i>	12:00 – 12:20
Non-Contact 3D Characterization System of Scratch-Induced Surface Damage on Monolithic Glass Panel <i>Zhufeng Pan, Jian Yang, Xing-er Wang, Yige Wang, Gang Li, Xianfang Jiang</i>	12:20 – 12:40
<b>Lunch</b> Foyer	
12:40 – 14:00	

**Parallel sessions Friday Afternoon – June 24<sup>th</sup>**

**14:00 – 18:00**

Room	Room A	Room B
Theme	PROJECTS & CASE-STUDIES	THERMAL, ACOUSTIC & LIGHTING ASPECTS
Chair	<i>Chair: to be announced</i>	<i>Chair: to be announced</i>
<b>14:00 – 14:20</b>	High-transparency Clear Glass Windows with Large PV Energy Outputs <i>Dieter Moor, Victor Rosenberg, Mikhail Vasiliev</i>	Insights into Emissivity Changes During Tempering Processes and Potential for Utilization <i>Jorma Vitkala, Marcus Klein, Daniel Schmidt, Senthil Vinodh</i>
<b>14:20 – 14:40</b>	to be announced <i>Kenny Martens et al.</i>	UV Transmission in Laminated Glass: Effects on Plant Growth and Development <i>Silke Hemming, Björn Sanden</i>
<b>14:40 – 15:00</b>	Funicular Glass Bridge Prototype: Design Optimization, Fabrication, and Assembly Challenges <i>Yao Lu, Alireza Seyedahmadian, Philipp Amir Chhadeh, Matthew Cregan, Mohammad Bolhassani, Jens Schneider,</i>	Color Depth <i>Catie Newell, Ryan Craney</i>
<b>15:00 – 15:20</b>	The Jardin d’Hiver in Paris, a Structural Glass Case Study <i>Jorge Hidalgo, Matthieu Thésé, Matt King, Victor Racodon</i>	Shaping Glass for Acoustic Performance <i>Catie Newell, Zackery Belanger, Wes McGee</i>
<b>15:20 – 15:45</b>	<b>Coffee break</b>	
<b>15:45 – 17:30</b>	<b>Plenary session</b>	
<b>17:30 – 18:00</b>	<b>Drinks - Foyer</b>	
<b>21:00</b>	<b>Social gathering (at own expenses)</b>	

Room C	Room
STRENGTH & STABILITY	Theme
Chair	<i>Chair: to be announced</i>
Hail Resistance of Greenhouse Coverings <i>Jürgen Neugebauer, Georg P. Kneringer</i>	<b>14:00 – 14:20</b>
Experimental Strength Characterisation of Thin Chemically Pre-Stressed Glass Based on Laser-Induced Flaws <i>Shahryar Nategh, Marco Zaccaria, Jeroen Missinne, Jan Belis</i>	<b>14:20 – 14:40</b>
A Novel Technique for Enhancing Stress Concentration Features in Glass <i>Mithila Achintha</i>	<b>14:40 – 15:00</b>
	<b>15:00 – 15:20</b>
<b>Coffee break</b>	
<b>Plenary session</b>	
<b>Drinks - Foyer</b>	
<b>Social gathering (at own expenses)</b>	
	<b>21:00</b>