

| Sunday 19 May | | |
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| 7:30 | Durability fun run | |
| 10:00 | Excursion (registration required) | |
| 13:30-18:00 | To be decided | Registration |
| 18:30-20:30 | To be decided | Welcome Reception |

Pinus, Quercus and Liquidambar for A B and C (poster)

| Monday 20 May | | |
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| Opening Plenary Session President: Rod Stirling Vice-President: Miha Humar Secretary-General: Mats Westin | | |
| 08:30-08:50 | Opening Ceremony of the 55th Annual Conference Opening address by Rod Stirling, President, The International Research Group on Wood Protection Jeff Lloyd, Local Organizing Committee | |
| 08:50-09:30 | Plenary <ol style="list-style-type: none"> Opening of the meeting Approval of the agenda Membership issues <ul style="list-style-type: none"> - New regular and student members, new corporate members and members deceased Announcement of this year's award recipients <ul style="list-style-type: none"> - Honorary Life-Long Membership - Ron Cockcroft Award | 24-xxxxx |

| Scientific Main Session – keynote Chair: Miha Humar | | |
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| 9:30-10:00 | XX S Oswalt | XX |
| 10:00-10:30 | Xx D Brooks | Xx |
| 10:30-11:00 Coffee / Tea | | |

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| Scientific Main Session – section papers Chairs: Miha Humar, Mark Mankowski, Gerald Presley, Kévin Candelier, Jan Van den Bulcke, Boštjan Lesar | | |
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| 11:00-11:20 | »RCA« Research on gaseous COS degradation by brown-rot fungus <i>Gloeophyllum trabeum</i> R Iizuka , R Tsukida, Y Katayama, M Yoshida | 24-11033 |
| 11:20-11:40 | »RCA« Studies on the treatability of selected pine species and corresponding efficacies of a new non-biocidal treatment T R da Silva Lins , L Emmerich, H Militz, P H Gonzales de Cademartoni, R J Klizke, M Pereira da Rocha | 24-20721 |
| 11:40-12:00 | »RCA« Influence of the substitution of phenol with lignin cleavage products in phenol-formaldehyde impregnation resins for wood modification on the fungal decay resistance and impregnation depth J Karthäuser , L Tarentino, A Treu, H Militz, G Alfredsen | 24-30805 |
| 12:00-12:20 | »RCA« Changes in decay risk of wood in ground contact over Europe, from analysis of historic climate conditions P B van Niekerk , B N Marais, G Alfredsen, C Brischke | 24-41008 |
| 12:20-12:40 | Keeping Wood Greenest: Maximizing the Unique Benefits of Preserved Wood Through End-of-Life Planning to Realize Carbon Sequestration and a Circular Economy J D Lloyd , B Poe | 24-50387 |
| 12:40-13:00 | Discussion and questions | |
| 13:00-14:00 | Lunch | |

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| | Parallel Session - Pinus | |
| | WP 2.1 Wood preservatives | |
| | Conveners: | |
| 14:00-15:30 | Why Preserved Wood Is Used for Infrastructure S T Smith | 24-20711 |
| | »RCA« Enhancing UV resistance and decay resistance of wood by nanoparticle dispersed linseed oil nanoemulsion R Bansal , R Kumar, K K Pandey | 24-20706 |
| | »RCA« X-ray micro-computed tomography of copper distribution in CA, ACQ and MCA treated wood and changes in microstructure of ACQ-treated southern pine following natural weathering D Feng , M Turner, P D Evans | 24-20707 |
| | Comparison of Residual Methylisothiocyanate (MITC) in Australian and South American Hardwood and Softwood Treated with a Solid Compressed Dazomet Fumigant Stick R Tungal , M Powell, J J Morrell, T Singh | 24-20712 |
| 15:30-16:00 | Coffee / Tea | |

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| | WP 2.1 Wood preservatives cont. | |
| | Conveners: | |
| 16:00-17:30 | Exposure tests on railroad ties treated with DOT L Arthur, J-W Kim | 24-20705 |

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| | Barriers of Polyglycol/Borate Treated Wood Prevent Termite Attack to Untreated Wood Above Them in 10-Year Field Tests K W Ragon , J D Lloyd, T L Amburgey | 24-20709 |
| | Benefits of Borate Dual Treatment S T Smith , J D Lloyd, S McKinney | 24-20710 |
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| 17:30 | President's RECEPTION (upon invitation) The Star TN River Boat Paddle Steamer | |
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| Parallel Session - Quercus | | |
| WP 1.1 Microorganisms Conveners: Katie Ohno | | |
| 14:00-15:30 | Characterization of cell wall morphology and water-soluble extractives in Japanese larch decayed by white-pocket-rot fungi Y Mori , H Arai, T Ito, H Hashitani, K Yamashita, Y Ota, M Kiguchi | 24-11034 |
| | Cellulose nanomaterials in growth media for wood decay fungi K Ohno , R Arango, R Sabo, C Clemons, G Kirker, A Bishell | 24-11035 |
| | »RCA« Time-lapse evaluation of Aureobasidium pullulans growth on selected lignin derivatives and chitosan A Gubensek , F Poohphajai, A Tošić, K Butina Ogorelek, W Pajerski, A Černoša, V Hribljan, A Sandak | 24-11032 |
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| 15:30-16:00 | Coffee / Tea | |

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| WP 1.2 Insects & Marine borers Conveners: Rachel Arango & Mark Mankowski | | |
| 16:00-17:30 | Prevention of Termite Tubing on Foam Insulation Materials Q Wu , J Curole, J D Lloyd | 24-11039 |
| | Protocol of action in urban areas affected by subterranean termite attacks in Spain. Example of management in the old town of Areatza D Lorenzo , J Benito, J Arancon, D Luengas | 24-11037 |
| | Laboratory evaluation of PA1b, an insecticidal protein extracted from pea seeds (Pisum sativum), as bait active ingredient against the subterranean termite Coptotermes gestroi (Blattodea: Rhinotermitidae) in tropical zones J Vuillemin, D Messaoudi , P da Silva | 24-11038 |
| | Do naturally sequestered biocidal metals contribute to the marine borer resistance of turpentine? P D Evans , H Matsunaga, D Feng, M Turner, C Kewish | 24-11036 |
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| 17:30 | President's RECEPTION (upon invitation) | |

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| | The Star TN River Boat Paddle Steamer | |
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| Tuesday 21 May | | |
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| Parallel Session A | | |
| WP 5.3 Environmental impact | | |
| Conveners: Gerald PRESLEY and Davor KRŽIŠNIK | | |
| 8:30-10:10 | Copper migration from preservative-treated Douglas-fir decking: models vs laboratory leaching data M J Konkler, G Presley, J J Morrell , T Singh | 24-50390 |
| | Quantifying metal migration from a deck constructed with copper-azole-treated lumber G Presley , M Konkler | 24-50391 |
| | Quantitative Assessment of Wood Preservative Emissions to Waterways K J Rader , R Carbonaro, C Mackie | 24-50393 |
| | Exploring the Migration of Creosote in Freshwater Environments: A Study on Treated Wood Immersion I Rashidi Jouybari, M Konkler, G Presley | 24-50392 |
| | »RCA« Phytosanitary treatment of roundwood for oversea shipping - on the suitability of dry heat treatment as alternative to climate-change effective fumigation G Weber , L Schrader, J Trautner | 24-50394 |
| 10:10-10:40 Coffee / Tea | | |
| WP 2.3 Other protecting chemicals | | |
| Conveners: Véronique Landry and | | |
| 10:40-12:30 | »RCA« Terpene-Based Latex Synthesis for Exterior Wood Protection M Carrère , V Landry | 24-20715 |
| | »RCA« Investigation on the use of whey ultrafiltration permeate as a biosourced agent of wood protection A Keralta , J Winninger, J Chamberland, V Landry | 24-20718 |
| | Surface Treatment of Cross-Laminated Timber to Improve Water Repellency and UV Resistance M Chen , S Uphill, J Hilsenbeck, A Hughes | 24-20716 |
| | Potential of heartwood extracts as wood preservatives combined with linseed oil in 8-year above-ground and in-ground field trials M E Mankowski , G T Kirker, B Hassan | 24-20719 |
| 12:30-13:30 Lunch | | |
| Special Session: Towards a Circular Economy for Wood Protection | | |
| Conveners: Boštjan Lesar & Jan Van den Bulcke | | |
| | Analysis and performance of spruce alternative species and discarded wood for windows production B Lesar , J Levanič, M Humar, A Treu | 24-50386 |
| 13:30-15:40 | Overview of Canadian CRD wood waste recycling ecosystem G Boivin , D Schorr | 24-50395 |

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| | Evaluating the potential for re-using timber from deconstructed sea defence groynes from the Bournemouth groyne field J R Williams | 24-50398 |
| | Biofabrication of composite materials – Utilizing lignocellulosic biomass and mycelium in 3D printing D Kržišnik , B Žuran, M Kariž, M Humar | 24-50397 |
| 15:40-16:10 | Coffee / Tea | |
| Special Sess.: Towards a Circular Economy for Wood Protection cont. Conveners: Boštjan Lesar & Jan Van den Bulcke | | |
| 16:10- | Bio-based thermal insulation panels – a way of cascading utilization of post-consumer wood W Perdoch , A Szelag | 24-50388 |
| | Novelty and Challenges in Bio-renewables Processing – Towards a CO2 Neutral Chemical Industry R Craciun | 24-50396 |
| | Timber Circularity discussion: Waste hierarchy and prioritising reuse opportunities! T Singh | |
| Poster Session Convener: Miha Humar | | |
| | A novel cellulose-binding domain from the brown-rot fungus that can be used to evaluate cellulose in wood Y Kojima , N Sunagawa, S Tagawa, T Hatano, S Nakaba, M Aoki, M Wada, K Igarashi, M Yoshida | 24-11046 |
| | X-ray fluorescence microscopy of copper ion distribution in decay of copper-treated wood by <i>Fibroporia radiculosa</i> K Ohno , J Jakes, A Bishell, L Li, Q Jin, E Maxey | 24-11047 |
| | Adaptability of <i>Reticulitermes flavipes</i> (Kollar) in a northern climate R A Arango , K M Ohno, A B Bishell, G T Kirker | 24-11048 |
| | Laboratory and field evaluations of bio-based termiticide containing Arnica extract from Berkem Biosolutions® against native and Formosan subterranean termites D Messaoudi , J Curole, Q Wu | 24-11049 |
| | Efficacy performance of Pea Extract as bait toxicant for termite control in Reunion Island J Vuillemin , D Messaoudi, A Robert, P da Silva | 24-11050 |
| | Virtual Reality of Wood Protection D Feng , Y Liu, M Turner, A Limaye, P D Evans | 24-20727 |
| | Suberinic acid from birch bark and its suitability in wood protection A Treu , M Altgen, J Rižikovs | 24-20729 |
| | Assessment of hydrophobic properties of acetylated and furfurylated Korean wood species S-M Yoon , Y-S Choi, H-M Lee, Y Park, W-J Hwang, S-K Jang | 24-30813 |
| | Assessment of hydrophobic properties of acetylated and furfurylated Korean wood species S-M Yoon , Y-S Choi, H-M Lee, Y Park, W-J Hwang, S-K Jang | 24-30813 |
| | Field Facility for Conducting Wood Durability Tests at LSU Agricultural Center | 24-41012 |

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| | <u>Q Wu</u>, J Curole | |
| | A new wood preservative system based on basic copper compound nanosols J O Kim, J-G Kang, Y-S Choi, S-M Yoon, H-M Lee, <u>J-G Park</u> | 24-20728 |
| | Comparison of Copper Leaching from Alkaline Copper Quat and Copper Compound Nanosol-based Wood Preservatives Treated Wood <u>Y-S Choi</u> , S-M Yoon, J O Kim, J-G Kang, J-G Park | 24-20726 |
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| Parallel Session B | | |
| WP 4.2 Service life | | |
| Conveners: Joris VAN ACKER & Tomoko OSAWA | | |
| 8:30-10:10 | How personality traits influence the perception of fungal decay in a wooden cladding – A survey in three European countries G W Gustavsen, <u>G Alfredsen</u> , P B van Niekerk, J Niklewski, C Brischke | 24-41002 |
| | Modelling the service life of wood in ground contact – Verification of remotely sensed soil data from the reanalysis dataset ERA5-Land using in-situ measurements at a test site of utility poles in Eastern Norway U Hundhausen, <u>P B van Niekerk</u> , B Marais | 24-41003 |
| | Modelling wood moisture content in outdoor conditions from measured data <u>J Niklewski</u> , P B van Niekerk, L Meyer-Veltrup, J Sandak, C Brischke | 24-41005 |
| | In service performance of wood sound abatement barriers S Kus, D Wong, <u>R Stirling</u> | 24-41006 |
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| 10:10-10:40 | Coffee / Tea | |
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| WP 4.2 Service life cont. | | |
| Conveners: | | |
| | Assessment of historical pilings from Lisbon <u>D Jones</u> , S Duarte, J A J Huber, L Nunes | 24-41004 |
| | Service life of poplar, a low durability hardwood <u>J Van Acker</u> , X Jiang, L De Ligne, J van den Bulcke | 24-41007 |
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| WP 1.3 Natural durability | | |
| Conveners: Grant Kirker | | |
| | Intra-species variability of moisture dynamics in wood <u>C Brischke</u> , H Purps, L Emmerich | 24-11040 |
| | The Durability and Mechanical Properties of 40 Years Old Black Locust Poles <u>M Humar</u> , J Malik, J Levanič, D Kržišnik, E Keržič, B Lesar | 24-11042 |
| | »RCA« Wood above ground Project – Results and future Plans <u>A W Christof</u> , R Digaitis, P Fynholm, J Stenbæk, N Morsing, B Lindegaard | 24-11041 |

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| | Status of Malaysian timber plantation: Natural durability of Paulownia to mold S Lipeh , T Khadiran, Z Jalaludin, M K Anwar U | 24-11043 |
| 12:00-13:30 | Lunch | |
| Wednesday 22 May | | |
| Parallel Session A | | |
| WP 3.2 Chemical modification | | |
| Conveners: Johannes KARTHÄUSER and Diane SCHORR | | |
| 8:30-10:10 | Physical, Durability and Chemical Characterization of Gmelina arborea (Roxb.) Wood Treated with Lactic Acid T O Akinwamide , J M Owoyemib, E A Iyiolac | 24-30803 |
| | Preliminary Investigation of the Durability and Performance of 1,3-dimethylol-4,5-dihydroxyethylene urea (DMDHEU) Treated Aspen Strandboard S Johnson , F Kamke, G Presley | 24-30804 |
| | Durability of acetylated beech (Fagus sylvatica L.) laminated veneer lumber (LVL) M Slabohm, H Militz | 24-30808 |
| | Citric Acid and Sorbitol Treatment: A Comparative Study of Canadian and Norwegian Species D Schorr , Erik Larnøy, R Stirling, G Boivin | 24-30807 |
| 10:10-10:40 | Coffee / Tea | |
| WP 3.3 Other penetrating modifications | | |
| Conveners: Liang LIANG and Kévin CANDELIER | | |
| 10:40-12:30 | Manufacturing of Bamboo Hybrids with high Strength, Superior Fire Retardancy, and Dimensional Stability W He, Rui Wang, W Li, G Hu, T Singh , Q Fu | 24-30809 |
| | Bio-durability and weathering performances of cardanol-treated wood L Liang , L Cai | 24-30810 |
| | Developing thermal-energy storage systems based on Kraft lignin-glyoxal and organic phase-change material modified wood C-F Lin, O Karlsson, D Jones , D Sandberg | 24-30811 |
| 12:30 | Excursion | |
| Parallel Session B | | |
| WP 2.2 Fire retardants | | |
| Conveners: | | |

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| 8:30-10:10 | Binder-free, fire-resistant, light-weight fiberboard materials encrusted with expandable graphite and borax W Perdoch , W Grześkowiak, B Mazela | 24-20714 |
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| WP 2.4 Treatability of wood & quality control of processes and materials | | |
| Conveners: | | |

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| | Effectivity of Zinc Borate in Medium Density Fiberboard (MDF) for Ground Proximity Testing S M Vega Gutierrez , T Olivadoti | 24-20723 |
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| | Phytosanitary heat treatment of wood in a laboratory drying oven and, in a pilot-scale kiln using the house longhorn beetle (<i>Hylotrupes bajulus</i>) larvae as a model B Rubio , C L'Hostis, M Montibus, I Paulmier, C Brunet, L Charron, J-P Gaussorgues, C Guiberteau, V Vlahakis, F-R de Cibon, I Le Bayon | 24-20722 |
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| 10:10-10:40 | Coffee / Tea | |
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| WP 5.1 Health and Safety Aspects | | |
| Conveners: René HERRERA and Gabrielle BOIVIN | | |

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| 10:40-12:30 | Levels of chromated copper arsenate in aged radiata pine vineyard posts T Singh , T Yi, P Mitchell, J Norton | 24-50389 |
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| | Leaching and chemical redistribution of CCA components in refractory heartwood of <i>E. nitens</i> J R Vargas , L Yermán, K C Wood, T Singh | 24-41011 |
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| | Exploring bio-based chemicals in the residual stream from the thermal wood modification process R Herrera , W Willems, W Pajerski, A Selmanović, A Sandak | 24-30799 |
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| WP 4.3. Wood-based composites | | |
| Convener: Phil EVANS | | |

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| | Evaluation of mass timber materials for military and commercial trailer decking G Kirker , A Senalik, X Wang, K Ohno, R Arango, M Mankowski, X Xie, J Eskola, N Kamprath, S Karwaczynski, M Weaver | 24-41009 |
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| | Performance of Douglas-fir cross laminated timber (CLT) subjected to elevated humidity in a ground proximity field test for 6 years M E Mankowski , J J Morrell, T G Shelton, G T Kirker | 24-41010 |
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| | Properties of thermal modified wood of <i>Pinus pinaster</i> , <i>Pinus radiata</i> and <i>Pinus sylvestris</i> from Galicia, Spain D Lorenzo , J Benito, J Arancon, J Crespo | 24-30800 |
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| 12:30 | Excursion | |
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| Thursday 23 May | | |
| Parallel Session A | | |
| WP 1.4 Microbial test methodology | | |

| Conveners: Makoto Yoshida | | |
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| | On the use of miniaturized wood specimens in fungal decay experiments – mini-blocks versus EN 113 test specimens C Brischke , G Alfredsen | 24-11044 |
| | Investigating moisture dynamics and fungal decay risk: integrating X-ray CT visualization and simulation benchmarks through a Fungal Control Unit J Van den Bulcke , J Van Acker, M Delbeke, A Blommaert, N Van Den Bossche, M Steeman, L De Ligne | 24-11045 |
| WP 4.1 Laboratory and field performance | | |
| Conveners: Tripti SINGH & Liang LIANG | | |
| | Evaluation of vacuum borate treated spruce or pine CLT in an above ground protected test in southern Mississippi M Mankowski , A Taylor, G Kirker | 24-41001 |
| | Field performance of preserved shakes and shingles R Stirling , S Kus | 24-41000 |
| | Outdoor Termite Resistance Performance of Zinc Borate (Borogard® ZB) Treated Parallel Strand Lumber (PSL) – 15 Years Field Test Results S Shi , E Laval , K Lung, F Ascherl, R Williams, W Li, X Li | 24-40999 |
| WP 4.1 Laboratory and field performance cont. | | |
| Conveners: | | |
| | Evaluation of the water exclusion ability and inherent bioactivity of heartwood against decay in Japanese and European wood species via above-ground exposure and water absorption tests T Osawa , R Noda, K Yamamoto | 24-40998 |
| | Shelling of flat and profiled western larch deck-boards exposed to natural weathering L H Leung, P D Evans | 24-40997 |
| | Durability of thermo-mechanically densified and heat-treated timbers against marine borers M Westin , C Brischke | 24-30802 |
| | International joint field trial on the moisture performance of wood – Set up and first results C Brischke , et al (33 co-autors) | 24-40996 |
| Parallel Session B | | |
| WP 2.5 Wood protection by design & new protection concepts | | |
| Conveners: | | |
| | The potential of Wacapou (<i>Vouacapoua americana</i>) extracts to develop new biobased protective solutions for white woods E Kieny, K Candelier , L Milhe, Y Estevez, C Sophie, R Lehnebach, J Damay, D Florez, E Hoël, M-F Thevenon, J Bossu | 24-20724 |
| | Elevated Pressure Hybrid Wood Modification: Synergistic effects on durability performance P Klaas , D Jones | 24-20725 |

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| | WP 3.1 Thermal modification Conveners: Dennis JONES and Kévin CANDELIER | |
| | EMC as a quality control parameter for thermally modified wood P Klaas , J T Lauridsen | 24-20720 |
| | Natural Weathering of Modified Pine and Eucalyptus Woods by Surface Charring E E Soyturk, E N Kavakli, S N Kartal , C M Ibanez | 24-30801 |
| | A novel treatment for increasing UV stability of wood based on citric acid and urea S Jué, A Scharf, C-F Lin, R Moutou Pitti, D Sandberg, D Jones | 24-30812 |
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| | Scientific Plenary Session – Discussion Forum Chair: Miha Humar | |
| | Protection of mass timber Is building with mass timber without chemicals possible? B. Lesar Protection of mass timber in the US G. Presley | |
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| 15:00-15:30 | Coffee / Tea | |
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| | Final Plenary Session President: Rod Stirling Vice-President: Miha Humar Secretary-General: Mats Westin | |
| | 5. Approval of the Annual Report 2023 and Auditor’s report (IRG/WP xxxxxx) 6. Granting discharge for the Executive Council and Secretary-General from the administration and accountancy for 2023 7. Approval of membership fees for 2025 8. Approval of the budgets for 2024 (forecast May 2024) and 2025 9. Election of new officers 10. Appointment of auditors 11. Future venues 12. Any other business | |
| 18:00-24:00 | CONFERENCE BANQUET | |
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