Tuesday 12th OCTOBER								
8:30 - 9:00	REGISTRATION							
9:00 - 10:00	**OPENING CEREMONY**							
10:00 - 10:40	Keynote: **Advances towards understanding the effects of climate change on the durability of the built environment** Michael A. Lacasse, PhD PEng (Construction Research Centre of the National Research Council Canada)							
10:40 - 11:00	Coffee-break							
11:00 - 13:00	Session 1 GT1	39 195 3 121 146	Session 2 TS12_part1	21 54 84 91 105 214	Session 3 TS15_part1	126 139 140 161 164 166	Session 4 TS07	46 65 133 138 196
13:00 - 14:20	Lunch							
14:20 - 16:20	Session 5 GT1	50 210 125 285 283 284	Session 6 TS12_part2	244 248 266 267 272 229	Session 7 TS15_part2	169 170 188 197 236	Session 8 TS05	15 20 34 89 232 243
16:20 - 16:40	Coffee-break							
16:40 - 18:20	Session 9 GT1	198 245 1 43 26	Session 10 TS16	177 231 242 247 250	Session 11 TS13+TS14	51 132 203 217 96	Session 12 TS02	32 108 143 165 110
Wednesday 13th OCTOBER								
9:00 - 10:40	Session 13 GT1	31 29 52 277	Session 14 TS08_part1	17 59 111 174 71	Session 15 TS10	33 81 158 172 223	Session 16 GT5	12 94 104 163 131
10:40 - 11:00	Coffee-break							
11:00 - 13:20	Session 17 GT1	117 156 60 19	Session 18 TS08_part2	109 184 185 149	Session 19 TS03	4 11 16 27 61 127 228	Session 20 GT5	5 14 58 64 68 10
13:20 - 14:20	Lunch							

Thursday 14th OCTOBER								
9:00 - 9:40	Keynote: **Climate neutral Buildings, right here, right now!** Guillaume Habert, PhD (Department of Civil environmental and geomatic engineering at the Swiss Federal institute of technology, ETH Zurich)							
9:40 - 10:40	TECHNICAL SESSION							
10:40 - 11:00	Coffee-break							
11:00 - 13:00	Session 21 GT1	130 233 40 276 44 201	Session 22 TS01_part1	38 56 73 83 93 102	Session 23 GT3	25 36 42 175 222 265	Session 24 GT2	35 80 87 120 128 142
13:00 - 14:20	Lunch							
14:20 - 16:20	Session 25 GT1	189 180 79 122 8	Session 26 TS01_part2	153 155 159 160 238 246	Session 27 GT3	82 92 119 281 37 118	Session 28 GT4	48 53 67 137 179 157
16:20 - 16:40	Coffee-break							
16:40 - 18:40	Session 29 GT1	7 176 90 278	Session 30 TS09	57 69 115 135 181 257	Session 31 GT3 / TS04	192 258 66 107 252	Session 32 GT4	199 202 264 255 186

Friday 15th OCTOBER							
9:00 - 9:40	Keynote: **Digital Worlds for Analogue Lives - Building Performance Simulation in Support of Urban Development** Christoph Reinhart, PhD Arch (Department of Architecture at the Massachusetts Institute of Technology)						
9:40 - 10:40	TECHNICAL SESSION						
10:40 - 11:00	Coffee-break						
11:00 - 12:40	Session 33 GT2	173	Session 34 GT6	95	Session 35 GT5	18	
		224		171		279	
		235		237		282	
		251		269		22	
				88		253	

All times shown are local time – Lisbon time WEST (GMT +01:00)

Topics
GT1: Construction materials and technologies
GT2: Building physics
GT3: Energy
GT4: Environment
GT5: Construction and industry 4.0
GT6: Community challenges and policies
TS01: Advanced materials for energy retrofitting of buildings
TS02: Bamboo architecture and construction
TS03: Climate change impacts on inspection, diagnosis, maintenance and rehabilitation of buildings
TS04: Energy efficient room air distribution systems
TS05: Green Infrastructures towards sponge cities
TS07: New trends on construction sustainability
TS08: Numerical simulation of physical phenomena in buildings and structures
TS09: Performance and durability of tall building cladding systems
TS10: Renewable energy (RES) technologies in buildings and built environment
TS12: Sustainable design in acoustics
TS13: Climate change impacts on building performance and global energy demand
TS14: Thermal energy storage in buildings
TS15: Responsible biotechnologies and biodesign for the built environment
TS16: Timber based envelopes for a sustainable and efficient renovation of existing buildings

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1	*TECHNICAL, ENVIRONMENTAL AND AESTHETIC BENEFITS OF UTILISING RECOVERED PRINTER TONER IN CONSTRUCTION*	Laszlo J. Csetenyi, Moray D. Newlands
3	*STUDY OF THE GEOPOLYMERIC MATERIAL RESULTING FROM THE SLAG FROM THE BURNING OF RESIDUES WITH MICROALGAE HIDROGEL IN THE CREATION OF TILES THAT ABSORB ATMOSPHERIC CO2*	Catarina Rocha, Bárbara Rangel, Jorge Lino
4	*CLIMATE CHANGE IMPACT FOR REQUIREMENTS TO CONCRETE PROPERTIES*	Rytis Skominas, Vincas Gurskis, Raimondas Šadzevičius, Raimundas Baublys
5	*OPPORTUNITIES FOR CIVIL CONSTRUCTION GROWTH THROUGH INDUSTRY 4.0*	Jacqueline A. B. Franco, Ana Mariele Domingues, Nelson A. Africano, Rosane A. G. Battistelle, Rafael M. Deus
7	*REFLECTIONS ON HERITAGE PRESERVATION AND ENERGY SUSTAINABILITY THROUGH THE ANALYSIS OF CURRENT INTERVENTIONS IN STATE-SUBSIDISED HOUSING FROM THE MID-20TH CENTURY: THE EXAMPLE OF THE IMPROVEMENT PLAN (PORTO)*	Luciana Rocha, Rui Fernandes Póvoas
8	*FITNESS OF A HIGH-CALCIUM SLAG FOR THE PRODUCTION OF ALKALI ACTIVATED MATERIALS*	Omar Alelweet, Sara Pavia
10	*CONSTRUCTION INFORMATION CLASSIFICATION SYSTEMS ADAPTED TO SUSTAINABILITY: INTERNATIONAL EXPERIENCE*	Rodrigo Lima, Maria J. F. Silva, Ana F. Salvado, Paula Couto
11	*BUILDING ENVELOPE VS THERMAL REGULATION REQUIREMENTS – A CASE STUDY IN SOCIAL HOUSING BUILDINGS IN BEIRA INTERIOR, PORTUGAL*	Pedro I. Brandão, João C. G. Lanzinha, Fernando J. Silva
12	*BIM METHODOLOGY TOWARDS ENERGY EFFICIENCY IMPROVEMENT FOR SUSTAINABLE COMMERCIAL BUILDINGS*	Rodrigo C. Betim, Maria J. F. Silva, Fernando F. S. Pinho
14	*COST ESTIMATING AND ELEMENTAL COST PLANNING IN PRELIMINARY DESIGN STAGES*	António Cabaço, Ana B. Vasconcelos
15	*GREEN ROOFS WITH RAINWATER HARVESTING. A CASE STUDY*	Carla Pimentel-Rodrigues, Fernanda Rodrigues, Armando Silva-Afonso, Dener Silva
16	*INDUSTRIAL BUILDING REHABILITATION ASSESSMENT USING BARYCENTRIC DISCRIMINATION*	Maria L. Duarte, Jorge T. Ribeiro, Júlio L. Baptista
17	*THEORETICAL AND EXPERIMENTAL ANALYSIS OF THE WORLD'S LONGEST SUSPENDED FOOTBRIDGE IN 2020*	António Tadeu, Bahareh Ramezani, Antonio Romero, Filipe Bandeira, Filipe Pedro, Sara Dias, Miguel Serra, Michael Brett, Leopold Škerget, Pedro Galvín
18	*DIRECT METHOD TO DESIGN SOLAR PHOTOVOLTAIC TO REDUCE ENERGY CONSUMPTIONS OF AERATION TANKS IN WASTEWATER TREATMENT PLANTS*	Enrico Zacchei, Antonio Colacicco
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20	*CORK GREEN ROOFS CHARACTERIZATION*	João Almeida, Leopold Škerget, António Tadeu, Nuno Simões
21	*SUSTAINABLE ACOUSTIC DESIGN IN CONSTRUCTION – A HOLISTIC APPROACH*	Philip Dunbavin
22	*SUSTAINABILITY AND RISK ASSESSMENT FOR THE DESIGN AND BUILDING OF DAMS*	Enrico Zacchei, José-Luis Molina
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29	*OPTIMIZATION OF THE ALKALINE ACTIVATION OF PRE-TREATED MUNICIPAL SOLID WASTE INCINERATOR BOTTOM ASHES*	Yoleimy Avila, Rui Vasco Silva, Jorge de Brito

31	*ALKALI ACTIVATION OF ELECTRIC ARC FURNACE SLAG: OPTIMUM CONCENTRATION OF THE ALKALI ACTIVATOR AND MECHANICAL PERFORMANCE OF MORTARS*	Dany Kassim, Rui Vasco Silva, Jorge de Brito
32	*PARAMETRIC APPROACH TO SIMPLIFIED LIFE CYCLE ASSESSMENT OF BAMBOO FRAME BUILDINGS*	Eleni Eleftheriou, Edwin Zea, Guillaume Habert, Luis F. Lopez
33	*THE EFFECT OF BUILDING SLENDERNESS AND FLOOR GEOMETRY IN FACADE PHOTOVOLTAIC GENERATION OF HIGH RISE BUILDINGS WITHIN A BLOCK IN THE CITY CENTER OF CHAPECO - BRAZIL*	Isadora Z. Zardo, Miguel T. G. Pacheco, Greissi K. Z. Gheno
34	*EXPERIMENTAL VEGETATION ROOF WITH NOT ONLY BIODIVERSITY POTENTIAL*	Zuzana Vranayová, Frantisek Vranay, Marian Vertal, Alena Vargova, Katarina Cakyova
35	*A STUDY ON HYGROTHERMAL CONDITIONS IN INTERMITTENTLY HEATED OR UNHEATED BEDROOMS IN SOUTHERN EUROPE*	Alessandra Ranesi, Magda Posani, Rosário Veiga, Paulina Faria
36	*NEARLY ZERO WINERIES IN NORTHERN OF SPAIN, INFLUENCE OF CONSTRUCTION TYPES INTO ENERGY EFFICIENCY AND COST*	María del Mar Barbero-Barrera, María Teresa Gómez-Villarino , Fernando Ruíz-Mazarrón , Ignacio Cañas-Guerrero
37	*ASSESSMENT OF HYBRID VEHICLES USING PORTABLE EMISSION MEASUREMENT SYSTEM (PEMS) AS A TRANSITION FOR FULL E-MOBILITY ACHIEVEMENT IN POSITIVE ENERGY DISTRICTS*	Gloria Pignatta, Navid Balazadeh
38	*MOULD GROWTH ON ETICS: THEORETICAL INDICES VS IN SITU OBSERVATIONS*	João Parracha, Lina Nunes, Francisco Gonçalves, Júlia Pereira, Giovanni Borsoi, Inês Flores-Colen, Maria G. Gomes, Ricardo Deus, Rosário Veiga
39	*MONITORING DEGRADATION PATTERNS OF SANDSTONE MONUMENTS AFTER CONSOLIDATION TREATMENTS*	Marco A. Ludovico-Marques
40	*CHARACTERIZATION OF AGRO-WASTES TO BE USED AS AGGREGATES FOR ECO-EFFICIENT INSULATION BOARDS*	Eleonora Cintura, Lina Nunes, Paulina Faria
42	*CHARACTERIZATION OF THERMAL ENERGY DYNAMICS OF MULTI-ZONE RESIDENTIAL BUILDINGS AFTER PRE-COOLING*	Shayan Naderi, Gloria Pignatta, Iain MacGill, Simon Heslop, Dong Chen
43	*UTILIZATION OF BASIC OXYGEN FURNACE SLAG IN GEOPOLYMER CONCRETE*	Nihat Kabay, Hakan Ozkan, Nausad Miyan
44	*UTILIZATION OF WASHING AGGREGATE SLUDGE IN MANUFACTURING ARTIFICIAL AGGREGATE*	Hakan Ozkan, Nihat Kabay, Nausad Miyan
46	*SUSTAINABLE BUILDINGS AS EFFECT OF COOPERATION BETWEEN ARCHITECTS AND ENGINEERS*	Adriana Matei
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53	*MUNICIPALITY HUMAN DEVELOPMENT AND SANITATION: A DATA ENVELOPMENT ANALYSIS STUDY IN THE BRAZILIAN SÃO PAULO STATE*	Pedro A. B. Lima, Gilberto D. Paião Junior, Thalita L. dos Santos, Marcelo Alves, Rosane A. G. Battistelle, Gustavo H. R. da Silva, Enzo B. Mariano
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56	*STUDY OF THERMAL CONDUCTIVITY OF INDUSTRIAL AEROGEL-BASED RENDERS*	Inês Flores-Colen, Samuel Brunner, Jannis Wernery
57	*INFLUENCE OF THE BUILDINGS' HEIGHT ON THE DEGRADATION AND MAINTENANCE CONDITIONS OF NATURAL STONE CLADDINGS*	Cláudia Ferreira, Ana Silva, Jorge de Brito
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