

## ICSA2019 SHORT PROGRAM

| Tuesday, July 23, 2019   |   |  |   |  |
|--------------------------|---|--|---|--|
| 15:00 – 19:00            | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre                  |  |   |  |
| Wednesday, July 24, 2019 |   |  |   |  |
| 08:00 – 19:00            | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre                  |  |   |  |
| 09:00 – 09:30            | <b>Opening Ceremony</b> (Auditorium 2)  |  |   |  |
| 09:30 – 10:30            | <b>Keynote Lectures</b> (Auditorium 2)  |  |   |  |
| 10:30 – 11:00            | <b>Coffee Break</b>   |  |   |  |
| 11:00 – 12:30            | <b>WeM 1 Mini-symposium</b><br>Circular Tectonics (1)   | <b>WeM 2 General Session</b><br>Special structures (1)   | <b>WeM 3 General Session</b><br>The history of the relationship between architects and structural engineers | <b>WeM 4 Special Session</b><br>Wood: Structure and Expression |
| 12:30 – 14:00            | <b>Lunch Break</b>  |  |   |  |
| 14:00 – 16:00            | <b>WeA 1 Mini-symposium</b><br>Circular Tectonics (2 & 3)   | <b>WeA 2 General Session</b><br>Innovative architectural and structural design (1)                 | <b>WeA 3 General Session</b><br>The use of new materials  |  |
| 16:00 – 16:30            | <b>Coffee Break</b>   |  |   |  |
| 16:30 – 17:30            | <b>WeE 1 Mini-symposium</b><br>Circular Tectonics (4)   | <b>WeE 2 Special Session</b><br>Crafting Spatiality  | <b>WeE 3 General Session</b><br>Glass Structures  |  |
| 17:30 – 18:00            | Presentation of the Associated Event – The Bones of Architecture – An exhibition on design practices (Auditorium 2) |  |   |  |
| 19:30 – 22:30            | Visit to the exhibition “The Bones of Architecture” & Welcome Reception (Centro Cultural de Belém)                  |  |   |  |
| Thursday, July 25, 2019  |   |  |   |  |
| 08:30 – 19:00            | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre                  |  |   |  |
| 09:00 – 10:00            | <b>Keynote Lectures</b> (Auditorium 2)  |  |   |  |
| 10:00 – 10:30            | <b>Coffee Break</b>   |  |   |  |
| 10:30 – 12:00            | <b>ThM 1 General Session</b><br>Comprehension of complex forms & Concept architectural buildings                    | <b>ThM 2 General Session</b><br>Innovative architectural and structural design (2)                 | <b>ThM 3 General Session</b><br>Other & Lightweight and membrane structures                                 |  |
| 12:30 – 14:00            | <b>Lunch Break</b>  |  |   |  |
| 14:00 – 15:30            | <b>ThA 1 General Session</b><br>The tectonic of architectural solutions (1)   | <b>ThA 2 General Session</b><br>The borderline between architecture and structural engineering (1) | <b>ThA 3 General Session</b><br>Tall buildings  |  |
| 15:30 – 16:30            | <b>ThE 1 General Session</b><br>The tectonic of architectural solutions (2)   | <b>ThE 2 General Session</b><br>The borderline between architecture and structural engineering (2) | <b>ThE 3 General Session</b><br>Educating architects and structural engineers (1)                           |  |
| 16:30 – 17:00            | <b>Coffee Break</b>   |  |   |  |
| 17:00 – 17:30            | <b>General Meeting – International Association of Structures and Architecture</b> (Auditorium 2)                    |  |   |  |
| 20:00 – 23:00            | <b>Gala Dinner</b> (Estufa Fria)  |  |   |  |
| Friday, July 26, 2019    |   |  |   |  |
| 09:30 – 17:00            | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre                  |  |   |  |
| 10:00 – 10:30            | <b>Keynote Lecture</b> (Auditorium 2)   |  |   |  |
| 10:30 – 12:30            | <b>FrM 1 General Session</b><br>Timber structures   | <b>FrM 2 General Session</b><br>Concrete and masonry structures                                    | <b>FrM 3 General Session</b><br>Educating architects and structural engineers (2)                           |  |
| 12:30 – 14:00            | <b>Lunch Break</b>  |  |   |  |
| 14:00 – 15:30            | <b>FrA 1 General Session</b><br>Building envelopes (1)  | <b>FrA 2 General Session</b><br>Steel and composite structures & Structural design challenges      | <b>FrA 3 General Session</b><br>Educating architects and structural engineers (3)                           |  |
| 15:30 – 16:00            | <b>Coffee Break</b>   |  |   |  |
| 16:00 – 17:00            | <b>FrE 1 General Session</b><br>Building envelopes (2)  | <b>FrE 2 General Session</b><br>Computer and experimental methods                                  | <b>FrE 3 General Session</b><br>Educating architects and structural engineers (4)                           |  |
| 17:00 – 17:30            | <b>Closing Ceremony</b> (Auditorium 2)  |  |   |  |

Structural glass: Crossing borders (1) **ICSA2019 FULL PROGRAM**

| Tuesday, July 23, 2019 |  |
|------------------------|--|
| 15:00 – 19:00          | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre |

| Wednesday Morning (WeM), July 24, 2019 |  |
|--|--|
| 08:00 – 19:00                          | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre   |
| 09:00 – 09:30                          | <b>Opening Ceremony</b> (Auditorium 2)   |
| 09:30 – 10:30                          | <b>Keynote Lectures</b> (Auditorium 2) Chair: P. Cruz<br><b>F. Branco</b> “Design for durability”<br><b>O. Grossetête</b> “Builders of ephemeral monumental constructions in cardboard” – <b>This lecture will be presented in French. Please pick up your translation device.</b> |
| 10:30 – 11:00                          | <b>Coffee Break</b>  |
| 11:00 – 12:30                          | <b>Concurrent Technical Sessions:</b> WeM 1 to WeM 4   |

| WeM 1 – Auditorium 2   | WeM 2 – Auditorium 3   | WeM 3 – Room 1   | WeM 4 – Room 2  |
|--|--|--|---|
| <b>Mini-Symposium</b><br>Circular Tectonics: Towards ecological continuity, -means, -relations, strategies and -innovation in architectural practice (1) Introduction and Concepts | <b>General Session</b><br>Special structures (1)   | <b>General Session</b><br>The history of the relationship between architects and structural engineers  | <b>Special Session</b><br>Wood: Structure and Expression  |
| Chairs: <i>M.F. Hvejsel &amp; A. Beim</i>  | Chair:   | Chair:   | Chairs: <i>J.H. Siem &amp; U. Meister</i>   |
| Circular Tectonics? – A critical discussion of how the architectural discipline can drive ecological continuity<br><i>M.F. Hvejsel &amp; A. Beim</i>                               | Parametric description of the movement of reciprocal transformable geometry surfaces, for adaptive environment materialization<br><i>C. Martínez Arias &amp; J. Anaya Díaz</i> | The 1935 Portuguese reinforced concrete code: Background, sources and authors<br><i>J.P. Delgado, R. J. G. Ramos &amp; P. Tormenta Pinto</i>                                   | A Universe of wood joinery<br><i>M. Spaan</i>   |
|  | Drie Fonteinen Bridge Brussels-Charleroi; Lessons learnt from a multidisciplinary design process in a digital design era<br><i>J.E.P. Smits &amp; A.F. Blankenspoor</i>        | Steel visions. Fiorini’s “mechanical architectures”<br><i>R. Morganti, A. Tosone, M. Abita &amp; D. Di Donato</i>  | Tectonic in the education<br><i>C. Rist-Stadelmann</i>  |
| Connecting Ends with Beginnings – Conceptual framework for a circular art of tectonics<br><i>J. Holst</i>  | Expandable bar structures for emergency situations<br><i>J. Pérez-Valcárcel, M. Muñoz-Vidal, M. Freire-Tellado, D. Gómez-Magide &amp; A. Casal-Rodríguez</i>                   | The Engineer Emílio H. Baumgart and the Brazilian Architecture in reinforced concrete of the first half of the twentieth-century<br><i>J.M.M. Sánchez &amp; R.P.da Fonseca</i> | Connected Knowledge<br><i>B.O. Braaten, J. Siem &amp; A. Gilberg</i>                                  |
| The Compatibility of Architecture and Circular Economy<br><i>H. Ejstrup &amp; P. Munch-Petersen</i>  | Scale effect and load-bearing behavior of a reconfigurable hybrid structure<br><i>M. Matheou, M.C. Phocas &amp; E.G. Christoforou</i>  | Walter Gropius & Ove Arup: Collaboration, ‘total design’ & the ‘composite mind’<br><i>F. Trubiano</i>  | Full-scale wood architecture as educational tool<br><i>J. Siem, B.O. Braaten &amp; A. Gilberg</i>     |
| Dialectical Tectonics – Ontology and tectonic ecology of form, material and form without material<br><i>K. Usto</i>  | Morphological investigation of a tensegrity helicoid for display during the 2018 Biennale Architecture in Venice<br><i>K.A. Liapi, A. Papantoniou &amp; A. Ioannidi</i>        | Arne Johnson’s material research introducing steel frame building in postwar Sweden<br><i>F. Rosenberg</i>   | Optimization and shaping of indeterminate frame structures<br><i>P. Mayencourt &amp; C.T. Mueller</i> |
| Sustainable Building Renovation: Towards a holistic tectonics thinking framework in sustainable transformation of the built environment<br><i>A. Kamari &amp; P.H. Kirkegaard</i>  |  | The original palaces of Brasília: Architectural composition and structural engineering<br><i>E.G. da Silva &amp; J.M.M. Sánchez</i>  | The Aspect of Craftmanship: Innovation and Expression<br><i>U. Meister</i>                            |

**Wednesday Afternoon (WeA), July 24, 2019**

|               |  |
|---------------|--|
| 12:30 – 14:00 | <b>Lunch Break</b>                                   |
| 14:00 – 16:00 | <b>Concurrent Technical Sessions: WeA 1 to WeA 3</b> |

| <b>WeA 1 – Auditorium 2</b>   | <b>WeA 2 – Auditorium 3</b>  | <b>WeA 3 – Room 1</b>  |
|---|--|--|
| <b>Mini-Symposium</b><br>Circular Tectonics: Towards ecological continuity, -means, - relations, strategies and -innovation in architectural practice (2 & 3) Systems & Economics | <b>General Session</b><br>Innovative architectural and structural design (1)   | <b>General Session</b><br>The use of new materials   |
| Chairs: M.F. Hvejsel & A. Beim  | Chair:   | Chair:   |
| Isolating the Tectonics of Insulation<br><i>H. Ejstrup</i>  | Housing experiments of the 1920s fuelling innovation. The multicellular construction system<br><i>A. Cel Mare</i>            | Mycelium-based materials at the dawn of the Anthropocene<br><i>E. Elsacker, E. Peeters &amp; L. De Laet</i>  |
| A tectonic approach to energy renovation of dwellings – The case of Gellerup<br><i>S.R. Jensen, P.H. Kirkegaard, G. Postiglione &amp; A. Strange</i>                              | Modularity in architectural design: lessons from a housing case<br><i>A.L. Correia, V. Murtinho &amp; L. Simões da Silva</i> | Use and challenges of new concretes in the 21st century<br><i>G. Rodriguez de Sensale, V. De Lima, J. Borgno &amp; A. Luisi</i>  |
| Transformation of architectural heritage through adaptive modular systems<br><i>J. Buthke, S.O. Pedersen, N.M. Larsen &amp; C. Bundgaard</i>                                      | Shape of arch – Is it important?<br><i>E. Järvenpää, A.H. Niemi &amp; J. Tervaoja</i>  | Experimental Design and Building of a Cable Reinforced Plastic Brick Arch<br><i>M. Schneider, S. Tripod, L.T. Houdmont &amp; J. Belis</i>  |
| Building circular economy – Strategies for decoupling in architectural practice<br><i>L.K. Frederiksen &amp; P. Munch-Petersen</i>  | Prefabricated Ultracompact Module for steel framed structures<br><i>F. Suárez-Riestra &amp; J. Estévez-Cimadevila</i>        | Load capacity testing method for non-conventional nodes joining linear structural paper components<br><i>N. Kiziltoprak, E. Kanli, J. Schneider, U. Knaack &amp; R. Bach</i>             |
| Invisible Tectonics: Nano Materials, Chemical Synthesis, and Human Health<br><i>F. Trubiano</i>   | Rethinking BIM: Non-cartesian geometry through hybrid workflows<br><i>Y. Zavoleas</i>  | Experimental earth composite shells<br><i>J. Belis, S. Willaert, K. Martens, B. Van Lancker &amp; M. Achenza</i>   |
| Beautiful Tectonics – Corporeal aesthetic in tectonics as sustainable parameter<br><i>N.B. Andersen</i>   | Dynamic shelter structure<br><i>F. Maden, D. Ölmez, Ş. Gür, M.Y. Uncu &amp; C. Mitropoulou</i>                               | Vulnerability of earth material to water: A state of the art<br><i>E. Pauporté &amp; L. Sgambi</i>   |
|   | Structural innovation in the architecture of Thomas Jefferson<br><i>H. Rodriguez-Camilloni</i>                               | Experimental research and evaluation of the application of selected nanosuspensions on in-situ historical material surfaces<br><i>K. Kroftová, J. Witzany, D. Škoda &amp; I. Kuřitka</i> |

**Wednesday Evening (WeE), July 24, 2019**

|               |  |
|---------------|--|
| 16:00 – 16:30 | <b>Coffee Break</b>                                  |
| 16:30 – 17:30 | <b>Concurrent Technical Sessions: WeE 1 to WeE 3</b> |

| <b>WeE 1 – Auditorium 2</b>   | <b>WeE 2 – Auditorium 3</b>   | <b>WeE 3 – Room 1</b>  |
|---|---|--|
| <b>Mini-Symposium</b><br>Circular Tectonics: Towards ecological continuity, -means, - relations, strategies and -innovation in architectural practice (4) Learnings | <b>Special Session</b><br>Crafting Spatiality: Explorations with components and connections for spatial architectural structures  | <b>General Session</b><br>Glass structures   |
| Chairs: <i>M.F. Hvejsel &amp; A. Beim</i>   | Chairs: <i>M. Rinke &amp; O.Popovik Larsen</i>  | Chair:   |
| The presence of timber – Oral history versus architectural theory<br><i>U. Groba</i>  | Bending-active kit-of-parts systems: Uniformity generating complexity<br><i>S. Brancart, N. De Temmerman, L. De Laet &amp; O. Popovic-Larsen</i>  | Performance of the compressed pillar made of solid glass bricks in comparison with other materials<br><i>J. Fíla, M. Eliášová &amp; Z. Sokol</i>                   |
| Circular Tectonics, Users, and Local Culture<br><i>J. Johansson</i>   | Exploration of spatial structures made from reused elements and the design of optimal kits-of-parts<br><i>J. Brütting, C. Fivet &amp; G. Senatore</i>   | Current analytical computational methods of laminated glass panels in comparison to FEM simulation<br><i>T. Hána, K. V. Machalická, M. Vokáč &amp; M. Eliášová</i> |
| Tectonic Learning Ecologies: Elements for a circular architecture pedagogy in the work of Fernando Távora<br><i>M.F. Hvejsel</i>                                    | Rotational stiffness in timber joinery connections: Analytical and experimental characterizations of the Nuki joint<br><i>D.L. Fang, C.T. Mueller, J. Brütting, C. Fivet &amp; J. Moradei</i>                             | On configuration and structural design of frameless glass structures<br><i>P.-S. Chen &amp; M.-T. Tsai</i>   |
|   | A Tectonic methodology for timber joints. The excellence of detail in the era of technology throughout an experimental investigation<br><i>L. Catalá Bustos, P. H. Kirkegaard, P.F. Sonne-Frederiksen &amp; J. Buthke</i> | Performance of glass brick wall exposed to fire<br><i>Z. Sokol &amp; M. Eliášová</i>   |

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|---------------|--|
| 17:30 – 18:00 | Presentation of the Associated Event – The Bones of Architecture – An exhibition on design practices (Auditorium 2) – <i>A. Tavares &amp; M. Rinke</i> |
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| 19:30 – 22:30 | Visit to the exhibition “The Bones of Architecture” & Welcome Reception (Centro Cultural de Belém) |
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**Thursday Morning (ThM), July 25, 2019**

|               |  |
|---------------|--|
| 9:00 – 19:00  | <b>Conference Accreditation</b> – ICOSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre  |
| 9:00 – 10:00  | <b>Keynote Lectures</b> (Auditorium 2) Chair: U. Knaack<br><b>A. Beim</b> “Tectonic ecologies in architecture – a critical perspective in a time of transition”<br><b>H. Corres</b> “Architects + Engineers: a very creative and productive collaboration” |
| 10:00 – 10:30 | <b>Coffee Break</b>  |
| 10:30 – 12:00 | <b>Concurrent Technical Sessions:</b> ThM 1 to ThM 3   |

| ThM 1 – Auditorium 2   | ThM 2 – Auditorium 3  | ThM 3 – Room 1   |
|--|---|--|
| <b>General Session</b><br>Comprehension of complex forms & Concept architectural buildings   | <b>General Session</b><br>Innovative architectural and structural design (2)  | <b>General Session</b><br>Other & Lightweight and membrane structures  |
| Chair:   | Chair:  | Chair:   |
| Complex Geometries of Environmentally Sensitive Forms<br><i>M.G. Fineout</i>   | Configuration and mechanical characteristics of 1.5-Layer Space Frames<br><i>P.-S. Chen</i>   | The performance standard - NBR 15575 and the architectural and structural designs<br><i>M.A.S. Hippert &amp; O.C. Longo</i>  |
| Multi-dimensional form finding: structure, construction and sustainability<br><i>D. Parigi &amp; L. Damkilde</i>                         | Innovative daylight structures for airport terminal and concourse buildings<br><i>W. Place, M. Salamati &amp; J. Hu</i>                 | A case study of structural monitoring as a control tool in the restoration process of heritage structures: The strengthening of the Vistabella Church's Tower<br><i>R. Señís</i> |
| Materials science, spanning the divide between architecture and structural engineering<br><i>F.A. Veer, L. van Ellen &amp; M. Nazari</i> | Deployable structures of reciprocal crossed arches<br><i>M. Muñoz-Vidal, I. López-César, J. Pérez-Valcárcel &amp; F. Suárez-Riestra</i> | Modular housing for situations of humanitarian catastrophe<br><i>J. Aragón Fitera, S. Muñiz Gómez, V. Hermo Sanchez, E. Mosquera Rey &amp; A. Casal Rodríguez</i>                |
| Digital Fascinations Versus Constructed Reality: Towards Achieving Excellence in Execution, A Practical Approach<br><i>T.M. Boake</i>    | Innovative bridges over Bega<br><i>L. Toduți, E. Meteș, E. Petzek, M. Toduți, G. Ispășoiu &amp; B. Zaha</i>                             | Inflatable structures and digital fabrication<br><i>O. Iuorio &amp; H.S. Matharou</i>  |
|  | Flex Skin: Developing a material system based on interlocking wooden panels<br><i>F. Fotouhi, M. Hudert, G. Kayo &amp; T. Kotnik</i>    | Deployable structures with straight bars: Design, manufacturing and assembly<br><i>O.F. Avellaneda Lopez</i>   |

**Thursday Afternoon (ThA), July 25, 2019**

|               |  |
|---------------|--|
| 12:30 – 14:00 | <b>Lunch Break</b>                                   |
| 14:00 – 15:30 | <b>Concurrent Technical Sessions:</b> ThA 1 to ThA 3 |

| ThA 1 – Auditorium 2  | ThA 2 – Auditorium 3  | ThA 3 – Room 1  |
|---|---|---|
| <b>General Session</b><br>The tectonic of architectural solutions (1)   | <b>General Session</b><br>The borderline between architecture and structural engineering (1)  | <b>General Session</b><br>Tall buildings  |
| Chair:  | Chair:  | Chair:  |
| The construction of the Porto School<br><i>E. Fernandes</i>   | Historic timber roof structures: Value and influence on the seismic behaviour of heritage buildings<br><i>A. Keller &amp; M. Mosoarca</i> | High-rise building modelling: numerical and analytical approaches<br><i>L. Sgambi &amp; B. Sato</i>   |
| The tectonic structures of Sverre Fehn<br><i>J. J. Ferrer Forés</i>   | From AgwA to Oversize: From design practice to a pedagogic and research project<br><i>B. Burquel, H. Fallon &amp; B. Vandenbulcke</i>     | Towards a design framework for the structural systems of tall buildings that considers embodied greenhouse gas emissions<br><i>J. Helal, A. Stephan &amp; R.H. Crawford</i> |
| Temporal Reciprocities of Building and Site: Structural Patterns for Resilient Future-Use Structures<br><i>M.M. Laboy</i> | Multi-criterial vulnerability assessment for Timisoara city, Romania<br><i>I. Onescu, E. Onescu &amp; M. Mosoarca</i>                     | Design-to-live or Design-to-build? The impact of delegated design responsibility in Melbourne's high-rise residential buildings<br><i>G. Marfella &amp; A. Martel</i>       |
| Low Impact Spans: Toward Emission-Based Structural Optimization<br><i>M. Mayer &amp; L. Echevarría</i>                    | Task of reinforced concrete in Central European Sacral Architecture of Roman Catholic Church<br><i>E. Svintekova (Vertatova)</i>          | From form-finding to space-making in high-rise designs<br><i>C. Bañón</i>   |

**Thursday Evening (ThE), July 25, 2019**

|               |  |
|---------------|--|
| 15:30 – 16:30 | <b>Concurrent Technical Sessions: ThE 1 to ThE 3</b> |
|---------------|--|

| ThE 1 – Auditorium 2   | ThE 2 – Auditorium 3   | ThE 3 – Room 1  |
|--|--|---|
| <b>General Session</b><br>The tectonic of architectural solutions (2)  | <b>General Session</b><br>The borderline between architecture and structural engineering (2)   | <b>General Session</b><br>Educating architects and structural engineers (1)   |
| Chair:   | Chair:   | Chair:  |
| 1956. American background in Spanish Experimental Housing<br><i>N. Cervero Sánchez</i>   | Partnering without boundaries: Integrating structures, architecture, practice, and education<br><i>K. Dong &amp; T. Fowler</i>   | It's all structural: Teaching construction logic with parametric modeling<br><i>A.C. Harfmann</i>                                     |
| A new approach to the concept of tectonics<br><i>N.S. Yordanova</i>  | From architectural competition to built reality: Predictable failures and serendipitous successes<br><i>J. Rey-Rey</i>   | Draw First, Ask Questions Later: The Value of Manual Sketching in Elementary Architectural Structures Education<br><i>D.J. Oakley</i> |
| Fake Structures–Real Architecture? From the Parthenon in Athens, Greece to the Parthenon of Banned Books in Kassel, Germany<br><i>A.-C. Schultz</i>                      | Assessing architectural heritage: Identifying and evaluating heritage values for masonry and cast-iron buildings and structures<br><i>S. Eberhardt &amp; M. Pospíšil</i> | Structures and architecture integration in a best use of wood design competition studio<br><i>D. Armpriest &amp; C. Manrique</i>      |
| Computational Optimization in Architectural Design and Constructive Issues. A case study: the canopy of a waste collection center<br><i>P. Trovalusci &amp; R. Panei</i> |  | SIXXIGames: Serious games to educate young architects and structural engineers<br><i>T. Iori, I. Giannetti &amp; G. Capurso</i>       |

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|---------------|--|
| 16:30 – 17:00 | <b>Coffee Break</b>  |
| 17:00 – 17:30 | <b>General Meeting – International Association of Structures and Architecture</b> (Auditorium 2) |

|               |                                  |
|---------------|----------------------------------|
| 20:00 – 23:00 | <b>Gala Dinner</b> (Estufa Fria) |
|---------------|----------------------------------|

**Friday Morning (FrM), July 26, 2019**

|               |  |
|---------------|--|
| 09:30 – 17:00 | <b>Conference Accreditation</b> – ICSA2019 Desk – Calouste Gulbenkian Foundation / Congress Centre                                 |
| 10:00 – 10:30 | <b>Keynote Lecture</b> (Auditorium 2) Chair: A. Chen<br><b>L. Ren</b> “Design for future: A new way of storytelling on footbridge” |
| 10:30 – 12:30 | <b>Concurrent Technical Sessions:</b> FrM 1 to FrM 3   |

| <b>FrM 1 – Auditorium 2</b>   | <b>FrM 2 – Auditorium 3</b>  | <b>FrM 3 – Room 1</b>  |
|---|--|--|
| <b>General Session</b><br>Timber structures   | <b>General Session</b><br>Concrete and masonry structures  | <b>General Session</b><br>Educating architects and structural engineers (2)  |
| Chair:  | Chair:   | Chair:   |
| Active bending in timber structures: Case studies in design, development and construction<br><i>P. Tidwell</i>  | Concrete Masonry Units: Innovation design strategies through architecture and building technology integration<br><i>C. Manrique, D. Armpriest, S. He &amp; G. Florenca</i>           | Experience-Based Learning in Construction Education. Testing the Effectiveness of the Product-Oriented Learning Situation<br><i>I. Vrouwe &amp; L. Luyten</i>                                      |
| Can timber lower the environmental impact of tall buildings?<br><i>C. De Wolf &amp; C. Fivet</i>  | Rehabilitation of Trumpeters’ Tower of the Saint Margaret Evangelical Church of Medias<br><i>V. Ungureanu, M. Georgescu &amp; L. Gligor</i>  | MERGE: Exploring new paradigms for educating architects, engineers and builders<br><i>J. Kansler &amp; J. Doerfler</i>   |
| Timber T-section beams: From pre-tensioning to self-tensioning<br><i>J. Estévez-Cimadevila, D. Otero-Chans, E. Martín-Gutiérrez, F. Suárez-Riestra &amp; J. Vázquez-Rodríguez</i> | A Platform of Design Strategies for the Optimization of Concrete Floor Systems in India<br><i>M.A. Ismail &amp; C. Mueller</i>   | The Structural Depth of the Masonry Antidome and Ambidome<br><i>L. Luyten &amp; E. Jannasch</i>  |
| Paper and cardboard as a sustainable building materials<br><i>J.F. Łątko</i>  | A prototype for precast covers. An optimal solution by Torroja<br><i>J. Antuña &amp; B. Orta</i>   | From abstract construction to community integration<br><i>L.H. Hansen</i>  |
| Making-of Pringle: Hybrid structure from equitangential, bending active, wooden frame and minimal surface robe-net<br><i>G.H. Filz</i>  | Research into the response of segmental masonry barrel vaults to dynamic loading effects<br><i>J. Witzany, R. Zigler, T. Čejka, J. Karas, J. Kubát, M. Pirner &amp; S. Urushadze</i> | Integrating design science and systems thinking for active learning<br><i>M.M. Laboy</i>   |
| Case studies on spatial timber constructions in modern architecture and public art<br><i>Y.T. Shi &amp; L.Y. Wu</i>   | The Sorolla Institute of Valencia (Spain). A project by J.R. Azpiazu<br><i>E. Fenollosa, I. Cabrera &amp; B. Serrano</i>   | Teaching Reflection: The Unrealized Potential of Log Construction<br><i>J.X. Zhu, P. Ghelichi &amp; R.S. Diederling</i>  |
| The process of rocking CLT into a HOT cabin<br><i>L.D. Houck, J. Dodson, S. Melville, W. Pearson &amp; T. Thiis</i>   | Masonry tectonics: Craft, labor, & structural innovation in architectural education<br><i>F. Trubiano, J. Dessi-Olive &amp; R. Gentry</i>  | Education on Structural Glass Design: Redefining glass through the design of innovative, full-glass structures<br><i>F. Oikonomopoulou, T. Bristogianni, C. Louter, F.A. Veer &amp; R. Nijssse</i> |

**Friday Afternoon (FrA), July 26, 2019**

|               |  |
|---------------|--|
| 12:30 – 14:00 | <b>Lunch Break</b>                                   |
| 14:00 – 15:30 | <b>Concurrent Technical Sessions: FrA 1 to FrA 3</b> |

| FrA 1 – Auditorium 2  | FrA 2 – Auditorium 3   | FrA 3 – Room 1  |
|---|--|---|
| <b>General Session</b><br>Building envelopes (1)  | <b>General Session</b><br>Steel and composite structures & Structural design challenges  | <b>General Session</b><br>Educating architects and structural engineers (3)   |
| Chair:  | Chair:   | Chair:  |
| Strategies for the refurbishment of heritage-listed post-war facades<br><i>I. Sørensen &amp; F. Mähl</i>                              | Symbol and technique of steel domes in Italy<br><i>R. Morganti, A. Tosone, M. Abita &amp; D. Di Donato</i>   | Parametric design and analysis of building structures in the Architecture School of A Coruña<br><i>J. Vázquez-Rodríguez, D. Otero-Chans, J. Estévez-Cimadevila, E. Martín-Gutiérrez &amp; F. Suarez-Riestra</i> |
| Wrapping up and weaving buildings: handcrafted techniques in contemporary architecture<br><i>I. Curiel Peraza</i>                     | Structural aluminium in architecture – The history and future of aluminium as a structural material<br><i>S.H. Dyvik, B. Manum, J. H. Mork &amp; M. Luczkowski</i> | Structural integrity and functionality of form; exploring relations of load-bearing elements and architectural form in the education of engineers<br><b>A. Rønquist, B. Manum &amp; N. Labonnote</b>            |
| A Hybrid Adaptive Composite Based Auxiliary Envelope<br><i>I.W. Foged, A. Pasold &amp; T. Pelosini</i>                                | The ephemeral robustness: Structure for temporary constructions<br><i>A. Bernabeu-Larena, J. Gómez-Mateo &amp; J. Bernabeu-Larena</i>                              | Transforming structure: The metaphorical construction process and structural design<br><i>E.V. Ellis &amp; D.A. Kratzer</i>   |
| Structural adhesive connections for building façade applications<br><i>K.V. Machalická, M. Vokáč, M. Zikmundová &amp; M. Eliášová</i> | From Repetition to Chaos: Complex Fabrications in Contemporary Steel Structures<br><i>T. M. Boake</i>  | Teaching Construction Thinking in Architecture through Materiality and Craftsmanship<br><i>M. Rinke</i>   |
|   | Structural Comparison of Scissor-hinge Linkages<br><i>F. Maden, Y. Akgün, K. Yüçetürk, E. Aktaş, M.Y. Uncu &amp; C. Mitropoulou</i>                                | Adaptation of a monument building for accessibility of disabled persons, a case study<br><i>C. Bocan, D. Bocan &amp; A. Keller</i>  |

**Friday Evening (FrE), July 26, 2019**

|               |  |
|---------------|--|
| 15:30 – 16:00 | <b>Coffee Break</b>                                  |
| 16:00 – 17:00 | <b>Concurrent Technical Sessions: FrE 1 to FrE 3</b> |

| FrE 1 – Auditorium 2  | FrE 2 – Auditorium 3  | FrE 3 – Room 1   |
|---|---|--|
| <b>General Session</b><br>Building envelopes (2)  | <b>General Session</b><br>Computer and experimental methods   | <b>General Session</b><br>Educating architects and structural engineers (4)  |
| Chair:  | Chair:  | Chair:   |
| Good looking and safe: “heavy” Façades in Seismic Zones<br><i>M. Roik</i>   | Conceptual design in the years of the numerical revolution: risks and perspectives<br><i>L. Kubiak &amp; L. Sgambi</i>  | Timber tectonics in the digital age: Interdisciplinary learning for data-driven wood architecture<br><i>M. Riggio &amp; N.Y. Cheng</i> |
| Energy efficiency study applied on a monument building<br><i>D. Bocan, C. Bocan &amp; A. Keller</i>                                       | Self-supporting ceramic wall system: Challenges of additive manufacturing of architectural ceramic components<br><i>J. Moreira, L. Ferreira, B. Figueiredo &amp; P.J.S. Cruz</i>  | Research Initiatives: Structural Application into Design Process<br><b>M. Callahan, S. Shadravan &amp; Y. Obasade</b>                  |
| Fastening technology as an interface and integration element of architectural, structural, and building engineering<br><i>P. Spyridis</i> | Design exploration of architectural geometries and structural performance for sports arenas based on SOM-clustering and structural performance simulation<br><i>W. Pan, Y. Sun, M. Turrin, C. Louter &amp; I. S. Sariyildiz</i> | Aspects of the integral teaching of Structures and Architectural Design<br><i>M. Blenkuš &amp; T. Krušec</i>                           |
|   | Experimental dynamic behavior of an of an historical thin shell structure in concrete: the Paraboloid of Casale Monferrato<br><i>E. Lenticchia, R. Ceravolo &amp; S. Invernizzi</i>   | Advanced structural integration laboratory model for architecture students<br><i>T. Fowler &amp; S. Rihal</i>                          |

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|---------------|--|
| 17:00 – 17:30 | <b>Closing Ceremony (Auditorium 2)</b> |
|---------------|--|