

## 13<sup>th</sup> September

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| 08:00       | <b>Congress Participants Reception</b><br>Grande Real Foyer                                                                                                                                                            |
| 09:00-09:45 | <b>Opening Ceremony</b><br>Grande Real Room                                                                                                                                                                            |
| 09:45-10:30 | <b>Plenary Session:</b> "The Role of Construction Innovation in Delivering Sustainability, Quality of Life and Economic Benefits"<br><b>Sean Smith</b> (Edinburgh Napier University, Scotland, UK)<br>Grande Real Room |
| 10:30-11:00 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                                                       |
| 11:00-13:00 | <b>Parallel Sessions</b>                                                                                                                                                                                               |
| 13:00-14:30 | <b>Lunch – Real Cozinha Restaurant</b>                                                                                                                                                                                 |
| 14:30-16:30 | <b>Parallel Sessions</b>                                                                                                                                                                                               |
| 16:30-17:00 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                                                       |
| 17:00-18:40 | <b>Parallel Sessions</b>                                                                                                                                                                                               |
| 19:00       | <b>Welcome Drink</b><br>Grande Real Foyer                                                                                                                                                                              |

## 14<sup>th</sup> September

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| 09:00-11:00 | <b>Parallel Sessions</b>                                                                                                                                                                                               |
| 11:00-11:30 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                                                       |
| 11:30-12:15 | <b>Plenary Session:</b> "The Polar Lodge Project – A sustainable modular building for research development in the Antarctic"<br><b>Manuel Correia Guedes</b> (IST, University of Lisbon, Portugal)<br>Grande Real Room |
| 12:15-13:00 | <b>Plenary Session:</b> "Doctoral Education in Architecture with Special Reference to Housing"<br><b>Gülsün Sağlam</b> (Istanbul Technical University, Turkey)<br>Grande Real Room                                     |
| 13:00-14:30 | <b>Lunch – Real Cozinha Restaurant</b>                                                                                                                                                                                 |
| 14:30-16:30 | <b>Parallel Sessions</b>                                                                                                                                                                                               |
| 16:30-17:00 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                                                       |
| 17:00-18:40 | <b>Parallel Sessions</b>                                                                                                                                                                                               |
| 20:00       | <b>Conference Dinner</b><br>Garden and Santa Eulália Restaurant                                                                                                                                                        |

## 15<sup>th</sup> September

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| 09:00-11:00 | <b>Parallel Sessions</b>                                                                                                                                                                       |
| 11:00-11:30 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                               |
| 11:30-12:15 | <b>Plenary Session:</b> "Domus Social - Social Housing, Maintenance and Organization"<br><b>Manuela Álvares</b> (Domus Social, EM, Portugal)                                                   |
| 12:15-13h00 | <b>Plenary Session:</b> "Diffusion-convective transport of heat and moisture through a porous solid using BEM"<br><b>Leopold Škerget</b> (University of Maribor, Slovenia)<br>Grande Real Room |
| 12:30-14:00 | <b>Lunch – Real Cozinha Restaurant</b>                                                                                                                                                         |
| 14:00-16:00 | <b>Parallel Sessions</b>                                                                                                                                                                       |
| 16:00-16:30 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                               |
| 16:30-19:00 | <b>Parallel Sessions</b>                                                                                                                                                                       |

## 16<sup>th</sup> September

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|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09:00-11:00 | <b>Parallel Sessions</b>                                                                                                                                                                                        |
| 11:00-11:30 | <b>Coffee Break – Real Foyer</b>                                                                                                                                                                                |
| 11:30-12:15 | <b>Plenary Session:</b> "Building the landscape. Rehabilitation and renewal of traditional Mediterranean structures"<br><b>Carlos Bragança dos Santos</b> (University of Algarve, Portugal)<br>Grande Real Room |
| 12:15-12:45 | <b>Closing Ceremony</b><br>Grande Real Room                                                                                                                                                                     |
| 13:00-14:00 | <b>Farewell Cocktail</b>                                                                                                                                                                                        |

### 11:00-13:00

#### OS: Wooden Houses, from the tradition to the new possibilities

Room: Algarve I

Chair *Jorge Manuel Branco*

| Chair ID      |     |                                                                                                                                                                                     |
|---------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11h00m-11h20m | 403 | COMPARISON BETWEEN TWO HISTORICAL TIMBER FRAMED SOLUTIONS REPRESENTING BOTH TRADITION AND PRE-MODERN EARTHQUAKE RESISTANCE CONCEPTS<br>Sandra Tonna, Nicola Ruggieri, Claudio Chesi |
| 11h20m-11h40m | 404 | EXPERIMENTAL ASSESSMENT OF THE MECHANICAL BEHAVIOUR OF TABIQUE WALLS AND TIMBER FLOORS<br>João Miranda Guedes, Bruno Quelhas, Tiago Ilharco, Andreia Rebelo, José Coelho            |
| 11h40m-12h00m | 508 | INTRODUCTION WATTLE AND CAMORCANNIA LIGURIAN ARCHITECTURES. EXPERIMENTAL DETAILS FOR CONSERVATION<br>Daniela Pittaluga, Gerolamo Stagno, Giulia Garibbo                             |
| 12h00m-12h20m | 162 | STRATEGIES TO AVOID HUMIDITY CAUSING DAMAGES IN TALL TIMBER BUILDINGS<br>Catarina Silva, Jorge Branco, Paulo Lourenço                                                               |
| 12h20m-12h40m | 189 | NONLINEAR LAYERED MODELLING APPROACH FOR CROSS LAMINATED TIMBER PANELS SUBJECTED TO OUT-OF-PLANE LOADING<br>Vahid MahdaviFar, Andre R. Barbosa, Arijit Sinha                        |
| 12h40m-13h00m | 285 | TIMBER FLOORS: COMPOSITE FLOORS TO OPTIMIZE STRUCTURAL PERFORMANCE AND MATERIAL CONSUMPTION<br>Bertrand Roensmaens, Coralie Avez, Thierry Descamps                                  |

### 11:00-13:00

#### OS: Smart Skin Envelope for Housing of the Future

Room: Algarve II

Chair *Corrado Trombetta and Martino Milardi*

| Chair ID      |     |                                                                                                                                                                                                      |
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| 11h00m-11h20m | 140 | THE EFFECT OF PARAMETRIC DESIGN ON DESIGNING PERFORMATIVE FAÇADES<br>Delara Razzaghmanesh, Meltem Aksoy                                                                                              |
| 11h20m-11h40m | 191 | THE ECO-DESIGN IN WINDOW INDUSTRY<br>Emilio Antoniol, Massimo Rossetti                                                                                                                               |
| 11h40m-12h00m | 302 | MAPPING OF ENVIRONMENTAL INTERACTION AND ADAPTIVE MATERIALS FOR THE AUTOREACTIVE POTENTIAL OF BUILDING SKINS<br>Sandra Giulia Linnea Persiani, Philipp Lionel Molter, Claudio Aresta, Tillmann Klein |

### 11:00-13:00

#### Sustainability and Energy Efficiency

Room: Lisboa

Chair *Isabel Torres*

| Chair ID      |     |                                                                                                                                                                                                                                          |
|---------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11h00m-11h20m | 004 | IMPACT OF DIFFERENT CONTROL STRATEGIES OF A COMPLEX FENESTRATION SYSTEM ON VISUAL COMFORT AND ENERGY CONSUMPTION OF AN OFFICE BUILDING IN A SEMIARID CLIMATE<br>Daniel Uribe, Waldo Bustamante, Germán Molina, Sergio Vera               |
| 11h20m-11h40m | 012 | ENVIRONMENTAL LIFE CYCLE ASSESSMENT OF CONCRETE CONTAINING BIOMASS FLY ASH<br>Elisabete R. Teixeira, Ricardo Mateus, Aires Camões, Luís Bragança, Fernando G. Branco                                                                     |
| 11h40m-12h00m | 013 | INFLUENCE OF THE OPTICAL PROPERTIES OF FAÇADE COATING ON THE BUILDING ENERGY DEMAND<br>Maria J. Gavira, Gloria Pérez, Ana Guerrero                                                                                                       |
| 12h00m-12h20m | 473 | UNFIRED CLAY MASONARY BRICK AS SUSTAINABLE AND LOW COST BUILDING MATERIAL<br>Usama Mohamed Mohamed                                                                                                                                       |
| 12h20m-12h40m | 102 | COST-OPTIMAL METHODOLOGY: APPLICATION TO THE THERMAL AND LIGHTING REFURBISHMENT OF A PORTUGUESE REFERENCE BUILDING<br>Ana Brandão de Vasconcelos, António Santos, António Cabaço                                                         |
| 12h40m-13h00m | 114 | CIRCULAR ECONOMY IN THE BUILDING SECTOR THROUGH THE INNOVATION AND THE DEVELOPMENT OF NEW INDUSTRIAL STRATEGIES: THE ROLE OF THE INFORMATION IN THE MANAGEMENT OF BY-PRODUCTS AND WASTE<br>Marco Migliore, Monica Lavagna, Cinzia Talamo |

### 11:00-13:00

#### OS: Natural Hazards Mitigation and Seismic Vulnerability of Civil Structures / OS: Urban Risk Reduction and Resilience

Room: Albufeira I

Chair *Rui Carneiro de Barros*

| Chair ID      |     |                                                                                                                                     |
|---------------|-----|-------------------------------------------------------------------------------------------------------------------------------------|
| 11h00m-11h20m | 415 | REFURBISHMENT PLANNING OF BUILDINGS AS A PART OF EARTHQUAKE DAMAGE MITIGATION<br>Jana Šelih, Aleksander Srdić, Matej Kušar          |
| 11h20m-11h40m | 438 | TRAFFIC SEISMICITY EFFECT IN HERITAGE BUILDING - FREQUENCY DOMAIN IDENTIFICATION<br>Veronika Valašková, Daniel Papán, Rui C. Barros |
| 11h40m-12h00m | 484 | RESPONSE TIME ANALYSIS OF A SPONGE TYPE MR DAMPER                                                                                   |

|               |     |                                                                                                                        |
|---------------|-----|------------------------------------------------------------------------------------------------------------------------|
| 12h00m-12h20m | 440 | Manuel Braz César, Kellie Oliveira, Rui C. Barros<br>VIBRATION CONTROL OF A TEN FLOOR MDOF BUILDING USING PENDULUM TMD |
| 12h20m-12h40m | 441 | Rui C. Barros, Catarina M.A. Sousa<br>ASSESSMENT OF SEISMIC SAFETY OF F.E.U.P. NEW CAMPUS LIBRARY BUILDING             |
| 12h40m-13h00m | 382 | Rui C. Barros, Sílvia A. Couto<br>AN IMPROVED MODEL FOR SEISMIC RISK ASSESSMENT IN PORTUGAL                            |
|               |     | Raimundo Delgado, Mário Marques, Ricardo Monteiro                                                                      |
|               |     | <b>11:00-13:00</b>                                                                                                     |
|               |     | <b>Applied Social Sciences in Housing</b>                                                                              |
|               |     | Room: Albufeira II                                                                                                     |
| Chair ID      |     | <i>Fátima Farinha</i>                                                                                                  |
| 11h00m-11h20m | 072 | SUSTAINABILITY WITH PARTICIPATIONS IN DEVELOPMENT OF INFRASTRUCTURE PROJECTS                                           |
|               |     | Maha Mustafa Eltahir                                                                                                   |
| 11h20m-11h40m | 073 | THE EVALUATION OF SOCIAL SUSTAINABILITY IN "MAHALLE" (NEIGHBORHOOD) IN TURKEY, BURSA AS A CASE                         |
|               |     | Şeyda Akçali, Arzu Çahantimur                                                                                          |
| 11h40m-12h00m | 090 | MONITORING OF INDOOR ENVIRONMENTAL QUALITY                                                                             |
|               |     | Ludmila Meciariova, Silvia Vilcekova, Eva Kridlova Burdova                                                             |
| 12h00m-12h20m | 115 | ENERGY BEHAVIOUR CHANGE BY COLOURED IN-HOME DISPLAY                                                                    |
|               |     | Jon Stinson, Alasdair Reid, Julio Bros-Williamson, John Currie                                                         |
|               |     | <b>14:30-16:30</b>                                                                                                     |
|               |     | <b>OS: Timber Structures and Construction/ Sustainable Architecture</b>                                                |
|               |     | Room: Algarve I                                                                                                        |
| Chair ID      |     | <i>João Negrão</i>                                                                                                     |
| 14h30m-14h50m | 258 | DESIGN PARAMETERS FOR SELF-TENSIONED LONG-SPAN WOODEN FLOORS                                                           |
|               |     | Dolores Otero-Chans, Javier Estévez-Cimadevila, Juan Pérez-Valcarcel, José Vázquez-Rodríguez, Isaac López-César        |
| 14h50m-15h10m | 274 | CLT STRUCTURES FOR LONG SPAN FLOORS AND ROOFS – OPTIMIZING THE CROSS-SECTION PROPERTIES                                |
|               |     | João Negrão, Luís Jorge                                                                                                |
| 15h10m-15h30m | 346 | AN INNOVATIVE SYSTEM FOR POST-EMERGENCY TIMBER HOUSING                                                                 |

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|---------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15h30m-15h50m | 093 | Valentina Sumini, Claudio Chesi, Roberto Zedda<br>THE INNOVATIVE AND ENVIRONMENTALLY FRIENDLY CONSTRUCTION TECHNIQUES - THE HOUSE OF WOOD AND STRAW                       |
|               |     | Renato Iovino, Flavia Fascia, Emanuele La Mantia                                                                                                                          |
|               |     | <b>14:30-16:30</b>                                                                                                                                                        |
|               |     | <b>OS: Innovative Architecture: Knowledge, Ideas, Experiments and Realizations</b>                                                                                        |
|               |     | Room: Algarve II                                                                                                                                                          |
| Chair ID      |     | <i>Adriana Matei</i>                                                                                                                                                      |
| 14h30m-14h50m | 037 | THE ENGINEERING OF FREE FORMS ENVELOPES: THE CASE OF THE HADID TOWER TWISTING SHAPE FAÇADE                                                                                |
|               |     | Enrico Sergio Mazzucchelli, Alice Ancillotti, Angelo Lucchini                                                                                                             |
| 14h50m-15h10m | 047 | THE DYNAMICS OF SPATIAL CONCEPTION AND ITS SEMANTIC IN CONTEMPORARY ARCHITECTURE                                                                                          |
|               |     | Adriana Matei                                                                                                                                                             |
| 15h10m-15h30m | 166 | A SEMANTIC ANALYSIS OF MOVEMENT WITHIN CONTEMPORARY ARCHITECTURE                                                                                                          |
|               |     | Andreea Moțu                                                                                                                                                              |
| 15h30m-15h50m | 171 | INNOVATION IN THE PUBLIC SPACES OF HISTORIC CENTRES                                                                                                                       |
|               |     | Alexandru Tiotiu, Adriana Matei, R. Veiga, C. Vale                                                                                                                        |
| 15h50m-16h10m | 192 | AN ANALYTICAL STUDY OF OUTDOOR INTERACTIONAL SPACE FOR CREATING SOCIALLY SUSTAINABLE HIGH-RISE RESIDENTIAL ENVIRONMENT: CASE STUDY FROM INDIA                             |
|               |     | Soumi Muhuri, Sanghamitra Basu                                                                                                                                            |
|               |     | <b>14:30-16:30</b>                                                                                                                                                        |
|               |     | <b>Sustainability and Energy Efficiency</b>                                                                                                                               |
|               |     | Room: Lisboa                                                                                                                                                              |
| Chair ID      |     | <i>Fátima Farinha</i>                                                                                                                                                     |
| 14h30m-14h50m | 120 | URBAN MORPHOLOGY AND ENERGY EFFICIENCY PRACTICE: THE URBAN PATTERN ANALYSIS AS A FRAMEWORK FOR IMPACT EVALUATION OF BIOMASS PRODUCTION TOWARDS ENERGY EFFICIENT DISTRICTS |
|               |     | Alessandro Pracucci, Theo Zaffagnini                                                                                                                                      |
| 14h50m-15h10m | 125 | STRAW AS A CONTEMPORARY BIOMATERIAL: ENERGETIC EFFICIENCY AND ENVIRONMENTAL SUSTAINABILITY                                                                                |
|               |     | Tiziana Campisi, Manfredi Saeli                                                                                                                                           |
| 15h10m-15h30m | 141 | TYPOLOGICAL EVOLUTION OF THE SUSTAINABLE HOUSING: OPPORTUNITIES AND LIMITS                                                                                                |
|               |     | Raffaella Lione, Fabio Minutoli                                                                                                                                           |

## Detailed Programme of Parallel Sessions

## Detailed Programme of Parallel Sessions

|               |     |                                                                                                                                                                                                                                    |               |                                                                                                                                                          |                                                                                                                                                                                                                                                                                        |
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| 15h30m-15h50m | 150 | MEASURING ENERGY AND ENVIRONMENTAL IMPACTS OF MATERIALS BUILT IN MASONRY HOUSES AS A TOOL FOR SUSTAINABILITY IN BUILDING INDUSTRY<br>Adriana Estokova, Milan Porhincak                                                             | Chair ID      | OS: Assessment, Diagnosis, Energy Efficiency and Building Refurbishment for Sustainability<br>Room: Albufeira II<br>Anabela Paiva e João Carlos Lanzinha |                                                                                                                                                                                                                                                                                        |
| 15h50m-16h10m | 155 | EFFECT OF DIFFERENT SEDUM TYPES ON GREEN ROOF TEMPERATURE<br>Zuzana Poórová, František Vranay, Zuzana Vranayová                                                                                                                    | 14h30m-14h50m | 025                                                                                                                                                      | INFLUENCE OF EXTERNAL ENVIRONMENT CHANGES ON EVALUATION OF ENERGY SAVING PROJECTS<br>Dalibor Vytlačil                                                                                                                                                                                  |
| 16h10m-16h30m | 195 | USE OF LCA AS A TOOL TO ASSIST IN DECISION ABOUT ELECTRIC ENERGY EFFICIENCY BETWEEN DIFFERENT MORTARS<br>Antônio Claret de Almeida Gama Junior, Helena Carasek, Maria Carolina Gomes de Oliveira Brandstetter                      | 14h50m-15h10m | 139                                                                                                                                                      | ENERGY RETROFIT OF SARDINIAN LAND REFORM RURAL SETTLEMENTS<br>Giuseppe Desogus, Antonello Sanna, Sergio Arru                                                                                                                                                                           |
|               |     | 14:30-16:30<br>OS: Urban Risk Reduction and Resilience<br>Room: Albufeira I<br>Tiago Ferreira and Romeu Vicente                                                                                                                    | 15h10m-15h30m | 182                                                                                                                                                      | LIFE CYCLE ASSESSMENT FOR SUSTAINABLE CONSTRUCTION: A CASE STUDY IN CANADA<br>Ricardo Leoto, Charles Thibodeau, Gonzalo Lizarralde                                                                                                                                                     |
|               |     |                                                                                                                                                                                                                                    | 15h30m-15h50m | 183                                                                                                                                                      | ENERGY SCREENING OF WIDE BUILDING STOCK<br>Vittorino Belpoliti, Giacomo Bizzarri, Marta Calzolari, Elena Cattani, Pietromaria Davoli, Stefania Pitzianti, Andrea Rinaldi                                                                                                               |
| 14h30m-14h50m | 076 | INNOVATIVE FLAT ROOF SOLUTIONS FOR EXISTING BUILDINGS: FROM ENERGY EFFICIENCY TO IMPACTS MITIGATION<br>Paola Lassandro, Teresa Cosola                                                                                              | 15h50m-16h10m | 247                                                                                                                                                      | TOXIC METALS IN INDOOR DUST COLLECTED FROM HOUSES INCLUDED IN THE “6X60X6” PROJECT (COVILHÃ, PORTUGAL) DURING THE COOLING SEASON<br>M. Ramiro Pastorinho, João Carlos Lanzinha, Luís Taborda-Barata, Maria Assunção Vaz-Patto, Marisa Monteiro, Miguel C.S. Nepomuceno, Ana C.A. Sousa |
| 14h50m-15h10m | 097 | PROBABILISTIC SEISMIC RISK ASSESSMENT OF ALGERIAN BUILT ENVIRONMENTS IN MODERATE HAZARD REGIONS<br>Allaeddine Athmani, Tiago Miguel Ferreira, Romeu Vicente                                                                        | 16h10m-16h30m | 248                                                                                                                                                      | ASSESSMENT OF A TIMBER STRUCTURE IN THE “ERMIDA DA ASCENSÃO DE CRISTO” IN LISBON<br>Diana Araújo, Dulce Franco Henriques                                                                                                                                                               |
| 15h10m-15h30m | 273 | “URBAN PLANNING FOR URBAN RESILIENCE” AS A COMPONENT OF ISTANBUL’S RESILIENT URBAN DEVELOPMENT<br>Zeynep Deniz Yaman Galantini, Azime Tezer                                                                                        |               |                                                                                                                                                          | 17:00-19:00<br>OS: Low Embodied Energy Building Materials for Eco-efficient Housing and Rehabilitation<br>Room: Algarve I<br>Paulina Faria                                                                                                                                             |
| 15h30m-15h50m | 284 | SAFETY ASSESSMENT OF MULTI-STOREY BUILDINGS IN CASE OF FIRE: DEVELOPMENT OF A DECISION TOOL BASED ON SCENARIO ANALYSIS TO IMPROVE RISK MANAGEMENT<br>Anass Rahouti, Selim Datoussaïd, Thierry Descamps                             | Chair ID      |                                                                                                                                                          |                                                                                                                                                                                                                                                                                        |
| 15h50m-16h10m | 316 | FUTURE RESILIENCE OF CULTURAL HERITAGE BUILDINGS - HOW DO RESIDENTS MAKE SENSE OF PUBLIC AUTHORITIES’ SUSTAINABILITY MEASURES?<br>Åsne Lund Godbolt, Cecilie Flyen, Åshild Lappegard Hauge, Anne-Cathrine Flyen, Louise Leren Moen | 17h00m-17h20m | 105                                                                                                                                                      | THE GREAT CHALLENGE OF THE DOMESTIC ARCHITECTURE IN A GLOBAL WORLD<br>Adela Salas Ruiz, María del Mar Barbero-Barrera                                                                                                                                                                  |
| 16h10m-16h30m | 355 | MUNICIPAL COLLABORATIVE PLANNING AS A KEY FACTOR FOR CLIMATE RESILIENCE IN THE BUILT ENVIRONMENT<br>Cecilie Flyen, Åshild Lappegard Hauge, Anders-Johan Almås, Åsne Lund Godbolt                                                   | 17h20m-17h40m | 262                                                                                                                                                      | ASSESSMENT OF PHOTOCATALYTIC CAPACITY OF A HYDRAULIC MORTAR<br>Pedro Castanho, Vitor Silva, Paulina Faria                                                                                                                                                                              |
|               |     | 14:30-16:30                                                                                                                                                                                                                        | 17h40m-18h00m | 462                                                                                                                                                      | AGGREGATES AND BINDERS’ INFLUENCE ON THE BEHAVIOUR OF MORTARS WITH IMPROVED THERMAL PERFORMANCE<br>Andreia Borges, Inês Flores-Colen, Jorge de Brito                                                                                                                                   |
|               |     |                                                                                                                                                                                                                                    | 18h00m-18h20m | 525                                                                                                                                                      | AIR LIME AND NATURAL HYDRAULIC LIME MORTARS WITH CERAMIC RESIDUES FOR REHABILITATION OF OLD BUILDINGS                                                                                                                                                                                  |

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| 18h20m-18h40m                                                                                                                                                  | 066 | Gina Matias, Isabel Torres, Paulina Faria<br>ANALYSIS OF SCIENTIFIC PRODUCTION RELATED TO EARTH CONSTRUCTIONS IN THE LAST 20 YEARS (1996-2015)<br>Levi T. Pinheiro, Bárbara R. Carvalho, Ana Sofia Guimarães, Adeildo C. Silva |
| <b>17:00-19:00</b>                                                                                                                                             |     |                                                                                                                                                                                                                                |
| <b>OS: Innovative Architecture: Knowledge, Ideas, Experiments and Realizations / Rehabilitation, Retrofitting and Refurbishment / Sustainable Architecture</b> |     |                                                                                                                                                                                                                                |
| Room: Algarve II                                                                                                                                               |     |                                                                                                                                                                                                                                |
| Chair ID                                                                                                                                                       |     | <i>Adriana Matei</i>                                                                                                                                                                                                           |
| 17h00m-17h20m                                                                                                                                                  | 196 | LIMITATIONS, CRITIQUES AND INCONSISTENCIES OF THE SPACE SYNTAX METHODOLOGY<br>Mihai Racu                                                                                                                                       |
| 17h20m-17h40m                                                                                                                                                  | 241 | ENVIRONMENTAL IMPACT EVALUATION OF THE GEOMAGNETIC FIELD IN A RESIDENTIAL BUILDING<br>José Francisco Glaría Yetano, Ana Sánchez Ostiz Gutiérrez                                                                                |
| 17h40m-18h00m                                                                                                                                                  | 294 | SUSTAINABLE BUILDINGS VERSUS SOLID STRUCTURES: A CONCEPTUAL FRAMEWORK FOR SUSTAINABILITY OF HIGH RISE BUILDINGS IN ISTANBUL<br>Tuba Sari                                                                                       |
| 18h00m-18h20m                                                                                                                                                  | 303 | INVESTIGATING SUSTAINABILITY IN DIFFERENT STREET REHABILITATION SAMPLES IN TURKEY<br>Nurhilal Şimşek                                                                                                                           |
| 18h20m-18h40m                                                                                                                                                  | 315 | RECOVERING THE SOCIAL AND ENVIRONMENT VALUE OF BUILT HERITAGE THE CASE STUDY OF "PALAZZO MUSCETTOLA" IN SOUTH ITALY<br>Dora Francese, Emanuela Adamo                                                                           |
| <b>17:00-19:00</b>                                                                                                                                             |     |                                                                                                                                                                                                                                |
| <b>Sustainability and Energy Efficiency</b>                                                                                                                    |     |                                                                                                                                                                                                                                |
| Room: Lisboa                                                                                                                                                   |     |                                                                                                                                                                                                                                |
| Chair ID                                                                                                                                                       |     | <i>Fatima Farinha</i>                                                                                                                                                                                                          |
| 17h00m-17h20m                                                                                                                                                  | 239 | MAKING COMPLEX CONTROLS FOR SMART BUILDINGS IN THE ENERGYPLUS: OPTIMIZING THERMAL COMFORT BY PASSIVE SYSTEMS<br>Anderson Priebe Ferrugem, Lorenzo Fagundes Antunes, Antônio César Silveira Baptista da Silva                   |
| 17h20m-17h40m                                                                                                                                                  | 240 | INDOOR AIR QUALITY, THERMAL COMFORT AND ENERGY EFFICIENCY CONSTRAINTS – CASE STUDY FOR A PUBLIC HEALTH CARE BUILDING<br>Ana C. V. Vieira, João Garcia, Flávio Chaves, Nuno Fonseca, João Caetano                               |
| 17h40m-18h00m                                                                                                                                                  | 264 | REAL ESTATE STRATEGIES AND OPPORTUNITIES FOR COMPANIES FROM ENERGY EFFICIENCY: A SYSTEMIC APPROACH<br>Stefano Bellintani, Alberto Celani                                                                                       |

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| 18h00m-18h20m                                                                                     | 267 | EXPERIMENTAL STUDY OF UNCONVENTIONAL SOLUTIONS OF THERMAL PROTECTION PERFORMANCE ON FLAT ROOFS<br>Alexandra Costa, Carlos Pina dos Santos                                                                  |
| 18h20m-18h40m                                                                                     | 242 | INDOOR AIR QUALITY, THERMAL COMFORT AND ENERGY EFFICIENCY CONSTRAINTS– CASE STUDY FOR AN EDUCATIONAL BUILDING<br>Flávio Chaves, Ana C. V. Vieira, Jorge M. Antunes, Carlos C. Coelho                       |
| <b>17:00-19:00</b>                                                                                |     |                                                                                                                                                                                                            |
| <b>OS: Urban Risk Reduction and Resilience</b>                                                    |     |                                                                                                                                                                                                            |
| Room: Albufeira I                                                                                 |     |                                                                                                                                                                                                            |
| Chair ID                                                                                          |     | <i>Tiago Ferreira and Romeu Vicente</i>                                                                                                                                                                    |
| 17h00m-17h20m                                                                                     | 127 | THE IMPACT OF AWARENESS AND INFORMATION IN DISASTER RISK REDUCTION FOR THE MUNICIPALITY OF AMADORA<br>Luís Carvalho, Ana Freitas, António Farinha, Carlos Rocha, Sandra Neves                              |
| 17h20m-17h40m                                                                                     | 410 | RESILIENCE OF WATER SUPPLY SYSTEMS - CASE STUDY OF QUINTA DO LAGO<br>João Caetano, Miguel Oliveira, Elisa Silva, Helena Fernandez, Rui Lança                                                               |
| 17h40m-18h00m                                                                                     | 419 | EVALUATION OF INDUSTRIAL POLLUTION WITH THE SAMPLE OF CYPRUS-LEFKE<br>Vedia Akansu                                                                                                                         |
| 18h00m-18h20m                                                                                     | 471 | RESILIENCE TOWARDS HUMAN INTERVENTIONS IN DISPLAY OF ARCTIC CULTURAL HERITAGE SITES<br>Anne-Cathrine Flyen, Cecilie Flyen                                                                                  |
| 18h20m-18h40m                                                                                     | 305 | ON THE APPLICATION OF RAPID ENVIRONMENTAL MAPPING METHODOLOGIES (REM) TO SEISMIC RISK UNDERSTANDING AND VULNERABILITY MONITORING<br>Massimiliano Pittore, Tobias Boxberger, Kevin Fleming, Stefano Parolai |
| 18h40m-19h00m                                                                                     | 387 | THE IDENTITY OF CITIES AND LANDSCAPES: A VALUE AT RISK, A VALUE TO SAFEGUARD<br>Maria Paola Gatti, Giorgio Cacciaguerra                                                                                    |
| <b>17:00-19:00</b>                                                                                |     |                                                                                                                                                                                                            |
| <b>OS: Assessment, Diagnosis, Energy Efficiency and Building Refurbishment for Sustainability</b> |     |                                                                                                                                                                                                            |
| Room: Albufeira II                                                                                |     |                                                                                                                                                                                                            |
| Chair                                                                                             |     | <i>Anabela Paiva e João Carlos Lanzinha</i>                                                                                                                                                                |
| 17h20m-17h40m                                                                                     | 306 | THERMOGRAPHIC INSPECTION AND HEATING ENERGY AUDIT OF RESIDENTIAL BUILDINGS<br>Egemen Kaymaz                                                                                                                |

## 41st IAHS World Congress on Housing – Albufeira, Algarve, Portugal

### Detailed Programme of Parallel Sessions

13th September 2016

|                   |     |                                                                                                                                                                                                          |
|-------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17h40m-<br>18h00m | 430 | USE OF LCA AS A TOOL TO MEASURE CARBON DIOXIDE AND ASSIST IN DECISIONS ABOUT THE MODEL AND THE LOGISTICS OF THE MASONRY SYSTEM PRODUCTION<br>Victor Gomes Barbosa, António Claret de Almeida Gama Junior |
| 18h00m-<br>18h20m | 283 | THERMAL COMFORT ASSESSMENT USING IN SITU MEASUREMENTS IN A RETROFITTED HOTEL OCCUPYING AN URBAN MANOR HOUSE<br>Luís Rego, António Curado, Kevin Aleixo, Francisco Laranjeira                             |

|               |     |                                                                                                                                                                                                                                                        |
|---------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |     | <b>09:00-11:00</b>                                                                                                                                                                                                                                     |
|               |     | <b>Economics, Financing and Management / Building Physics</b>                                                                                                                                                                                          |
|               |     | Room: Algarve I                                                                                                                                                                                                                                        |
| Chair         |     | <i>António Tadeu</i>                                                                                                                                                                                                                                   |
|               |     |                                                                                                                                                                                                                                                        |
| 09h00m-09h20m | 051 | OVERCOMING THE MULTI-STAKEHOLDERS BARRIER IN BUILDING ENERGY RETROFITS: A COMPARATIVE ANALYSIS OF EVALUATION METHODS<br>Pietro Bonifaci, Sergio Copiello, Stefano Stanghellini                                                                         |
| 09h20m-09h40m | 042 | OPTIMIZATION OF THE URBAN LICENSES MANAGEMENT IN THE CITY OF MADRID APPLYING INTERNATIONAL STANDARD ISO 21500<br>Adolfo García Ruiz-Espiga, Manuel Soler Severino                                                                                      |
| 09h40m-10h00m | 110 | HYGROTHERMAL PERFORMANCE BENEFITS OF THE CELLULOSE FIBRE THERMAL INSULATION STRUCTURES<br>Tuomo Ojanen, Juho Laaksonen                                                                                                                                 |
| 10h00m-10h20m | 029 | MIXED VENTILATION SYSTEMS IN RESIDENTIAL BUILDINGS: APPLICATION OF THE DESIGN PRINCIPLES BASED ON prNP 1037-5<br>Manuel Pinto, João Viegas, Vasco Freitas                                                                                              |
| 10h20m-10h40m | 335 | PLASTERING MORTARS WITH EMBEDDED PCMs FOR MOISTURE CONTROL OF OLD RESIDENTIAL BUILDINGS<br>Ana Vaz Sá, Ana Guimarães, Vítor Abrantes, Miguel Azenha, João Meireles                                                                                     |
| 10h40m-11h00m | 520 | HEAT TRANSFER MEASUREMENTS OF A WOOD BUILDING CORNER<br>Joana Prata, Nuno Simões, António Tadeu                                                                                                                                                        |
|               |     | <b>09:00-11:00</b>                                                                                                                                                                                                                                     |
|               |     | <b>OS: Green Roofs and Living Facades</b>                                                                                                                                                                                                              |
|               |     | Room: Algarve II                                                                                                                                                                                                                                       |
| Chair         |     | <i>Nuno Simões</i>                                                                                                                                                                                                                                     |
| ID            |     |                                                                                                                                                                                                                                                        |
|               |     |                                                                                                                                                                                                                                                        |
| 09h00m-09h20m | 064 | PROPOSAL OF A TOOL FOR FEASIBILITY EVALUATION, DESIGN CONTENTS DEFINITION AND PERFORMANCE ASSESSMENT FOR THE IMPLEMENTATION OF GREEN ROOFS ON EXISTING BUILDINGS<br>Carlo Antonio Stival, Raul Berto, Giovanni Cechet, Nicola Strazza, Edino Valcovich |
| 09h20m-09h40m | 149 | EXPERIMENTAL ANALYSIS OF THE WATER CONTENT INFLUENCE IN THE THERMAL PERFORMANCE OF SUBSTRATE USED IN GREEN WALLS<br>María del Mar Barbero-Barrera, Jorge Adán Sánchez-Reséndiz, Francesca Olivieri, María Ángeles Navacerrada-Saturio                  |

|               |          |                                                                                                                                                                                                                        |
|---------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09h40m-10h00m | 453      | SURVEY OF IN-SERVICE GREEN ROOFS IN PORTUGAL<br>Vera Pontes, Cristina Matos Silva, Inês Flores-Colen                                                                                                                   |
| 10h00m-10h20m | 493      | GREEN FAÇADE OPTIMIZATION (GFO): A PARAMETRIC STUDY<br>Roberta Cocci Grifoni, Maria Federica Ottone, Angela Leuzzi                                                                                                     |
| 10h20m-10h40m | 521      | WATER PERMEABILITY OF INSULATION CORK BOARD<br>Ricardo Almeida, António Tadeu, Nuno Simões                                                                                                                             |
| 10h40m-11h00m | 057      | VERTICAL LANDSCAPING IN THE DENSE CITY - PROMOTING ECOSYSTEM SERVICES AND ARCHITECTURAL QUALITIES<br>Ann-Charlott Eriksen                                                                                              |
|               |          | <b>09:00-11:00</b>                                                                                                                                                                                                     |
|               |          | <b>Sustainability and Energy Efficiency</b>                                                                                                                                                                            |
|               |          | Room: Lisboa                                                                                                                                                                                                           |
|               |          | <i>Ana Vieira</i>                                                                                                                                                                                                      |
|               | Chair ID |                                                                                                                                                                                                                        |
| 09h00m-09h20m | 326      | PASSIVE SYSTEMS FOR BUILDINGS INDOOR COMFORT<br>Antonio De Vecchi, Simona Colajanni, Alessandro Licalsi, Elsa Sanfilippo, Marianna Di Salvo, Angela D'Araio                                                            |
| 09h20m-09h40m | 361      | DESIGN AND CHARACTERIZATION OF A NEW ASPHALT COLLECTOR FOR SOLAR THERMAL ENERGY HARVESTING<br>Jose Luis Sampedro-Garcia, Alejandro Alonso-Estebanez, Irune Indacoechea-Vega, Pablo Pascual-Muñoz, Daniel Castro-Fresno |
| 09h40m-10h00m | 417      | ENERGY EFFICIENCY IN HISTORIC BUILDINGS: ADVANCED TRAINING<br>Fátima Farinha, Eurídice Cristo                                                                                                                          |
| 10h00m-10h20m | 422      | CONTROL LOGICS OF NATURAL VENTILATION FOR ENERGY EFFICIENCY AND THERMAL COMFORT<br>Alessandro Rinaldi, Francesco Iannone                                                                                               |
| 10h20m-10h40m | 443      | AUTOMATED ENERGY PERFORMANCE SIMULATION OF RESIDENTIAL BUILDINGS AND THEIR HEATING SYSTEMS<br>Aurelien Bres, Florian Judex, Georg Suter                                                                                |
|               |          | <b>09:00-11:00</b>                                                                                                                                                                                                     |
|               |          | <b>OS: Experimental Research on Building Rehabilitation</b>                                                                                                                                                            |
|               |          | Room: Albufeira I                                                                                                                                                                                                      |
|               | Chair    | <i>Marco Ludovico-Marques and Hugo Biscaia</i>                                                                                                                                                                         |

## Detailed Programme of Parallel Sessions

| ID            |     |                                                                                                        |               |       |                                                                                                                        |
|---------------|-----|--------------------------------------------------------------------------------------------------------|---------------|-------|------------------------------------------------------------------------------------------------------------------------|
| 09h00m-09h20m | 327 | A NEW BONDING TECHNIQUE FOR THE REHABILITATION OF OLD TIMBER FLOORS WITH CFRP COMPOSITES               |               |       |                                                                                                                        |
|               |     | Hugo Biscaia, Carlos Chastre, David Cruz, Noel Franco                                                  |               |       |                                                                                                                        |
| 09h20m-09h40m | 483 | EXPERIMENTAL ANALYSIS OF REINFORCED CONCRETE BEAMS STRENGTHENED WITH INNOVATIVE TECHNIQUES             |               | Chair |                                                                                                                        |
|               |     | Carlos Chastre, Hugo Biscaia, Noel Franco, António Monteiro                                            |               | ID    |                                                                                                                        |
| 09h40m-10h00m | 492 | STRUCTURAL MORTAR FOR REPAIR VAULTS OF HISTORICAL HERITAGE THE ROMAN TEMPLE OF DIANA IN MÉRIDA (SPAIN) | 14h30m-14h50m | 263   | A STUDY ON CONCERN BETWEEN CAPACITIES AND ACTIVITIES OF PUBLIC FACILITIES IN JAPAN                                     |
|               |     | José-Carlos Salcedo, Manuel Fortea, Rubén Cabecera, Juan Saumell                                       |               |       | Shin Murakami, Norie Kawano, Misato Shibata, Eisuke Tabata, Kazuhisa Tsunekawa, Nobuyuki Nomura                        |
| 10h00m-10h20m | 504 | DURABILITY ASSESSMENT OF CONSOLIDATION EFFECT ON SANDSTONE MONUMENTS                                   | 14h50m-15h10m | 019   | NEW INSIGHTS ABOUT THE RELATION BETWEEN THE COST OF BUILDING MATERIALS AND THEIR EMBODIED ENERGY                       |
|               |     | Marco Ludovico-Marques, Carlos Chastre                                                                 |               |       | Sergio Copiello, Pietro Bonifaci                                                                                       |
| 10h20m-10h40m | 505 | DURABILITY IN STRAIN HARDENING CEMENTITIOUS COMPOSITES ACCORDING TO EUROCODE                           | 15h10m-15h30m | 451   | THE PUBLIC PRIVATE PARTNERSHIP IN SUPPORT OF THE DEVELOPMENT OF URBAN PLANNING                                         |
|               |     | Zehra Canan Girgin, Cihan Yolcu, Muhammed Marasli                                                      |               |       | Genny Cia, Liala Baiardi, Bogdan Fratini                                                                               |
| 10h40m-11h00m | 465 | BEHAVIOR OF THE MOMENT-ROTATION CURVES OF BOLTED T-STUB CONNECTIONS                                    | 15h30m-15h50m | 488   | SUSTAINABILITY IN CONSTRUCTION WORKS: LIFE CYCLE COST APPROACH FOR THE ASSESSMENT OF ECONOMIC PERFORMANCE OF BUILDINGS |
|               |     | Mahyar Maali, Mahmut Kılıç, Merve Sağiroğlu, Abdulkadir Cüneyt Aydın                                   |               |       | Filipa Salvado, Nuno Almeida, Álvaro Vale e Azevedo                                                                    |
|               |     | <b>09:00-11:00</b>                                                                                     | 15h50m-16h10m | 497   | ARCHITECTURAL HERITAGE SUSTAINABLE REHABILITATION: PROPOSAL FOR APPLICATION OF COST-BENEFIT ANALYSIS                   |
|               |     | <b>Building Design / OS: BIM – Vision, Strategy and Implementation</b>                                 |               |       | Maria João Falcão Silva, Filipa Salvado, Manuel Baião                                                                  |
|               |     | Room: Albufeira II                                                                                     | 16h10m-16h30m | 048   | THE EFFECTS OF SMART GRIDS INNOVATION ON REAL ESTATE MARKET VALUES                                                     |
| Chair         |     | <i>Fernanda Rodrigues</i>                                                                              |               |       | Chiara D'Alpaos, Michele Moretto                                                                                       |
| ID            |     |                                                                                                        |               |       |                                                                                                                        |
| 09h00m-09h20m | 002 | TOWARDS CULTURE-SPECIFIC PRIVATE OUTDOOR LIVING SPACE IN SOUTHERN AFRICAN CLUSTER HOUSING              |               |       |                                                                                                                        |
|               |     | Gerald Steyn                                                                                           |               |       |                                                                                                                        |
| 09h20m-09h40m | 014 | ENVIRONMENTAL PARAMETERS FOR DESIGN OF BUILDINGS FOR INDIAN CONDITIONS                                 |               | Chair |                                                                                                                        |
|               |     | Eshwariah Sheela                                                                                       |               | ID    |                                                                                                                        |
| 09h40m-10h00m | 452 | DESIGN OF AN ASSISTED UNIT FOR SIMULATING INDEPENDENT LIVING ACTIVITIES                                | 14h30m-14h50m | 428   | STATISTICAL ANALYSIS OF WATER CONSUMPTION PATTERN IN UNIVERSITY BUILDINGS                                              |
|               |     | Antonio Frattari, Michela Dalprà, Barbara Bauer, Lorenzo Luchetta                                      |               |       | Inês C. Meireles, Vitor Sousa, Armando Silva-Afonso                                                                    |
| 10h00m-10h20m | 311 | ADAPTING PORTUGUESE ARCHITECTURE TO FORMER AFRICAN COLONIES CLIMATE CONDITIONS                         | 14h50m-15h10m | 461   | ECONOMICAL CRITERIA TO SIZE RAINWATER HARVESTING TANKS: HOW THE RAINFALL DATA CAN INTERFERE?                           |
|               |     | Ana Ferreira Ramos, José Mendes da Silva                                                               |               |       | Marcus André Siqueira Campos, Gabriela Cristina Ribeiro Pacheco                                                        |
|               |     | <b>14:30-16:30</b>                                                                                     | 15h10m-15h30m | 486   | RAINWATER HARVESTING SYSTEM IN UTAD CAMPUS ONE WAY IN THE PATH TO ECOCAMPUS                                            |

### Economics, Financing and Management / Building Physics

Room: Algarve I

*Nuno Biga*

### 14:30-16:30

### OS: Sustainable and Water Efficient Buildings

Room: Algarve II

*Armando Silva Afonso*

## Detailed Programme of Parallel Sessions

|                                             |          |                                                                                                                                                                                                                                                                                  |
|---------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15h30m-15h50m                               | 500      | Cristina Matos, Isabel Bentes, Sandra Pereira, Amadeu Borges                                                                                                                                                                                                                     |
| 15h50m-16h10m                               | 237      | COST OF WATER EFFICIENCY MEASURES IN COMMERCIAL BUILDINGS<br>Cristina Matos Silva, Vítor Sousa, Pedro Teixeira, Inês C. Meireles, Armando Silva-Afonso                                                                                                                           |
| 16h10m-16h30m                               | 365      | FAILURE OF STORMWATER OF UNDERGROUND INFILTRATION DEVICE - CASE STUDY OF IMPROPER DESIGN<br>Gabriel Markovič, Martina Zelenakova, Vlasta Ondrejka Harbulakova                                                                                                                    |
|                                             |          | WATER SAVING AND ANTI-LEAKAGE SYSTEM FOR FLUSH CISTERNS<br>Vítor Costa, João Rocha, Andreia Costa                                                                                                                                                                                |
| <b>14:30-16:30</b>                          |          |                                                                                                                                                                                                                                                                                  |
| <b>Sustainability and Energy Efficiency</b> |          |                                                                                                                                                                                                                                                                                  |
| Room: Lisboa                                |          |                                                                                                                                                                                                                                                                                  |
|                                             | Chair ID |                                                                                                                                                                                                                                                                                  |
| 14h30m-14h50m                               | 503      | PREFABRICATED MULTI-ACTIVE FACADE ELEMENTS FOR ENERGY RENOVATION OF MULTI-FAMILY HOUSES - A THEORETICAL CASE-STUDY IN SWEDEN<br>Luis Ricardo Bernardo, Ahmed Hadzimuratovic, Markus Sw edmark, Stephen Burke, Rikard Nilsson, Tomas Ekström, Susanne Gosztonyi, Åke Blomsterberg |
| 14h50m-15h10m                               | 514      | DEFINING AN ANNUAL ENERGY OUTPUT RATIO BETWEEN SOLAR THERMAL COLLECTORS AND PHOTOVOLTAIC MODULES<br>João Gomes, Jana Junge, Tiffany Lehmann, Björn Karlsson                                                                                                                      |
| 15h10m-15h30m                               | 203      | THE ENVIRONMENTAL IMPACT OF A TEMPORARY LIGHTWEIGHT BUILDING<br>Mariangela De Vita, Pierluigi De Berardinis, Paolo Beccarelli                                                                                                                                                    |
| 15h30m-15h50m                               | 101      | PARALLELIZATION OF PARAMETRIC RUNS WITH ENERGYPLUS FOR BUILDINGS REFURBISHMENT ENERGY CALCULATIONS<br>João Coelho, Ana Brandão de Vasconcelos, António Silva                                                                                                                     |
| 15h50m-16h10m                               | 518      | PASSIVE MEASURES FOR ENERGY RENOVATION OF A SECONDARY SCHOOL: PILOT PROJECT "ISTITUTO FLORIANI"<br>Antonio Frattari, Irene Ferro                                                                                                                                                 |
| 16h10m-16h30m                               | 291      | STUDY ON EXPERIMENTAL TECHNOLOGIES AND SYSTEMS FOR REUSE OF EXPO BUILDINGS<br>Shiro Watanabe, Takayuki Isobe                                                                                                                                                                     |
| <b>14:30-16:30</b>                          |          |                                                                                                                                                                                                                                                                                  |

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|-------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technical Sessions / Materials and Building Technology</b>           |     |                                                                                                                                                         |
| Room: Albufeira I                                                       |     |                                                                                                                                                         |
| Chair ID                                                                |     |                                                                                                                                                         |
| 14h30m-14h50m                                                           | TS  | “Amorim Isolamentos” - Insulation cork products<br>Carlos Manuel                                                                                        |
| 14h50m-15h10m                                                           | TS  | “Secil Argamassas” - Production of Natural Hydraulic Lime and Industrial Dry Mortars<br>Natércia Trindade                                               |
| 15h10m-15h30m                                                           | 523 | BUILDING SOLUTIONS INCORPORATING MEDIUM DENSITY EXPANDED CORK<br>Rosário Fino, Nuno Simões, António Tadeu                                               |
| 15h30m-15h50m                                                           | 524 | NEW NATURAL HYDRAULIC LIME IN REHABILITATION<br>André Correia, Dina Frade, Ana Sofia Santos                                                             |
| <b>14:30-16:30</b>                                                      |     |                                                                                                                                                         |
| <b>OS: Enabling Smart Buildings: ICT for Energy-efficient Buildings</b> |     |                                                                                                                                                         |
| Room: Albufeira II                                                      |     |                                                                                                                                                         |
| Chair ID                                                                |     |                                                                                                                                                         |
| 14h30m-14h50m                                                           | 134 | EFFECTS AND MEANS OF ENERGY SAVING TECHNOLOGY IN AN INNOVATIVE SMART HOUSE<br>Yasushi Ikeda, Yuto Sasaki, Kei Watanabe                                  |
| 14h50m-15h10m                                                           | 320 | NEW KPIS AND TOOLS FOR PLANNING ENERGY EFFICIENT BUILDINGS AND NEIGHBOURHOODS<br>Aapo Huovila, Krzysztof Klobut, Juha Hyvärinen                         |
| 15h10m-15h30m                                                           | 328 | APPLICATION OF SEMANTIC MEDIA WIKIS FOR TECHNOLOGY MONITORING IN THE CONSTRUCTION INDUSTRY<br>Jonathan Masior, Stephan Schüle                           |
| 15h30m-15h50m                                                           | 342 | EEBERS – ICT FOR ENERGY EFFICIENT BUILDINGS<br>Esa Nykänen, Isabel Pinto-Seppä, Stephan Schüle, Javier Royo, Joaquin Gomez, Farid Fouchal, Tarek Hassan |

## Detailed Programme of Parallel Sessions

15h50m-16h10m 370 DESIGN SPECIFICATION AND SYSTEM ARCHITECTURE OF A DECISION SUPPORT OF ENERGY EFFICIENCY BUILDING RETROFIT AND MAINTENANCE INSTRUCTIONS

Farid Fouchal, Tarek Hassan, Steven Firth, Shen Wei, Vanda Dimitriou

**17:00-19:00**

### Economics, Financing and Management

Room: Algarve I

*Nuno Biga*

Chair  
ID

17h00m-17h20m 511 IMPROVING PUBLIC TRANSPORT MANAGEMENT THROUGH OPTIMISING USE OF RESOURCES: A CASE STUDY

Nuno Biga, Jorge M. Bandeira, Vitor Abrantes

17h20m-17h40m 322 COMPARATIVE ANALYSIS OF THE RESIDENTIAL REAL ESTATE IN J-REIT AND GLOBAL REIT

Nobuyoshi Noso, Kazuyoshi Endo

17h40m-18h00m 255 MODEL TO FORECAST THE NUMBER OF HOUSING STARTS IN JAPAN IN THE MEDIUM TO LONG TERM FUTURE

Saori Watanabe, Kazuyoshi Endo

18h00m-18h20m 499 MANAGEMENT OF SMALL PROJECTS WITH SCRUM METHOD

Manuela Cristina Timóteo

**17:00-19:00**

### OS: Sustainable and Water Efficient Buildings

Room: Algarve II

*Armando Silva Afonso*

Chair  
ID

17h00m-17h20m 011 GREEN ROOFS AS A TOOL TO PROMOTE WATER EFFICIENCY IN BUILDINGS  
Cristina M. Monteiro, Cristina S. C. Calheiros, Carla Pimentel-Rodrigues, Armando Silva-Afonso, Paula M. L. Castro

17h20m-17h40m 100 EVALUATION OF THE WATER EFFICIENCY OF BUILDINGS: THE PORTUGUESE APPROACH

Armando Silva-Afonso, Carla Pimentel-Rodrigues

17h40m-18h00m 122 RAINWATER HARVESTING AND GREYWATER RECYCLING: GUIDELINES TO PREVENT CONTAMINATION OF POTABLE WATER IN BUILDING SYSTEMS

Marco Fernandes Caetano, Helena Tavares da Silva

18h00m-18h20m 159 ALTERNATIVE WATER RESOURCES AS A WAY FOR REDUCING DEPENDENCE ON MAINS WATER SUPPLY

Gabriel Markovič, Zuzana Vranayová, Daniela Káposztasová

18h20m-18h40m 201 CONSTRUCTED WETLANDS AS A TOOL OF ALTERNATIVE WATER TREATMENT SYSTEM

Martina Rysulova, Daniela Káposztasová, Zuzana Vranayová, Joana America Castellar

**17:00-19:00**

### OS: Refurbishment of Buildings and Satisfaction of Contemporary Requirements / Building Design

Room: Lisboa

*João Carlos Lanzinha*

Chair  
ID

17h00m-17h20m 112 HOUSING AND HEALTH – PROPOSAL OF A METHODOLOGY FOR RISK ASSESSMENT FOR OCCUPANTS

Marisa Monteiro, João C. G. Lanzinha, M. Ramiro Pastorinho

17h20m-17h40m 147 POST OCCUPANCY EVALUATION OF VERNACULAR HERITAGE HOUSING IN MADEIRA: A CASE STUDY OF INHABITANTS' SATISFACTION

Jorge S. Carlos, Ana M. T. Martins, Elma Vieira

17h40m-18h00m 154 THE ROLE OF AN INTEGRATED METHODOLOGY: ASSESSMENT OF HISTORIC RESIDENTIAL BUILDINGS FROM PORTO

Cílisia Ornelas, João Miranda Guedes, Isabel Breda-Vázquez

18h00m-18h20m 368 THE IMPACT OF THERMAL BEHAVIOUR REGULATION ON HOUSING BUILDING REHABILITATION

Teresa Neto, Isabel Teles

18h20m-18h40m 408 REVIEW OF DEVELOPMENTS AND NEW INNOVATIONS IN TEMPORARY HOUSING AND FOLDABLE BUILDINGS

Merve Sağıroğlu, Ali M. Memari

**17:00-19:00**

### Materials and Building Technology

Room: Albufeira I

*Julietta Antonio*

Chair  
ID

## Detailed Programme of Parallel Sessions

|               |     |                                                                                                                                                                                    |
|---------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17h00m-17h20m | 468 | ASSESSMENT OF INTERNAL CONDENSATION RISK IN AN INNOVATIVE SUSTAINABLE WALL COMPOSED OF RICE BY-PRODUCTS<br>Beatriz Marques, António Tadeu, Jorge de Brito, João Almeida, João Rama |
| 17h20m-17h40m | 506 | SOUND ABSORPTION SOLUTIONS USING PERFORATED CORK PANELS<br>Julieta António, António Tadeu, Vasco Pinto, Tiago Ferreira                                                             |
| 17h40m-18h00m | 041 | LINOLEUM AS FLOOR COVERING: CHARACTERISTICS, APPLICATION AND MAINTENANCE<br>Raquel F. Bastos, Paulo M. da Silva                                                                    |
| 17h20m-17h40m | 507 | THERMAL AND ACOUSTIC PERFORMANCE OF INTERLOCKING COMPRESSED EARTH BLOCKS MASONRY<br>Dinis Leitão, Ana Briga Sá, Edgar Soares, Tiago Miranda                                        |
| 17h40m-18h00m | 494 | DYNAMIC SIMULATION OF THE TROMBE WALL THERMAL PERFORMANCE<br>Ana Briga Sá, Ivo Pinto, Anabela Paiva                                                                                |

### 17:00-19:00

#### OS: Enabling Smart Buildings: ICT for Energy-efficient Buildings

Room: Albufeira II

Chair *Isabel Pinto Seppä*

|               |     |                                                                                                                                                                      |
|---------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17h00m-17h20m | 432 | DEMONSTRATION OF MANAGEMENT AND DECISION SUPPORT SYSTEMS FOR ENERGY POSITIVE NEIGHBOURHOODS<br>Janne Rasi, Olli Nummelin, Kalevi Piira, Esa Nykänen                  |
| 17h20m-17h40m | 433 | ICT-TECHNOLOGIES FOR ENERGY EFFICIENT BUILDINGS AND DISTRICTS<br>Krzysztof Klobut, Max Boegli, Yves Stauffer, Itzal del Hoyo, Alfredo Samperio                       |
| 17h40m-18h00m | 436 | UNDERSTANDING ENERGY FUTURES THROUGH EVERYDAY LIFE OBSERVATION FOLLOWING AN ETHNOGRAPHIC APPROACH<br>Sarah Pink, Yolande Strengers, Marta Fernandez, Amalia Sabiescu |
| 18h00m-18h20m | 325 | MOEBIUS ENERGY PERFORMANCE OPTIMIZATION FRAMEWORK IN BUILDINGS FOR URBAN SUSTAINABILITY<br>Ander Romero, Borja Tellado, Tasos Tsitsanis                              |
| 18h20m-18h40m | 348 | ORBEET ORGANIZATIONAL BEHAVIOUR IMPROVEMENT FOR ENERGY EFFICIENT ADMINISTRATIVE PUBLIC OFFICES<br>Jon Martínez, Konstantinos Tsatsakis, Eleana Hatzoplaki            |

## Detailed Programme of Parallel Sessions

|                                                                                                                               |     |                                                                                                                                                                                                             |                                                                                                                                                                                                          |     |                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>09:00-11:00</b><br><b>Urban Planning / Applied Social Sciences in Housing</b><br>Room: Algarve I<br>Chair <i>Nuno Biga</i> |     |                                                                                                                                                                                                             | 09h40m-10h00m                                                                                                                                                                                            | 276 | A STUDY OF THE ECODISTRICTS MORPHOLOGY IMPACT ON THERMAL COMFORT IN OUTDOOR SPACES - PART I: IN TEMPERATE OCEANIC CLIMATE<br>Khaled Athamena, Jean-François Sini, Julien Guilhot                    |
| 09h00m-09h20m                                                                                                                 | 330 | SANTA LUZIA QUARTER: LEARNING WITH DESIGN PRACTICE<br>Nuno Abrantes, Fernando Brandão Alves, Vitor Abrantes                                                                                                 | 10h00m-10h20m                                                                                                                                                                                            | 099 | IDENTITY, SUSTAINABILITY AND PERCEPTION IN TRADITIONAL NEIGHBORHOODS TRABZON/AKÇAABATORTAMAHALLE EXAMPLE<br>Ayça Araz Ustaömeroğlu                                                                  |
| 09h20m-09h40m                                                                                                                 | 318 | THE NEW PORTUGUESE LEGAL FRAMEWORK FOR LAND POLICIES AND LAND-USE PLANNING: OPPORTUNITIES FOR A NEW PRACTICE<br>Paulo Vasconcelos Dias Correia, Ana Morais de Sá                                            | 10h20m-10h40m                                                                                                                                                                                            | 074 | REHABILITATION OF ADOBE BUILDINGS. UNDERSTANDING DIFFERENT MATERIALS FROM TWO REGIONS OF PORTUGAL (FIGUEIRA DA FOZ AND MIRA)<br>Cristiana Costa, Ana Velosa, Fernando Rocha                         |
| 09h40m-10h00m                                                                                                                 | 130 | THE ROLE OF CIVIL SOCIETY GROUPS IN HOUSING DEVELOPMENT IN BRAZIL: THE PROGRAM MINHA CASA MINHA VIDA - ENTIDADES (MCMV-E).<br>Paula Noia, Gonzalo Lizarralde, Erica Yoshioka, Lisa Bornstein, Ricardo Leoto | <b>09:00-11:00</b><br><b>OS: Passive House and Nearly Zero Energy Buildings / OS: BIM – Vision, Strategy and Implementation</b><br>Room: Lisboa<br>Chair <i>Julio Bros-Williamson and Hugo Rodrigues</i> |     |                                                                                                                                                                                                     |
| 10h00m-10h20m                                                                                                                 | 018 | MEASURING HOUSING SATISFACTION THROUGH THE USE OF STRUCTURAL EQUATION MODELLING<br>Clinton Aigbavboa                                                                                                        |                                                                                                                                                                                                          |     |                                                                                                                                                                                                     |
| 10h20m-10h40m                                                                                                                 | 216 | INTERLINKING LANDSCAPE ELEMENTS WITH USERS' PERCEPTION OF SAFETY AT CITY LEVEL PARKS IN INDIA FOR SAFER GREEN OPEN SPACES IN THE BUILT ENVIRONMENT<br>Aditi T Koshley, Jaydip Barman                        | 09h00m-09h20m                                                                                                                                                                                            | 209 | 'THE NEED TO ADVANCE THE ENERGY PERFORMANCE BUILDINGS DIRECTIVE (EPBD) TOWARDS THE EU ENERGY ROADMAP FOR 2050'<br>João Flores, Júlia Seixas, António Mourão, Miguel Cavique                         |
| 10h40m-11h00m                                                                                                                 | 515 | IMPACT OF SOCIO-ECONOMIC STATUS ON THE ATTACHMENT TO DWELLING AND LIVING ENVIRONMENT IN PROJECT AFFECTED PEOPLE<br>Priyanka Dey, Subrata Chattopadhyay                                                      | 09h20m-09h40m                                                                                                                                                                                            | 251 | LOW THERMAL INERTIA CASE STUDY: THERMAL ANALYSIS EVALUATION USING DIFFERENT APPROACHES<br>Rui Oliveira, António Figueiredo, Romeu Vicente                                                           |
| <b>09:00-11:00</b><br><b>Sustainable Architecture</b><br>Room: Algarve II<br>Chair <i>Ana Ferreira Ramos</i>                  |     |                                                                                                                                                                                                             | 09h40m-10h00m                                                                                                                                                                                            | 377 | THERMAL COMFORT PERFORMANCE OF A PASSIVE HOUSE IN SUMMER UNDER A MEDITERRANEAN CLIMATE<br>Fábio Vidal, Inês C. Meireles, Romeu Vicente, Vitor Sousa, Fernanda Rodrigues                             |
|                                                                                                                               |     |                                                                                                                                                                                                             | 10h00m-10h20m                                                                                                                                                                                            | 082 | ARCHITECTURAL FEATURES AND SYSTEMS TO APPLY THE ZERO ENERGY BUILDING (NZEB) CONCEPT IN BRAZIL<br>Louise Land Bittencourt Lomardo, Diego Souza Caetano, Angélica B. Sampaio, Ana Paula da C. Esteves |
| 09h00m-09h20m                                                                                                                 | 009 | VERNACULAR FLEXIBILITY: THE CONCEPT AND STRATEGY OF ADAPTABLE DEVELOPMENT OF THE UNFINISHED INHABITED SELF-BUILT DWELLINGS IN ALBANIA<br>Anna Yunitsyna                                                     | 10h20m-10h40m                                                                                                                                                                                            | 489 | BIM DEVELOPMENT IN PORTUGAL: ROADMAP PROPOSAL FOR A CONTRIBUTION TO A SUSTAINABLE AECO SECTOR<br>Maria João Falcão Silva, Filipa Salvado, Paula Couto, Álvaro Vale e Azevedo                        |
| 09h20m-09h40m                                                                                                                 | 038 | WASTE MANAGEMENT AND MATERIAL RECYCLE AS A POTENTIAL OF SUSTAINABLE BUILDING ENVELOPE FOR LOW INCOME HOUSING<br>Samar M. Shew eka, Amira Elnokaly                                                           | 10h40m-11h00m                                                                                                                                                                                            | 329 | COLLABORATION AND BIM SUPPORTIVE PROJECT EXECUTION MODEL FOR THE CONSTRUCTION INDUSTRY<br>Øystein Mejlænder-Larsen, Cecilie Flyen, Bjørn Erik Lie                                                   |

|                                                       |     |                                                                                                                                                     |                        |          |                                                                                                                                                                           |
|-------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>09:00-11:00</b>                                    |     |                                                                                                                                                     | REHABILITATION PROCESS |          |                                                                                                                                                                           |
| <b>Materials and Building Technology</b>              |     |                                                                                                                                                     | Francesca Guidolin     |          |                                                                                                                                                                           |
| Room: Albufeira I                                     |     |                                                                                                                                                     | 10h00m-10h20m          | 049      | SUSTAINABLE HERITAGE: HIGH-RISE BUILDING STRUCTURES BUILT 1955-1965 IN ZAGREB, CROATIA                                                                                    |
| Chair ID                                              |     |                                                                                                                                                     |                        |          | Iva Muraj                                                                                                                                                                 |
| 09h00m-09h20m                                         | 085 | TABIQUE WALLS COMPOSITE EARTH-BASED CHARACTERIZATION IN THE ALTO DOURO WINE REGION, PORTUGAL                                                        | 10h20m-10h40m          | 084      | GROWTH CURVES APPLIED TO THE SERVICE LIFE PREDICTION OF CERAMIC CLADDINGS                                                                                                 |
|                                                       |     | Rui Cardoso, João Carlos Lanzinha, Jorge Pinto, Anabela Paiva                                                                                       |                        |          | Ana Silva, Jorge de Brito, Pedro Lima Gaspar                                                                                                                              |
| 09h20m-09h40m                                         | 094 | A CONTRIBUTION TO SUSTAINABLE STRUCTURES BY USING WASTE IN CONCRETE MATERIALS FOR IMPROVING THEIR DURABILITY                                        | 10h40m-11h00m          | 411      | GIS APPLICATION IN URBAN DISTRICTS MAINTENANCE                                                                                                                            |
|                                                       |     | Adriana Estokova, Michaela Smolakova, Alena Luptakova                                                                                               |                        |          | Sebastiano Maltese, Giulia Fradegrada, Nicola Moretti, Mario Claudio Dejaco, Fulvio Re Cecconi                                                                            |
| 09h40m-10h00m                                         | 095 | BRICK STAIRCASES AT THE HEART OF ANCIENT NAPLES - TYPOLOGICAL, MATERICAL AND TECHNOLOGICAL KNOWLEDGE                                                |                        |          |                                                                                                                                                                           |
|                                                       |     | Flavia Fascia, Emanuele La Mantia, Aldo Rosato                                                                                                      |                        |          |                                                                                                                                                                           |
| 10h00m-10h20m                                         | 103 | DEVELOPMENT OF COMPRESSIVE STRENGTH OF CONCRETES HAVING HIGH DOSAGE OF SCMS AND THEIR ACTIVATION POSSIBILITIES                                      |                        |          |                                                                                                                                                                           |
|                                                       |     | Alena Sicakova, Marek Kovac, Matej Spak                                                                                                             |                        |          |                                                                                                                                                                           |
| 10h20m-10h40m                                         | 111 | CHANGES IN TECHNOLOGICAL PARAMETERS OF SELECTED WASTE AGGREGATES AFTER THE SURFACE TREATMENTS FOR USE IN CONCRETE                                   |                        | Chair ID |                                                                                                                                                                           |
|                                                       |     | Alena Sicakova, Karol Urban, Jozef Junak, Marcela Ondova                                                                                            | 14h30m-14h50m          | 116      | MANAGEMENT, CONSERVATION AND REHABILITATION OF THE HISTORIC HOUSING STOCK IN CAIRO, EGYPT                                                                                 |
| 10h40m-11h00m                                         | 079 | INNOVATIONS WITH CONCRETE AND RECYCLED MATERIAL USE IN INFORMAL HOUSING, SEEKING HEAT COMFORT                                                       |                        |          | Aliaa AlSadaty                                                                                                                                                            |
|                                                       |     | Carolina da Silva Leonardo, Louise Land Bittencourt Lomardo, Diego Souza Caetano, Paula de Castro Brasil                                            | 14h50m-15h10m          | 200      | CAN TEMPORARY ARCHITECTURE IMPROVE OUTDOOR CONDITIONS IN RESIDENTIAL DISTRICTS?                                                                                           |
|                                                       |     |                                                                                                                                                     |                        |          | Timothy Daniel Brownlee, Ernesto Cesario, Federica Ottone, Simone Pirro                                                                                                   |
| <b>09:00-11:00</b>                                    |     |                                                                                                                                                     | 15h10m-15h30m          | 307      | UTILIZING METHOD OF HOUSING AND RESIDENTIAL DATA BASED ON NATIONAL STATISTICS, AND BASIS EXAMINATION OF MANAGEMENT METHOD ABOUT HOUSING STOCKS IN SITUATION OF POPULATION |
| <b>Rehabilitation, Retrofitting and Refurbishment</b> |     |                                                                                                                                                     |                        |          | Koya Utsumi                                                                                                                                                               |
| Room: Albufeira II                                    |     |                                                                                                                                                     | 15h30m-15h50m          | 336      | SMART CITY PERFORMANCE MEASUREMENT SYSTEM                                                                                                                                 |
| Chair ID                                              |     |                                                                                                                                                     |                        |          | Aapo Huovila, Miimu Airaksinen, Isabel Pinto-Seppä, Kalevi Pira, Topi Penttinen                                                                                           |
| 09h00m-09h20m                                         | 008 | THE ARCHITECTURAL AND ENVIRONMENTAL RETROFITTING OF PUBLIC SOCIAL HOUSING AS A RESOURCE FOR CONTEMPORARY CITIES. THE REDESIGN OF BUILDING ENVELOPES | 15h50m-16h10m          | 341      | CIB SMART CITY ROAD MAP AND VISION                                                                                                                                        |
|                                                       |     | Roberto Bianchi, Spartaco Paris                                                                                                                     |                        |          | Isabel Pinto-Seppä, Miimu Airaksinen, Terttu Vainio                                                                                                                       |
| 09h20m-09h40m                                         | 015 | CONSTRAINTS ON THE REHABILITATION OF BUILDINGS IN OLD URBAN AREAS                                                                                   | 16h10m-16h30m          | 510      | INFLUENCE OF RUNOFF ON URBAN WASTEWATER - THE HUELVA CASE                                                                                                                 |
|                                                       |     | Lurdes Belgas, Jorge Mascarenhas, Fernando G. Branco                                                                                                |                        |          | Ricardo Arribas de Paz, Inmaculada Salvador Crespo, Marta Montañez Entrenas                                                                                               |
| 09h40m-10h00m                                         | 016 | THE EXOSKELETON SYSTEM AS A SOCIO-TECHNICAL DEVICE COUPLING TECHNICAL DEVICES AND SOCIAL INVOLVEMENT IN THE                                         |                        |          |                                                                                                                                                                           |

## Detailed Programme of Parallel Sessions

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|---------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |     | <b>14:30-16:30</b>                                                                                                                                                                                                  |  | 15h50m-16h10m | 243 | BIM METHODOLOGY APPLIED TO THE MANAGEMENT OF A WASTEWATER PUMPING STATION<br>Hugo Pina, Fernanda Rodrigues, Hugo Rodrigues                                                                                                            |
|               |     | <b>Sustainable Architecture</b>                                                                                                                                                                                     |  | 16h10m-16h30m | 491 | IFC INTEROPERABILITY FOR BIG DATA INTEGRATION IN A BIM COLLABORATIVE ENVIRONMENT<br>José Barateiro, Paula Couto, Maria João Falcão Silva, Filipa Salvado                                                                              |
| Chair         |     | Room: Algarve II                                                                                                                                                                                                    |  |               |     |                                                                                                                                                                                                                                       |
| <b>ID</b>     |     | <i>Carlos Duarte</i>                                                                                                                                                                                                |  |               |     |                                                                                                                                                                                                                                       |
| 14h30m-14h50m | 137 | WASTE IS MORE WASTE REUSE IN ARCHITECTURE<br>Tiziana Firrone, Carmelo Bustinto, Eleonora Montalbano                                                                                                                 |  |               |     | <b>14:30-16:30</b>                                                                                                                                                                                                                    |
| 14h50m-15h10m | 123 | LCA BENCHMARKS IN BUILDING'S ENVIRONMENTAL CERTIFICATION SYSTEMS<br>Sara Ganassali, Monica Lavagna, Andrea Campioli                                                                                                 |  |               |     | <b>Materials and Building Technology</b>                                                                                                                                                                                              |
| 15h10m-15h30m | 135 | CHANGE MANAGEMENT AND NEW EXPERTISE IN AEC FIRMS: IMPROVEMENT IN ENVIRONMENTAL COMPETENCE<br>Anna Dalla Valle, Monica Lavagna, Andrea Campioli                                                                      |  |               |     | Room: Albufeira I                                                                                                                                                                                                                     |
| 15h30m-15h50m | 173 | TRANSFORMATION OF DERELICT INDUSTRIAL SITES: FROM INDUSTRY TO CULTURE<br>Soheil Khoshkholghi, Solmaz Khoshkholghi, Yunus Turan Pekmezci                                                                             |  | Chair         |     | <i>Miguel Oliveira</i>                                                                                                                                                                                                                |
| 15h50m-16h10m | 142 | LOW-COST HOUSING MODELS<br>Ana Carolina Monteiro, Miguel Pires Amado                                                                                                                                                |  | <b>ID</b>     |     |                                                                                                                                                                                                                                       |
|               |     | <b>14:30-16:30</b>                                                                                                                                                                                                  |  | 14h30m-14h50m | 145 | ANALYSIS OF INDOOR RELATIVE HUMIDITY IN SCHOOLS THROUGH THE QUANTIFICATION OF ABSORBED WATER IN BUILDING MATERIALS<br>Susana Lagüela, Ana Álvarez, Patricia Liñares, Sonia Zaragoza, Henrique Lorenzo                                 |
|               |     | <b>OS: BIM – Vision, Strategy and Implementation</b>                                                                                                                                                                |  | 14h50m-15h10m | 232 | EVALUATION OF BORON COMPOUNDS AS ADDITIVES IN BUILDING MATERIAL PRODUCTION WITHIN THE CONTEXT SUSTAINABILITY<br>Tufan Bora Samuk, Mahmure Ovul Arioglu Akan, Nihal Arioglu                                                            |
| Chair         |     | Room: Lisboa                                                                                                                                                                                                        |  | 15h10m-15h30m | 296 | ANALYSIS OF THE CRYSTALLINE WATERPROOFING BEHAVIOR IN REPAIRING CRACKS IN CONCRETE<br>Vanessa G. Cappellesso, Natália dos S. Petry, Denise C. C. Dal Molin, Angela B. Masuero                                                         |
| <b>ID</b>     |     | <i>Fernanda Rodrigues and Hugo Rodrigues</i>                                                                                                                                                                        |  | 15h30m-15h50m | 385 | EVALUATION OF THE PHYSICAL AND MECHANICAL PROPERTIES OF RECYCLED AGGREGATES. PROPERTY CLASSIFICATION ACCORDING TO THE EUROPEAN STANDARDS FOR CONCRETE AND MORTAR<br>Miguel Oliveira, Matthias Eckert                                  |
| 14h30m-14h50m | 126 | AUTOMATED RULE-CHECKING – A TOOL FOR DESIGN DEVELOPMENT<br>João Poças Martins, Bárbara Rangel, Vitor Abrantes                                                                                                       |  | 15h50m-16h10m | 501 | CONSTRUCTION SYSTEM WITH PREFABRICATED LIGHTWEIGHT CONCRETE PANELS – CHARACTERIZATION TESTS<br>João Veludo, Florindo Gaspar, Paulo Fernandes, Hugo Rodrigues, Carla Sousa                                                             |
| 14h50m-15h10m | 152 | USE OF BIM FOR THE PLANNING OF MAINTENANCE ACTIONS IN A HISTORICAL-MONUMENTAL BUILDING<br>Santi Maria Cascone, Nicoletta Tomasello                                                                                  |  | 16h10m-16h30m | 482 | CEMENTITIOUS COMPOSITE FROM PORCELAIN TILE GROUT: ANALYSIS OF THEIR PROPERTIES AND APPLICATION FOR SUSTAINABILITY<br>Daniela Casagrande Matos, Ivete Peixoto Pinheiro Silva, Claudinei Rezende Calado, Augusto César da Silva Bezerra |
| 15h10m-15h30m | 218 | BIM-BASED MULTI-MODEL FRAMEWORK FOR ENERGY EFFICIENT BUILDING DESIGN<br>Peter Katranuschkov, Raimar Scherer, Constantinos Balaras                                                                                   |  |               |     | <b>14:30-16:30</b>                                                                                                                                                                                                                    |
| 15h30m-15h50m | 391 | CRITICAL FACTORS FOR THE SUCCESSFUL IMPLEMENTATION OF AN INTEGRATED BUILDING INFORMATION MODELLING AND ENTERPRISE RESOURCE PLANNING IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY<br>Mphumi Mathegu, Clinton Aigbavboa |  |               |     | <b>Rehabilitation, Retrofitting and Refurbishment</b>                                                                                                                                                                                 |
|               |     |                                                                                                                                                                                                                     |  |               |     | Room: Albufeira II                                                                                                                                                                                                                    |

## Detailed Programme of Parallel Sessions

| Chair ID      |                                                                                                                                                                                                        |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14h30m-14h50m | 096 BRICK STAIRCASES AT THE HEART OF ANCIENT NAPLES - MAINTENANCE AND CONSOLIDATION<br>Renato Iovino, Emanuele La Mantia, Aldo Rosato                                                                  |
| 14h50m-15h10m | 512 BUILDING ORIENTATION AND DISCOUNT RATES: THE IMPACT ON A REFURBISHMENT DECISION<br>Ana Brandão de Vasconcelos, António Cabaço, Manuel Pinheiro                                                     |
| 15h10m-15h30m | 175 INNOVATIVE REFURBISHMENT STRATEGIES FOR POORLY PERFORMING HOUSING STOCK IN SCOTLAND, UK<br>Julio Bros-Williamson, Jon Stinson, Alasdair Reid, Dorian Gravrand                                      |
| 15h30m-15h50m | 231 ECO-FRIENDLY STUDENT HOUSING AS A WAY TOWARDS BUILDINGS REFURBISHMENT AND URBAN RENEWAL<br>Oscar Eugenio Bellini                                                                                   |
| 15h50m-16h10m | 434 PRESERVATION OF THE HOUSE OF VENUS IN THE ARCHAEOLOGICAL SITE VOLUBILIS (MOROCCO)<br>Issam Aalil, Kevin Beck, Xavier Brunetaud, Dalal Badreddine, Khalid Cherkaoui, Ali Chaaba, Muzahim Al-Mukhtar |

### 17:00-19:00

#### Urban Planning

Room: Algarve I

*Nuno Simões*

| Chair ID      |                                                                                                                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17h00m-17h20m | 113 EVALUATING GEODESIGN WITH ECOPHYSIOGRAPHY<br>Saye Nihan Çabuk, Mehmet Değerliyurt, Taki Can Metin, Alper Çabuk                                                                          |
| 17h20m-17h40m | 056 CURRENT STATUS AND ISSUES OF PUBLIC HOUSING REDEVELOPMENT PROJECTS WITH PUBLIC-PRIVATE PARTNERSHIP APPROACH IN JAPAN<br>Yoshiro Morita, Shuichi Matsumura, Seiji Kobata, Ryohei Hashida |
| 17h40m-18h00m | 437 ANALYSIS OF INTERLOCUTION BETWEEN HOUSING POLITICS OF JUIZ DE FORA AND PROGRAMA MINHA CASA, MINHA VIDA<br>Livia R. A. Muchinelli, Raquel F. F. Hellich, Nádia de O. Camacho             |
| 18h00m-18h20m | 389 A DIALOGUE ON THE GENESIS OF HOUSING PROBLEMS IN SOUTH AFRICA<br>Clinton Aigbavboa                                                                                                      |

### 17:00-19:00

#### Sustainable Architecture

Room: Algarve II

*Tiziana Firrone*

| Chair ID      |                                                                                                                                           |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 17h00m-17h20m | 181 CONSTRUCTIVE ASPECTS AND CONTRADICTIONS OF EARTHEN BUILDING: CRITICAL PERSPECTIVES<br>Maria Costi de Castrillo, Panayiota Ioanni Pyla |
| 17h20m-17h40m | 185 SELF-FORMED MICRO ARCHITECTURE FOR SUSTAINABLE HABITATIONS<br>Walter Klash                                                            |
| 17h40m-18h00m | 223 CUSTOMIZED PREFABRICATION: A NEW EXPERIENCE OF LIVING<br>Simone Pirro, Maria Federica Ottone, Timothy Daniel Brownlee                 |
| 18h00m-18h20m | 469 MEMORABLE PLACES AS SUSTAINABLE PLACES, CASE STUDY: KARAKÖY<br>Armin Tayyebiazar, Mahsa Safaei                                        |

### 17:00-19:00

#### OS: BIM – Vision, Strategy and Implementation

Room: Lisboa

*Fernanda Rodrigues and Hugo Rodrigues*

| Chair ID      |                                                                                                                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17h00m-17h20m | 304 A BIM-BASED SOLUTION TO SUPPORT EARNED VALUE MANAGEMENT IN CONSTRUCTION<br>Anne-Marie Mushamaliwa, André Reis Antunes, António Aguiar Costa                                                                                     |
| 17h20m-17h40m | 347 INCORPORATING PARAMETRIC TOOLS TO GENERATE AND ANALYZE THE BUILDING VIRTUAL MODEL INTO THE TECHNICAL DEGREE STUDENT'S FORMATION<br>José Vázquez-Rodríguez, Dolores Otero-Chans, Javier Estévez-Cimadevila, Félix Suarez-Riestra |
| 17h40m-18h00m | 288 TOWARDS TO GIS-BIM INTEGRATION ON CONSTRUCTION LOGISTICS<br>Adem Emre Cengiz, Alper Çabuk, Osman Aytakin, Ilker Ozdemir                                                                                                         |
| 18h00m-18h20m | 244 A BIM-BASED FRAMEWORK FOR SAFETY INTEGRATION DURING DESIGN<br>Fernanda Rodrigues, Joel Estrada, Paul Swuste                                                                                                                     |

## Detailed Programme of Parallel Sessions

18h20m-18h40m 490 STANDARDIZED BIG DATA IN BIM OBJECTS FOR A SUSTAINABLE FACILITY MANAGEMENT OF BUILDINGS  
Filipa Salvado, Maria João Falcão Silva, Paula Couto, Álvaro Vale e Azevedo

### Materials and Building Technology

Room: Albufeira I

*Jorge Tiago Pinto*

Chair  
ID

17h00m-17h20m 031 NEW CONSTRUCTION MATERIALS AND TECHNOLOGIES FOR CONTEMPORARY BUILDING ENVELOPES  
Genny Cia, Valentina Puglisi, Alberto Celani

17h20m-17h40m 052 ENVIRONMENTAL ASSESSMENT OF CARDBOARD AS A BUILDING MATERIAL FOR TRANSITIONAL HOUSING  
Mirian Sayuri Vaccari

17h40m-18h00m 068 THE LICENSED BUILDING PRACTITIONERS SCHEME: FOUR YEARS ON  
Chris Murphy

18h00m-18h20m 418 CONSTRUCTIVE CHARACTERISTICS OF CATALAN VAULT THROUGH THE CONSTRUCTION EXPERIMENT OF FULL SCALE FLOOR MODEL  
Ryohei Kumagai, Ayako Maeshima

18h20m-18h40m 003 IN DISCUSSION: HOW TO AVOID RADON IN BUILDINGS  
Elisabeth M. F. Severo, Hipólito J. C. de Sousa

### Rehabilitation, Retrofitting and Refurbishment

Room: Albufeira II

*Ana Velosa*

Chair  
ID

17h00m-17h20m 278 DISSOLUTION AND REBUILDING OF TEMPORARY HOUSING BY WOODEN CONSTRUCTION METHOD "ITAKURA" IN JAPAN  
Yasuo Omi

17h20m-17h40m 279 CASA CARMELITA: BALANCING THE BENEFITS AND CHALLENGES OF MODERNIZATION WHILE REHABILITATING A RESIDENTIAL HISTORIC BUILDING  
Francisco Borvice

17h40m-18h00m 287 IS REGENERATION SUFFICIENT FOR URBAN SECURITY? BURSA/TURKEY AS A CASE

18h00m-18h20m 338 Rengin Beceren Ozturk, Arzu Çahantimur  
REUSE OF ABANDONED MONASTERIES. METHODOLOGIES AND A CASE STUDY  
Pierfrancesco Fiore

18h20m-18h40m 233 "EMBRACHADOS" - CONSERVING A TECHNIQUE  
Ana Velosa, Luís Mariz

|               |     |                                                                                                                                                                                              |  |               |          |                                                                                                                                                                                              |
|---------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |     | <b>Tourism and Regional Development / OS: Urban Risk Reduction and Resilience</b>                                                                                                            |  | 10h00m-10h20m | 372      | THE DIFFUSION OF ENERGY STAR CERTIFICATIONS INTO US HOUSING MARKETS 2002-2013<br>Andrew Sanderford, Andrew McCoy, Matthew Keefe, Charles Theodore Koebel                                     |
|               |     | Room: Algarve I                                                                                                                                                                              |  | 10h20m-10h40m | 388      | MIXED PUBLIC POLICY AND MARKET PROVISION OF AFFORDABLE HOUSING: BUILDING, COST AND PROGRAM CONSIDERATIONS<br>Theodore Koebel, Andrew McCoy                                                   |
| Chair ID      |     |                                                                                                                                                                                              |  |               |          |                                                                                                                                                                                              |
| 09h00m-09h20m | 169 | AN ADAPTIVE REUSE EXPERIENCE FOR SUSTAINABLE CULTURE TOURISM: A CASE STUDY ON THE HISTORICAL TEXTURE OF SİLLE/TURKEY<br>Ebru Erdoğan, Hacı Abdullah Erdoğan                                  |  | 10h40m-11h00m | 472      | IMPACTS OF HOUSING TECHNOLOGY AND BEHAVIOR ON ENERGY EFFICIENCY FOR AFFORDABLE RENTAL HOUSING<br>Dong Zhao, Andrew McCoy, Philip Agee, Teni Ladipo                                           |
| 09h20m-09h40m | 176 | UTILISING URBAN DESIGN, RECONSIDERING THE COLONIAL LEGACY; TOWARDS THE MUSEUMISATION OF KHARTOUM'S CITY CENTRE<br>Muna Eltahir, Malathe Hamid                                                |  |               |          | <b>09:00-10:40</b>                                                                                                                                                                           |
| 09h40m-10h00m | 282 | CULTURAL TOURISM AT TRADITIONAL SETTLEMENTS: EXAMPLE OF HISTORICAL SUR AREA OF DIYARBAKIR<br>Yadigar Berivan Ozbudak Akca, Fatma Demet Aykal                                                 |  |               |          | <b>Rehabilitation, Retrofitting and Refurbishment/ Building Design</b>                                                                                                                       |
| 10h00m-10h20m | 277 | PRIORITIZATION OF PUBLIC INVESTMENT IN REGIONAL SPATIAL PLANNING – THE CASE OF ALGARVE<br>Paulo Correia, Carlos Bana-e-Costa                                                                 |  |               | Chair ID | Room: Lisboa<br>Gerald Steyn                                                                                                                                                                 |
| 10h20m-10h40m | 334 | VULNERABILITY ASSESSMENT TOOLS: FORECASTING AND ARTIFICIAL INTELLIGENCE<br>Rocío Ortiz, Juan Manuel Macías-Bernal, Pilar Ortiz                                                               |  | 09h00m-09h20m | 364      | TEACHING FAÇADE RETROFITS: REFLECTIONS ON FOUR APPROACHES<br>Patrick P. Charles, Jo Ruoff                                                                                                    |
|               |     | <b>09:00-10:40</b>                                                                                                                                                                           |  | 09h20m-09h40m | 398      | ACOUSTIC CHARACTERIZATION OF TRADITIONAL WOOD PAVEMENTS<br>Rui Calejo, Dóris Queirós, Rogério Silva                                                                                          |
|               |     | <b>OS: Innovating the Home: Innovative Perspectives on the US Housing Market</b>                                                                                                             |  | 09h40m-10h00m | 344      | IN-SITU ANALYSIS OF THERMAL PERFORMANCE OF DWELLINGS OF THE MEDIEVAL CENTER OF CAHORS BEFORE THERMAL REHABILITATION<br>Sophie Claude, Stéphane Ginestet, Gilles Escadeillas, Marion Bonhomme |
|               |     | Room: Algarve II<br>Andrew McCoy                                                                                                                                                             |  | 10h00m-10h20m | 168      | CONCEPTUAL AND PERCEPTUAL STATUS OF THE MOSQUES IN TURKEY<br>Onur Sürücü, Hacı Abdullah Erdoğan, Ebru Erdoğan                                                                                |
| Chair ID      |     |                                                                                                                                                                                              |  |               |          |                                                                                                                                                                                              |
| 09h00m-09h20m | 349 | SUBURBAN RESIDENTIAL INFILL REDEVELOPMENT AND SHIFTING DEMOGRAPHICS IN THE U.S. HOUSING MARKET<br>Suzanne Lanyi Charles                                                                      |  |               |          |                                                                                                                                                                                              |
| 09h20m-09h40m | 367 | THE IMPLICIT VALUE OF TREE COVER IN THE U.S.: A META-ANALYSIS OF HEDONIC PROPERTY VALUE STUDIES<br>Shyamani D. Siriwardena, Kevin J. Boyle, Thomas P. Holmes, Eric Wiseman                   |  |               |          |                                                                                                                                                                                              |
| 09h40m-10h00m | 371 | TRANS-ATLANTIC TRANSFORMATIONS: CHALLENGES OF TRANSLATING SUCCESSFUL HIGH-PERFORMANCE BUILDING TECHNOLOGIES ACROSS CONTINENTS<br>Georg Reichard, Marvin Queke, Robert Burgaß, Stefan Schäfer |  |               |          |                                                                                                                                                                                              |