



# SAHC 2018

11<sup>th</sup> INTERNATIONAL CONFERENCE ON STRUCTURAL  
ANALYSIS OF HISTORICAL CONSTRUCTIONS

*Cusco - Perú*

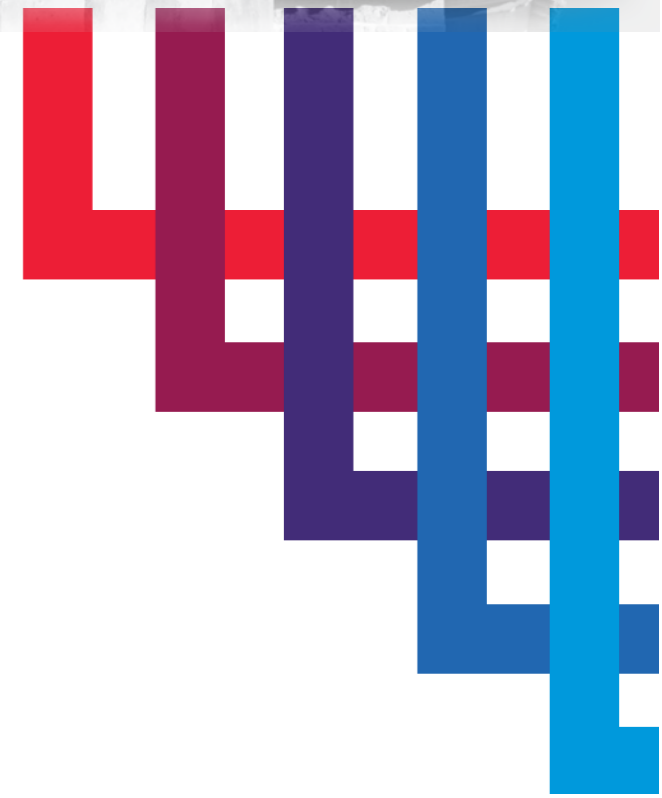
*11-13 september 2018*



# SAHC 2018

Conference Program

Version 1.0 (26/7/2018)



# Conference Program at a Glance

Day 0 Monday September 10, 2018		Day 1 Tuesday September 11, 2018			Day 2 Wednesday September 12, 2018			Day 3 Thursday September 13, 2018			Day 4 Friday September 14, 2018
08:00		AUDITORIUM			AUDITORIUM			AUDITORIUM			
		Opening Ceremony			Keynote Speaker 3: G. Milani			Keynote Speaker 5: C. Cancino			
09:00		Keynote Speaker 1: J. Torero			Keynote Speaker 4: C. Ventura			Keynote Speaker 6: L.J. Castillo			
10:00		Coffee Break			Coffee Break			Coffee Break			
10:30		Auditorium	Room A	Room B	Auditorium	Room A	Room B	Auditorium	Room A	Room B	
		Repair and strengthening techniques I	Interdisciplinary projects and case studies (I)	Durability and sustainability	Inspection, non-destructive and laboratory testing (I)	Numerical modeling and structural analysis (I)	Structural health monitoring	New technologies and techniques (II)	History of construction and building technology (I)	Assessment and intervention of archaeological heritage	
12:30		Lunch Break			Lunch Break			Lunch Break			
13:30			Room A	Room B	Auditorium	Room A	Room B	Auditorium	Room A	Room B	
		Repair and strengthening techniques (II)	Interdisciplinary projects and case studies (II)	Vulnerability and risk analysis regarding natural and man-made (I)	Inspection, non-destructive and laboratory testing (II)	Numerical modeling and structural analysis (II)	New technologies and techniques (I)	Seismic analysis and retrofit (II)	History of construction and building technology (II)	Management of heritage structures and conservation strategies (I)	
14:00		Registration*			Coffee Break			Coffee Break			
15:30		Coffee Break			Coffee Break			Coffee Break			
16:00		Auditorium	Room A	Room B	Auditorium	Room A	Room B	Auditorium	Room A	Room B	
		Repair and strengthening techniques (III)	Interdisciplinary projects and case studies (III)	Vulnerability and risk analysis regarding natural and man-made (II)	Inspection, non-destructive and laboratory testing (III)	Numerical modeling and structural analysis (III)	New technologies and techniques (II)	Seismic analysis and retrofit (III)	History of construction and building technology (III)	Management of heritage structures and conservation strategies (II)	
17:30		Auditorium									
18:00		Registration*			Keynote Speaker 2: R. Bento			Closing Ceremony			
18:30											
19:00					Gala dinner at The San Francisco Monastery						
											Technical visits (optional ****)

\* Registration desk will be opened day 0,1 and 2  
 \*\* See map A.  
 \*\*\* See map. B.  
 \*\*\*\* Registration details for technical visits in the website

	Repair and strengthening techniques (I)	Interdisciplinary projects and case studies (I)	Durability and sustainability
10:30	AUDITORIUM	ROOM A	ROOM B
	140 A TRM-based compatible strengthening solution for rammed earth heritage: investigation of the bond behavior A. Romanazzi, D. V. Oliveira and R. A. Silva	260 Diagnosis and Structural Assessment of the Fortress and Convent of Ínsua de São Isidro F. Navia, S. Granda, S. López, E. Ramírez, R. Ramírez, L. R. Ramos and N. Mendes	458 Aging tests to assess the durability of building materials to salt crystallization - towards a more realistic and effective use of sodium sulfate K. Macwilliam and C. Nunes
	123 Mix Proportion and Engineering Behavior of San-Ho-Tu Building Material for Ancestral Temples and Clan Houses C.-J. Chang, T.-P. Chang, C.-T. Chen and Y.-W. Liu	242 In favour of collaborative research methodologies. The case of the Architectural Design for the Renewal of São Francisco de Real Convent, in Braga, Portugal. M. M. Oliveira, J. P. Fonte and J. P. Silva	429 The Effects of Bird Excrements on Copper and Bronze K. Balogh
	111 Proposal of a CLT reinforcement of old timber floors T. Descamps, B. Roensmans, L. Van Parys and J. Branco	221 Using earthquake-induced damage on historical constructions for the detection of the basic seismological parameters of historical earthquakes S. Mavroulis, A. Grambas, V. Alexoudi, I. Taflampas, P. Carydis and E. Lekkas	315 Historic surfaces' consolidation - multiple treatments. Captured history of changes and advancement in the field of conservation via microstructural consolidation A. Defus and M. Realini
	98 External post-tensioning system for the strengthening of historical stone masonry bridges A. Jimenez Rios and D. O'dwyer	201 Compressive strength of fired-clay brick with variations in composition of rice husk ash compared with ancient bricks in Dvāravatī peroid, Northeast Thailand K. Trakoolngam, S. Promkotra and T. Kangsadan	292 Salt induced degradation on FRP-brick masonry bond C. Gentilini, E. Franzoni, M. Santandrea and C. Carloni
	84 Full-scale pull-down tests on a two-storied rammed earth building with possible strengthening interventions K. Shrestha, T. Aoki, T. Konishi, M. Miyamoto, J. Zhang, N. Takahashi, N. Yuasa, T. Aramaki and P. Wangmo	197 The medieval grange of Cuna – Siena (Italy)- interdisciplinary studies on masonry structures E. Manzoni, F. Casarin, F. Gabbrielli, M. Giamello, E. Giorgi, A. Dusi, A. Magrini, F. Randazzo and S. Dandria	292 Durability Modeling to Determine Long Term Performance of Historic Concrete Structures G. Crevello, P. Noyce and I. Matteini
	61 Experimental investigation of the structural response of adobe buildings to lateral loading before and after the implementation of compatible grout repairs R. Illampas, R. A. Silva, D. C. Charmpis, P. B. Lourenço and I. Ioannou	178 The Unique Baroque Carousel in Hanau, Germany - Renovation, Restauration and Rebuilding of Movement B. Mitnacht	240 Comfort assessment of heritage buildings in Cuenca-Ecuador J. Guerra Galán, J. D. Heras Barros, V. Orellana Gutierrez and V. Heras Barros
	19 Strengthening of masonry vaults with Textile Reinforced Mortars S. De Santis, F. Roscini and G. de Felice	121 Automatic Primitive Extraction on 3D Mesh of Historical Buildings C. Pérez-Sinticala, R. Janvier, X. Brunetaud, S. Treuillet, R. Aguilar and B. Castañeda	55 Extensive renovation, modernization and redevelopment of the Helsinki Olympic Stadium in Finland K. Avellan and E. Belopotocanova
	427 Utilize shape memory alloys for the structural intervention of historical structures B. Forrest and R. El-Hacha	117 The Lossetti Tower in Beura-Cardezza (Italy): structural assessment and rehabilitation of a historical dry stone masonry building F. Monni, E. Quagliarini and S. Lenci	443 Study on carbonation initiated by organics in traditional lime mortar S. Jayasingh and T. Selvaraj
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	144 Sustainable buildings: the rehabilitation project C. Maia and B. Dias	66 Historical and structural analysis of a deteriorated reinforced concrete structure: student residence Camilo Torres in Leuven (Belgium) C. Van Steen, L. Koptopoulou and E. Verstryngge	9 Graphics of rigidity compatibility of composing members of isostatic and hyperstatic structures C. Fonseca
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13:30	Repair and strengthening techniques (II)	Interdisciplinary projects and case studies (II)	Vulnerability and risk analysis regarding natural and man-made (I)
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	377 Characteristics and Preservation of Civilian Conservation Corps Construction in the United States J. Feinberg and M. Schuller	367 Safety of the Architectural Heritage: structural assessment of the Zuccaro's Tower in Mantua A. Saisi, S. Terenzoni, A. Ruccolo and C. Gentile	161 Bartolomeo Ammannati's Fountain: comparisons between different numerical models B. Pintucchi, T. Rotunno, M. Tanganelli and S. Viti
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	303 Safeguarding and Strengthening of the Western Eivan on World Heritage Site Takht-e Soleyman (Islamic Republic of Iran) C. Fuchs, T. Burkert, W. Jaeger and L. Korn	322 Restoration of the Ottoman bath on Kastellorizo F. Chalvantzi and K. Toumpakaris	91 Seismic assessment of the palace of priors in Perugia G. Castori, M. Corradi, A. Borri, R. Sisti and A. De Maria
	244 Patterns of earthquake damage to Korean stone pagoda and seismic hazard mitigation techniques D. M. Kim, C. Park and H. S. Kim	275 Importance of environmental monitoring, after the rehabilitation of heritage masonry buildings in seismic zone: case study M. C. Domizio, N. G. Maldonado, L. Fernández Luco and A. P. Arena	81 Seismic vulnerability assessment of unreinforced masonry churches in central Chile N. Palazzi, L. Rovero, U. Tonietti, J. C. de La Llera and C. Sandoval
	225 Repair of an arched masonry construction for a historic bridge intervention B. Gigla	503 Experimental dynamic behavior of historical buildings at scale model: San Raymundo church, Guatemala R. Torres, A. Blanco, J. De Paz and J. Campo	72 Sacral buildings in Slovenia – seismic risk assessment through simplified methodologies A. Štampfl and V. Bosiljkov
	159 Influence of masonry texture on the shear strength of frcm reinforced panels A. Incerti, A. R. Tilocca, F. Ferretti and C. Mazzotti	451 Structural balance of historical aggregates M. Mosoarca, V. Stoian, M. Florea and M. Niculescu	71 Flooding pedestrians' evacuation in historical urban scenario: a tool for risk assessment including human behaviors G. Bernardini, M. Postacchini, E. Quagliarini, M. D'Orazio and M. Brocchini
	253 Possibilities of Using Fiber Reinforced Mortar and Textile Reinforced Mortar for Strengthening Masonry Columns in Rehabilitation Projects D. Bocan, C. Bocan and A. Keller	442 Production of organic lime mortar to adapt CO2 for construction of scared groves @ Auroville, Puducherry, India. S. S. Pradeep and T. Selvaraj	70 Investigating exposure in historical scenarios: how people behave in fires, earthquakes and floods G. Bernardini, E. Quagliarini and M. D'Orazio
	143 Mechanical behavior of polyurethane adhesives applied to timber joints in repair of historical timber structures A. Kwiecień, K. Rodacki, B. Zając and T. Kozik	433 The restoration of the Skokloster Castle roof structure C. Thelin and F. Höst	36 Seismic vulnerability and risk assessment of historic constructions: the case of masonry and adobe churches in Italy and Chile D. Díaz Fuentes, M. Laterza and M. D'Amato
	153 In-plane behaviour of timber diaphragms retrofitted with CLT panels E. Rizzi, M. Capovilla, M. Piazza and I. Giongo	388 Preliminary structural diagnosis of the Sacsamarca church in Peru using photogrammetry and IR thermography C. Briceño, M. Gonzáles, S. Moreira, C. Yaya and R. Aguilar	483 An Extensive Survey of the Historic Center of Cusco for its Seismic Vulnerability Assessment G. Brando, M. Peruch, C. Mazzanti, E. Spacone, S. K. Sovero Ancheyta and N. Tarque
	498 Structural rehabilitation of Santa Maria de los Reyes convent. Seville (Spain) L. Diaz de La Cruz, Á. Rozas, P. Vilchez and J. Herrera	167 Enhancing Livability through Universal Usability: A Case of City Palace Museum of Udaipur, India S. Vardía, R. Khare and P. Khan	24 Rummage For A Sustainable Earthquake Resistant Solutions, "Construction Techniques & Technologies" Practicing In The Affected Areas Of Northern Pakistan, After The Great Earthquake October 8th, 2005 M. W. Shah, A. A. Khan, I. Ali, W. Khattak, Q. A. Shah, M. A. Shah, L. Shah and S. M. Khan
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16:00	Repair and strengthening techniques (III)	Interdisciplinary projects and case studies (III)	Vulnerability and risk analysis regarding natural and man-made (II)
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	490 Use of mortar plaster and reinforcement for repairing and stiffening of historical construction in Brazil R. M. Da Silva, L. F. Cyrino and A. B. Cintra De Grandi	7 The Sobrado Valim Rehabilitation Project G. Parsekian, D. Barreto, M. Carrilho, V. Domschke and F. Fonseca	477 Preliminary analysis of the effects of centro-italia earthquake on one nave churches G. De Matteis and M. Zizi
	472 SRG composite systems for strengthening masonry structures: from laboratory to field applications P. Casadei and P. Girardello	157 Promoting vernacular architecture, a basis for Building Back Safer? A Case study from Nepal E. Crété, S. Yadav, Y. Sieffert, M. Hajmirbaba, J. Hosta, M. Ferreira Mendes, O. Moles, P. Shrestha and P. Garnier	311 An interdisciplinary approach for the seismic vulnerability assessment of historic masonry buildings. The case study of the ex Jesuits College in Amantea (Italy) R. S. Olivito, S. Porzio and A. Tedesco
	430 A comparison between the bond behavior of SRP and SRG strengthening systems applied to a masonry substrate M. Santandrea, C. Carloni, G. Baietti and S. Kahangi Shahreza	266 Durability, Sustainability and Restorability of the Saudi Desert Village of Historic al-Ghat H. Mortada	226 Seismic vulnerability of old Italian railway stations M. Rota, A. Galasco, A. Penna, G. Magenes and M. Tondelli
	396 Experimental study of the structural behavior of two-leaf masonry wall with and without confinement M. Puma, E. Guerrero, J. Copa and F. Copa	467 Implementation of a Web Platform to Present Real Time Dynamic Monitoring Data from Heritage Structures D. Fosca, P. Porcel, G. Zonno, B. Castañeda and R. Aguilar	188 Vulnerability assessment of monumental masonry structures including uncertainty S. Saloustros, L. Pelà, F. R. Contrafatto, P. Roca and I. Petromichelakis
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	471 Reevaluation of historical buildings with timber-concrete composite in compliance with fire resistance demands K. Holschemacher and U. Quapp	42 Protection and monitoring of three temples close to the excavation of a tunnel in Guadalajara, Mexico R. Meli and A. R. Sánchez Ramírez	252 Defining Behavioral Pattern for Historical Buildings in Izmir, Turkey K. Korkmaz and S. Beeson
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10:30	Inspection, non-destructive and laboratory testing (I)	Numerical modeling and structural analysis (I)	Structural health monitoring
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	185 Estimation of churches frequencies based on simplified geometry parameters S. López, L. Ramos, M. Laterza and P. Lourenço	109 19th Century Iron Dome Structures in the Vienna Hofburg. An Insight into the Simplified Structural Assessment of that Period and its Evaluation using modern Engineering Software G. Hochreiner and G. Styhler-Aydin	479 Structural analysis and monitoring of an 11th century shipwreck S. Bas, O. Karakus, O. Ceylan and A. Ilki
	156 Influence of geometry of cylindrical samples in the mechanical characterization of existing brickwork J. Segura, L. Pelà and P. Roca	106 Finite element modelling and limit analysis of Fastnet lighthouse under impulsive ocean waves A. Pappas, D. D'Ayala, A. Antonini and A. Raby	413 Long-term vibration measurements to enhance the knowledge of a historic bell-tower C. Gentile, A. Ruccolo and A. Saisi
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	115 A proposed test to evaluate efflorescence potential of ceramic blocks A. Baptista, A. Carneiro, G. Parsekian and F. Fonseca	96 Influence of the thickness of vaults and buttresses in the structural response of Mexican Colonial temples M. M. Chávez and F. Peña	279 Static and Dynamic investigation of the Taro masonry bridge in Parma, Italy A. Benedetti, C. Camilla, G. Pignagnoli and M. Tarozzi
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	45 Laboratory and in Situ Calibrations of New Flat Jack Methods for Assessing Masonry Shear Characteristic D. Foppoli and A. Armanasco	49 Numerical modeling of hypothetical quinchá walls on Samaipata Rock J. Kosciuk and J. Kogut	134 Monitoring, Assessment and Diagnosis of Fraeylemaborg in Groningen, Netherlands D. Dais, E. Smyrou, I. E. Bal and J. Pama
	38 Inspection of seismic damage and conservation conditions in modern school buildings in Chile C. Torres and P. Rojas	46 Numerical modeling of crack propagation in masonry structures R. Napolitano, M. Hess, R. Coe-Scharff and B. Glisic	119 Health monitoring with acceleration measurement for maintenance and management in World Heritage Angkor Wat N. Kurata, K. Hattori and K. Temma
	16 Enhancement of the identification of historical timber element's local stiffness based on resistance drilling measurements N. Van Roy, E. Verstryngge and K. Van Balen	29 Finite element modelling of cross-wall ties in multi-wythe walls M. El Rayes and N. Shrive	90 The influence of bell's swaying on neo-gothic cathedral S. Urushadze and M. Pirner
	241 Experimental characterization of solid clay bricks: correlations among mechanical properties E. Garbin, M. Panizza and M. R. Valluzzi	15 Structural assessment of old masonry dams L. Robles and F. Pena	

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13:30	Inspection, non-destructive and laboratory testing (II)	Numerical modeling and structural analysis (II)	New technologies and techniques (I)
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	214 Structural characterization of quarry stone in experimental testing using digital image correlation as a non-destructive technique L. Pérez-Pinedo, H. Badillo-Almaráz and J. Rodríguez-Rodríguez	136 Three-dimensional numerical modelling of historical masonry structures affected by tunnelling-induced settlements A. Amorosi, D. Boldini, G. de Felice, W. G. Lasciarrea and M. Malena	193 Parameterization of structural faults in large historical constructions for further structural modelling thanks to laser scanning technology and computer vision algorithms A. Sánchez-Rodríguez, B. Riveiro, I. Puente, B. Conde, N. Mendes, M. Cabaleiro and P. Lourenço
	213 Seismic Behaviour of Timber-Laced Masonry Structures in the Himalayan Belt D. Dhandapany and A. Menon	131 Assessment of the structural damage on the former San Agustin temple using numerical modelling H. Badillo-Almaraz, A. Orduña-Bustamante, O. Quintero-Sifuentes and J. Orozco-Rojas	187 Application of digital close-range photogrammetry to the modeling of heritage structural elements for its analysis by FEM M. A. Soto-Zamora, I. E. Vizcaíno-Hernandez, R. A. Díaz-Zeledon and J. D. J. Velasco-González
	209 From Brick to Element: Investigating the Mechanical Properties of Calcium Silicate Masonry S. Jafari, R. Esposito and G. Jan Rots	130 Structural Behaviour of Gopurams in South Indian Temples S. Sharma, A. Menon, H. Haridasan and S. J. Samson	155 On the use of sound spectral analysis for the in situ assessment of structural timber D. Riccadonna, G. Schiro, D. Casagrande, M. Piazza and I. Giongo
	205 A XVth century façade: the case study of Palazzo Raimondi in Cremona A. G. Landi	126 Tracking of localized cracks in the finite element analysis of masonry walls S. Saloustros, L. Pelà, M. Cervera and P. Roca	142 The strength of wooden (timber)-glass beams combined with the polyurethane adhesive - DIC and finite element analysis K. Rodacki, B. Zajac, A. Kwiecień, M. Tekieli and K. Furtak
	204 Estimation of mortar compressive strength based on specimens extracted from masonry bed joint D. Łątka, S. Seręga and P. Matysek	295 Nonlinear parametric static analysis of rubble stone masonry walls in Lisbon M. Ponte, J. Milosevic and R. Bento	85 Numerical modeling of tube-jack and flat-jack tests in an unreinforced masonry wall with a regular typology E. Manning, L. F. Ramos and F. M. Fernandes
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	392 Mechanical characterization of adobe constructions using flat jack tests: Case study of the Virgen de la Asunción de Sacsamarca Church K. Tacas, M. Gonzales and R. Aguilar	222 Diagonal Compressive Tests On Double Leaf Ancient Masonry Panels Reinforced With Innovative Cement Based Materials: Advanced FE Simulations E. Bertolesi and G. Milani	40 Connected semantic concepts as base for optimal recording and computer based modeling of CH objects A. Karmacharya, P. Jean-Jacques, S. Wefers, P. Atorf and F. Boochs
	407 An automatic algorithm for the execution and elaboration of sonic pulse velocity tests in direct and tomographic arrangements E. Cescatti, L. Rosato, M. R. Valluzzi and F. Casarin	220 Simple homogenized numerical model for the analysis of multi-leaf masonry walls S. Tiberti and G. Milani	232 Characterization of mechanical properties of ancient masonry from a non-destructive method in situ E. E. Orenday-Tapia, J. Pacheco-Martínez, R. Padilla-Ceniceros, H. Ánimas-Rivera, J. Á. Ortiz-Lozano and D. Gaxiola-Apodaca
	386 Façades of an iconic building in Sao Paulo, Brazil: assessment for restoration design F. Oliveira and V. Bonfim	216 Seismic Vulnerability Assessment of Sri Kedarnath Temple in India T. Bhowmik, G. M. Reddy, Arun Menon and S. T. G. Raghukanth	285 Development, testing and implementation of a SMA-based device prototype for historical constructions D. Cardone, R. Angiuli and G. Gesualdi
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16:00	Inspection, non-destructive and laboratory testing (III)	Numerical modeling and structural analysis (III)	New technologies and techniques (II)		
AUDITORIUM	ROOM A	ROOM B			
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357	Connections of roof-diaphragm to the perimeter walls in historic masonry buildings A. Marini, E. Giuriani, A. Belleri, S. Cominelli and C. Passoni	198	Dynamic behaviour analysis of an English-bond masonry prototype using a homogenized-based discrete FE model L. C. Silva, G. Milani and P. B. Lourenço	488	Correlation between sonic and mechanical test results on stone masonry walls R. Martini, J. Carvalho, A. Arêde and H. Varum
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293	Using sonic testing to obtain mechanical properties of historical masonry H. Van Eldere, L. F. Ramos, E. Verstryngne, N. Shetty, K. Van Balen, C. E. Barroso and D. V. Oliveira	485	Lower bound limit analysis of masonry vaults under general load conditions A. Fraddosio, N. Lepore and M. D. Piccioni	466	Virtual reality for the enhancement of structural health monitoring experiences in historical constructions M. A. Burgos Saavedra, R. Aguilar and B. Castañeda
255	Study on Stone Cultural Heritage's Structural Stability Management – with a focus on Cheomseongdae J. Sang Sun, K. Dong-Soo and K. Derk-Moon	476	Rotational stiffness of connections in a historical steel railway bridge O. Minor and P. Ryjáček	423	Preliminary methodology for the integration of Lean Construction, BIM and Virtual Reality in the planning phase of structural intervention in heritage structures X. Brioso, C. Calderon-Hernandez, R. Aguilar and M. Pando
497	Static and dynamic testing on a brick masonry pavilion vault of the San Francesco di Paola Convent, in Roccabernarda (KR), Italy M. Candela, P. Lopetrone, A. Borri and S. Lagomarsino	456	Structural assessment of masonry arches using admissible geometrical domains A. Deschuyteneer, J.-F. Rondeaux and D. Zastavni	278	Diagonal compression behaviour of masonry walls reinforced with FRM coatings A. Benedetti
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