

Documentation, Restoration and Reuse of Heritage

2-4 November 2022
Porto, Portugal

BOOK OF EXTENDED ABSTRACTS

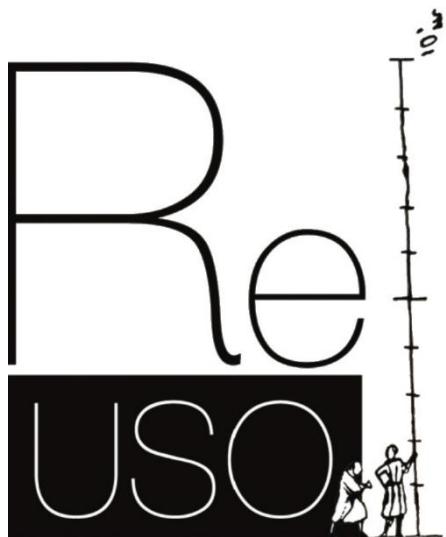


INSTITUTO DA
CONSTRUÇÃO

U.PORTO
FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO



CONSTRUCT



**Documentation, Restoration
and Reuse of Heritage**

Book of Extended Abstracts

2-4 November 2022
Porto, Portugal

www.fe.up.pt/reuso

Extended Abstracts of the
Xth edition of the ReUSO - Documentation, Restoration and Reuse of Heritage

Format: Ebook (pdf)

ISBN: 978-972-752-297-2

Porto, Portugal, 2-4 November 2022

H. Varum, A. Furtado & J. Melo (eds.)

The Conference Organizing Committee are not responsible for the statements of opinions expressed in this publication. Any statements of views expressed in the extended abstracts contained in this Book are those of the author(s). Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

Chair

Humberto Varum
U.Porto / FEUP, Conference Chair

Honorary Committee

António Sousa Pereira (Rector) | UP | Portugal
Rui Artur Bárto Calçada (Director) | FEUP | Portugal
João Pedro Xavier (Director) | FAUP | Portugal
Ignazio Marcello Mancini (Dean) | U. Basilicata | Italy
Giuseppe De Luca (Director) | U. Firenze | Italy
Aldo Corcella (Director) | DiCEM/U. Basilicata | Italy
Susanna Caccia Gherardini (Professor) | U. Firenze | Italy

ReUSO Founding Committee

Stefano Bertocci | U. Firenze | Italy
Giovanni Minutoli | U. Firenze | Italy
Fauzia Farneti | U. Firenze | Italy
Susana Mora | U.P. Madrid | Spain
Silvio Van Riel | U. Firenze | Italy

Organising Committee

Humberto Varum, Portugal
Alexandre Costa, Portugal
André Furtado, Portugal
Aníbal Costa, Portugal
António Arêde, Portugal
Bruno Marques, Portugal
Bruno Quelhas, Portugal
Cílisia Ornelas, Portugal
Clara Vale, Portugal
Esmeralda Paupério, Portugal
Hipólito Sousa, Portugal
Hugo Rodrigues, Portugal
João Miranda Guedes, Portugal

José Melo, Portugal
José Miguel Rodrigues, Portugal
Marco Faggella, Italy
Miguel Malheiro, Portugal
Nelson Vila Pouca, Portugal
Patrício Rocha, Portugal
Pedro Delgado, Portugal
Rui Póvoas, Portugal
Rui Silva, Portugal
Teresa Ferreira, Portugal
Vasco Freitas, Portugal
Xavier Romão, Portugal

Scientific Committee

Humberto Varum, Portugal
Agostino Catalano, Italy
Alexandre Costa, Portugal
Alice Tavares, Portugal
Ana Tostões, Portugal
Ana Velosa, Portugal
André Furtado, Portugal
Andrea Nanetti, Singapore
Angelo Lucchini, Italy
Aníbal Costa, Portugal
Antonella Guida, Italy
Antonello Pagliuca, Italy
Antoni Moreno-Navarro, Spain
António Arêde, Portugal
Antonio Conte, Italy
Calogero Bellanca, Italy
Camilla Mileto, Spain
Caterina Palestini, Italy
Clara Vale, Portugal
Damiano Lacobone, Italy

Juan A. García Esparza, Spain
Juan B. Aznar Mollá, Spain
Lorenzo Jurina, Italy
Luis Miguel Correia, Portugal
Luis Palmero Iglesias, Spain
Manlio Montuori, Italy
Manuela Grecchi, Italy
Marcello Balzani, Italy
Marco D’Orazio, Italy
Marco Faggella, Italy
Marco Morandotti, Italy
Marco Pretelli, Italy
Marco Tanganeli, Italy
Marcos Tognon, Brazil
Maria Fernandes, Portugal
María Paz Sáez Pérez, Spain
Mariana Correira, Portugal
Marianna Calia, Italy
Mariella De Fino, Italy
Marina Fumo, Italy

Daniel Oliveira, Portugal	Mario Bevilacqua, Italy
Daniela Concas, Italy	Michele D'Amato, Italy
Daniela Esposito, Italy	Miguel Malheiro, Portugal
Edoardo Curra, Italy	Nadia Ieksarova, Ukraine
Eduardo Júlio, Portugal	Nelson Vila Pouca, Portugal
Elena Cantatore, Italy	Nicola Masini, Italy
Emanuela Chiavoni, Italy	Nicola Santopuoli, Italy
Emanuele Romeo, Italy	Nicola Tarque, Peru
Enrico Sergio Mazzucchelli, Italy	Nina Avramidou, Italy
Enrico Sicignano, Italy	Nuno Valentim, Portugal
Enrico Spaccone, Italy	Panagiotis Asteris, Greece
Esmeralda Paupério, Portugal	Patrício Rocha, Portugal
Fabio Fatiguso, Italy	Paulo Cruz, Portugal
Fauzia Farneti, Italy	Paulo Lourenço, Portugal
Fernando Branco, Portugal	Pedro Castro Borges, México
Fernando Pinho, Portugal	Raffaella Lione, Italy
Fernando Vegas, Spain	Raimundo Mendes da Silva, Portugal
Francesca Fatta, Italy	Renata Prescia, Italy
Gianluca Belli, Italy	Reynaldo Esperanza Castro, Mexico
Gianni Minutoli, Italy	Riccardo Gulli, Italy
Giorgio Monti, Italy	Rita Bento, Portugal
Giovanni Pancani, Italy	Roberta Maria Dal Mas, Italy
Giovanni Santi, Italy	Roberta Spallone, Italy
Giuseppe Margani, Italy	Roberto Castelluccio, Italy
Graziella Bernardo, Italy	Romeu Vicente, Portugal
Guido Camata, Italy	Rosa Maria Caballero, Spain
Hipólito Sousa, Portugal	Rosário Veiga, Portugal
Hugo Rodrigues, Portugal	Rui Póvoas, Portugal
Ignacio Lombillo, Spain	Sandro Parrinello, Italy
Inês Flores-Cólen, Portugal	Sérgio Lagomarsino, Italy
Ippolita Mecca, Italy	Sibel Onat Hattap, Turkey
Javier Mosteiro, Spain	Silvio Van Riel, Italy
João Appleton, Portugal	Soraya Genin, Portugal
João Lanzinha, Portugal	Stefano Bertocci, Italy
João Mascarenhas Mateus, Portugal	Susana Alonso-Muñoyerro, Spain
João Miranda Guedes, Portugal	Tayyibi Abdelghani, Morocco
Joaquim Teixeira, Portugal	Teresa Ferreira, Portugal
Jolanta Sroczynska, Poland	Tiago Ferreira, Portugal
Jorge Branco, Portugal	Tiago Pinto, Portugal
Jorge Pinto, Portugal	Vanessa Borges Brasileiro, Brazil
José Aguiar, Portugal	Vasco Freitas, Portugal
José Melo, Portugal	Veronica Vitiello, Italy
José Miguel Rodrigues, Portugal	Vito Domenico Porcari, Italy
José Ramon Albiol Ibanez, Spain	Xavier Romão, Portugal

CONTENTS

Plenary Keynote Lectures

Methodology for minimum intervention in sustainable Earthen architecture	1
<i>Aníbal Costa, Alice Tavares</i>	
Gran Canaria: patrimonio diverso	9
<i>Juan Sebastián López García</i>	
The rehabilitation of Bolhão Market, Porto. Project, process and the future of historical central markets	11
<i>Nuno Valentim</i>	

Participants communications

Process to optimize the life cycle of used timber elements.	13
<i>Stefania De Gregorio</i>	
The New Towns of Sierra Morena	15
<i>Emma Mora-Figueroa and José Luis Almansa</i>	
The Monastery of Sant Miquel d'Escornalbou (Tarragona, Spain): multidisciplinary research for the understanding of the relation between the religious complex, the territory and the European Franciscan network.	17
<i>Soler Maria, Ferretti Roberta and Cioli Federico</i>	
The abandoned mining complexes in Sardinia. Potential approaches to recover their value	19
<i>Dessì Maria</i>	
Problems of Intervention in Non-Monumental Architectures in Brazilian Historic Centers: a case study of the Tiradentes Town Hall.	21
<i>André Dangelo, Vanessa Brasileiro, Valéria França, David Machado and Luiza S. Araújo</i>	
The musealization of modern residential architecture.....	23
<i>Casale Teresa and Garda Emilia</i>	
Evaluating the impact of infrastructures on urban ecosystems: application of the Envision Protocol to the "Sopraelevata" of Genoa	25
<i>Vite Clara and Gaggero Marta</i>	
Valorisation and Reuse of Catholic Heritage in the Balkan Peninsula.....	27
<i>Trematerra Adriana, Gennaro Pio Lento and Luigi Corniello</i>	
The Palladian villas: landscape and architecture. Protection of an environmental system.....	29
<i>Giovanni Minutoli</i>	
Recovery and reuse in the walkway architecture: looking to the future for dismissed rural buildings in Italy and France	31
<i>Garda Emilia and Renzulli Alessandra</i>	
Natural hydraulic mortars for rehabilitation of historic buildings: review of the state of the art	33
<i>Fernanda Calado Mendonça and Lino Maia</i>	
Place and identity. Conceiving the Genius Loci.....	35
<i>Di Mari Giuliana, Garda Emilia Maria, Renzulli Alessandra and Vitale Denise</i>	
The Garden of Remembrance on the ruins of the Marburg synagogue in Germany: memory, identity and reuse.....	37
<i>Rossella Leone, Roberto Ragione and Nicola Santopuoli</i>	
Maintaining and reusing in tourism accommodation construction in Baixo Tâmega Valley	39
<i>Jorge Pinto, Isabel Bentes, Cristina Reis, Paula Luísa, Sandra Pereira, Zięba Zofia and Anabela Paiva</i>	

Survey of the Leiria Castle Tower.....	41
<i>Carina Carmo, Ana Silva, Tamiris Dourado, Francisca Antunes, Francisca Pinto, Fábio Mota, Catarina Freitas, David Pereira, Vitor Antunes, Dener Silva, Inês Bourgeois, Ana Alves and Hugo Rodrigues</i>	
Understanding, interpreting, and shaping a dialogue between drawing and digital modelling. The case study of Donatello's Pulpit	43
<i>Sandro Parrinello, Francesca Picchio and Silvia La Placa</i>	
Earth-based mortars at the Wupatki Pueblo: a preliminary assessment through non-destructive testing.....	45
<i>Laura Gambilongo, Alberto Barontini and Paulo Lourenço</i>	
WoodBox modules: a flexible and re-usable emergency solution for temporary retail activities	47
<i>Lucchini Angelo, Mazzucchelli Enrico Sergio, Scrinzi Giacomo, Pastori Sofia, Stefanazzi Alberto, Silva Stefania and Severgnini Mario</i>	
The factory and its doom. Considerations about the non-application of the different knowledge for the restoration and use of industrial heritage in the case of Olivetti Brasil	49
<i>Di Mari Giuliana and Garda Emilia</i>	
The Rehabilitation Impact of Historic Houses on Cultural Heritage Sustainable Actions for the Historic Centre of Oporto, World Heritage Site.....	51
<i>Inês Rosa, Patrícia Moreira, João Miranda Guedes and Eduarda Vieira</i>	
Shen Joan Vladimirit Orthodox Monastery: reuse and conservation	53
<i>Trematerra Adriana</i>	
The Fort of SS. Salvatore in Messina. Relief, stratifications and degradation of a fortification between the Middle Ages and the Modern Age	55
<i>Alessio Altadonna, Giuseppe Martello, Antonino Nastasi and Fabio Todesco</i>	
Strategies for rural settlements and marginal areas regeneration: multiscale and multidisciplinary approach for a systemic process	57
<i>Fernanda Speciale, Manuela Grecchi and Laura Elisabetta Malighetti</i>	
Spaces, society, university: for a renewed teaching of restoration. The case study of Amideria Chiozza	59
<i>Alessandra Marin and Sergio Pratali Maffei</i>	
Improving Cultural Heritage conservation: LSTM neural networks to effectively processing end-user's maintenance requests.....	63
<i>Marco D'Orazio, Gabriele Bernardini and Elisa Di Giuseppe</i>	
CityGML-based models for the qualification of cultural built environment: the 3D Semantical City Model of the historic district of Carovigno (BR), Italy.....	65
<i>Margherita Lasorella, Elena Cantatore and Fabio Fatiguso</i>	
Recupero del campanile a vela della Chiesa di San Domenico a Bari	67
<i>Serra Alessandro de Marco Marina</i>	
Veiled Head. Restoration and extension of the town hall of Capo d'Orlando	69
<i>Pier Paolo Lagani</i>	
Towards zero plastic waste: reuse and recycling of PolyEthylene Terephthalate (PET) sand	71
<i>Beibei Xiong, Cristoforo Demartino, Devid Falliano and Giuseppe Carlo Marano</i>	
Bloco da Carvalhosa, The South Terraces Reinterpretation.....	73
<i>Henrique Ferreira, Carlos Maia and Paulo Mendonça</i>	
Adaptive reuse as a strategy for overcoming obsolescence: the "Mercato dei Fiori" in Pescia.....	75
<i>Maurizio De Vita, Laura Marchionne and Elisa Parrini</i>	
The recognition of cultural value as an element of the recovery project for the XX Century Heritage. Application of the ICOMOS Methodology to the ex S.M.O.M. of Pozzuoli	77
<i>Veronica Vitiello, Roberto Castelluccio and Silvia Trampetti</i>	
A methodology for the comfort upgrading and the microclimate management: a case study	79
<i>Mariangela De Vita, Chiara Marchionni, Marianna Rotilio, Giovannna Di Cresce and Pierluigi De Berardinis</i>	

Methodological proposal for the analysis of the heritage values of buildings for intervention decisions	81
<i>Fatima Benchenni and Juan Monjo-Carrió</i>	
Healthcare setting enhancements for Covid-19 emergency: sustainability and seismic management	83
<i>Chiara Marchionni, Martina Sciomenta, Giulio D'Alessandro, Francesco Carozza and Massimo Fragiacomo</i>	
Circular approach for deep renovation of historic building heritage. The case of a manor villa in Argelato, Bologna	85
<i>Cecilia Mazzoli, Lorna Dragonetti, Rachele Corticelli and Annarita Ferrante</i>	
The use and the conservation of historic buildings. Case studies in the Alentejo region, Portugal.....	87
<i>Maria Fernandes and Maria João Costa</i>	
Place and identity. Conceiving the <i>Genius Loci</i>	89
<i>Giuliana Di Mari, Emilia Maria Garda, Alessandra Renzulli and Denise Vitale</i>	
The Preservation of Built Heritage Typical Characteristics in through the Codes of Practice. An Operational Tool for the Renovation of San Giovanni Lipioni's Heritage	91
<i>Carlo Constantino, Anna Chiara Benedetti, Nicola Mantini, Cristiana Bartolomei and Giorgia Predari</i>	
Influence of calcium chloride on the properties of lime pastes with pozzolanic additions.	93
<i>Leane Priscilla Bonfim Sales and Aline Figueiredo da Nóbrega</i>	
The building of the Gioventù Italiana del Littorio in Forlì converts into a Museum of Gymnastics and an Auditorium. Restoration and reuse of dissonant architecture.....	95
<i>Andrea Savorelli and Chiara Atanasi Brilli</i>	
Historical rural architecture of North Portugal and Spanish Galicia – analysis of vernacular forms and concept of adaptation for cultural tourism needs, case study of Porreiras in Portugal.....	97
<i>Marta Orszt and Elżbieta Raszeja</i>	
Glocalization design strategies of multinational enterprises in the context of revitalizing historic districts: Case studies in China and Europe	99
<i>Xi Wei, Xin Wu, Qiang Xu, Jiajun Li and Marianna Calia</i>	
Indoor air quality and ventilation: two fundamentals to define Healthy Buildings.....	101
<i>Maria Sofia Savoca Ludovica</i>	
Projection mapping for the enhancement of Estense wall paintings: a workflow for complex surfaces and the management of colors.....	103
<i>Manuela Incerti and Stefano Giannetti</i>	
Integrated investigation methodologies for architectural Heritage conservation and promotion: La Romita di Cesi (TR), Umbria, Italy.....	105
<i>Anastasia Cottini and Pietro Becherini</i>	
Bridging tradition and modernism in the reuse of built heritage. Fernando Távora's design approach at the Porto University Club	107
<i>David Ordoñez-Castañon and Teresa Cunha Ferreira</i>	
Review on the application of ceramic residues in mortars	109
<i>Fernanda Calado Mendonça and Lino Maia</i>	
The reuse of the architectural heritage in a state of ruin as a strategy for the conservation. The “Canto di Stampace” in Pisa	111
<i>Laura Marchionne and Elisa Parrini</i>	
Start over from the fragment. Some notes on old Gibellina and new Gibellina.	113
<i>Daniela Esposito and Daniela Concas</i>	
The energy requalification of an author's social housing complex Ridolfi's INCIS houses: a challenge for heat- reflective coatings.....	115
<i>Giuseppina Currò, Ornella Fiandaca and Giovanni F. Russo</i>	
Waterfront Renaissance in Bagnoli (Italy).	117
<i>Angelica Rocco and Dora Francesca</i>	

Sustainability in historic centres. Analysis of different variables of the built environment	119
<i>Cristina Buenaño, Juan A. García-Esparza and Pablo Altaba</i>	
The reuse of Lisbon convent typologies into collective housing.....	121
<i>José Miguel Silva</i>	
Technical analysis of the use of the waste from ornamental rock in coating mortar.....	125
<i>Ivnna Alves de Lima, Helaine Silva Nascimento, Perboyre Barbosa Alcântara</i>	
Ancient Monastery of S. Spirito in Bergamo: the rebirth.....	127
<i>Beatrice Bolandrini, Roberta Grazioli and Simone Tribbia</i>	
Fragility and recovery of colonial architecture: toward sustainable rehabilitation in Morocco	131
<i>Giovanni Santi and Majda Abida</i>	
The value of use and scheduled maintenance of historical buildings with architectural interest: the case study of the Quaglietta Castle in Campania (Italy).	133
<i>Eliana Basile and Gigliola D'Angelo</i>	
The reuse and reliving of space in architectural heritage. Proposal for intervention in Tabacalera, Valencia	135
<i>Graziella Bernardo and Luis Manuel Palmero Iglesias</i>	
Intervention Methodology in the Porto Burgeoise House – The conservation of heritage values is an environmentally sustainable action	137
<i>Joaquim Teixeira and Rui Fernandes Póvoas</i>	
The cloister of Santa Marta in Bergamo: from the restoration by Luigi Angelini to the current context of the new Piacentiniano Centre.....	139
<i>Antonella Versaci and Alessio Cardaci</i>	
Adaptive reuse of built heritage in Portugal: Alcino Cardoso House (1971-1991) by Álvaro Siza as a reference case study	141
<i>Teresa Cunha Ferreira, Eleonora Fanitini, David Ordoñez-Castañon, Miguel Coutinho and Tiago Cruz</i>	
The Rehabilitation Impact of Historic Houses on Cultural Heritage Sustainable Actions for the Historic Centre of Oporto, World Heritage Site.....	143
<i>Inês Rosa, Patrícia R. Moreira, João Miranda Guedes and Eduarda Vieira</i>	
Sustainable assessment for ancient timber structures with multi criteria decision analysis: the Cloister of Michelangelo in the Diocletian Baths	145
<i>Silvia Santini, Vittoria Borghese and Carlo Baggio</i>	
Presentation of a methodology for the analysis of old industrial chimneys	147
<i>Rui Silva, Nelson Vila Pouca, Patrício Rocha, Paupério Esmeralda and António Arêde</i>	
Understanding to maintain the INA-CASA experimentation. Minnucci and public housing in Brindisi.....	149
<i>Carla Chiarantoni</i>	
Fortresses in Portugal. Conservation and basis for new uses	151
<i>Esmeralda Paupério, António Arêde and Rui Silva</i>	
Raw earth and 'circular' application methodologies 4.0	153
<i>Giulio Pacente, Antonella Guida, Graziella Bernardo and Luis Manuel Palmero Iglesias</i>	
H-BET Historic Built Environment Typologies. Open spaces and SUOD events in the compact historic town	155
<i>Edoardo Currà, Alessandro D'Amico, Martina Russo, Marco Angelosanti, Enrico Quagliarini and Cassia De Lian Cui</i>	
The reuse of an aristocratic palace in inland Cilento (Salerno, Italy).....	159
<i>Francesco Polverino and Claudia Sicignano</i>	
Hypothesis of "Dogana" recovery at the Magdalena Bridge.....	161
<i>Renato Iovino, Ippolita Mecca, Emanuele La Mantia and Flavia Fascia</i>	
Garden as Architectural Heritage of the Bastion Castle Ensemble	163
<i>Olha Tikhonova</i>	

Recovering the modern. A “fragile” work of Ignazio Gardella.....	165
<i>Annalisa Dameri and Paolo Mellano</i>	
The difficult “reuse” of historical heritage: the case of the Scardavilla di Sopra Monastery in Meldola.....	167
<i>Fauzia Farneti and Silvio Van Riel</i>	
Traditional Dwellings as Wildlife Habitat – Baixo Tâmega Valley Case	169
<i>Jorge Pinto, Isabel Bentes, Zofia Zięba, Cristina Reis and Sandra Pereira</i>	
The palace of the Forest and Grove of Heras: intervention of Manuel del Olmo in a property of the duke of Infantado.....	171
<i>Carlos González Duque</i>	
Pro-mobility: analysis, study and research of the most inaccessible archaeological heritage	173
<i>Adela Rueda Márquez de la Plata, Pablo A. Cruz Franco and Jorge A. Ramos Sánchez</i>	
Polychrome majolica of Apulian domes: history, technique, pathology and conservation	175
<i>Mariella de Fino, Vito Domenico Porcari, Albina Sciotti, Stefano Sica, Antonella Guida and Fabio Fatiguso</i>	
Regeneration and salutogenic design and regeneration for building heritage	177
<i>Rosa Maria Vitrano</i>	
The role of landscape study in Architecture Degree courses.....	179
<i>Cecilia Sodano and Nicola Santopuoli</i>	
A teaching experience in cooperation between University and Municipality for the reuse of an architectural complex in Northern Italy	181
<i>Eva Coisson, Chiara Vernizzi and Elena Zanazzi</i>	
Traditional Materials in Higher Education	183
<i>Ana Velosa</i>	
The Sacro Monte and the Convent of San Vivaldo in Montaione (FI).....	187
<i>Giovanni Pancani and Lorenzo Matteoli</i>	
Architectural heritage: intervention to continue	189
<i>Miguel Malheiro</i>	
Villages and regeneration	191
<i>Claudia Battaino and Maria Paola Gatti</i>	
Diagnostics archive data for the analysis of the Architectural Heritage’s conservation state	193
<i>Laura Morero, Francesca Visone, Vito Domenico Porcari, Guida Antonella and Massini Nicola</i>	
Identity of Apulia’s wine heritage. Knowledge and valorisation of the F.Ili Folonari wine establishment in Squinzano (LE).....	195
<i>Antonella Guida, Grazziella Bernardo, Antonio Monte, Alessandro Lanzolla and Alexia Giannone</i>	
Documentation, conservation, and reuse planning activities for disused cultural heritage	197
<i>Marco Morandotti and Elisabetta Doria</i>	
Behavioural decision-making in sustainable conservation of built heritage.....	199
<i>Joana Gonçalves, Ricardo Mateus, José Silvestre and Ana Pereira Roders</i>	
Microclimatic monitoring as basis of a project process: an experimentation in Rome	201
<i>Gaia Turchetti</i>	
Around roman square: digital documentation and communication	205
<i>Martina Attenni, Vittoria Castiglione, Alfonso Ippolito, Mahsa Nousrati Kordkandi and Simone Helena Tanoue Vizioli</i>	
The reuse of S. Domenico Church in L’Aquila; adaptive strategies for the design of a new congress hall	207
<i>Alessandra Bellicoso, Pierluigi De Berardinis, Mariangela De Vita, Danilo Di Donato, Gianni Di Giovanni, Tullio de Rubeis, Marianna Rotilio and Alessandra Tosone</i>	
Sustainable reuse of vernacular architecture for rural tourism development.....	209
<i>Albina Sciotti, Mariella De Fino and Fabio Fatiguso</i>	

The training of the conservator-restorer in the School of Arts of the Universidade Católica Portuguesa (Porto-Portugal). The challenges of 21st century towards sustainable conservation.....	211
<i>Eduarda Vieira and Patrícia Moreira</i>	
The theoretical foundation of architectural restoration.....	213
<i>Cesare Crova</i>	
Architectural Restoration between Research and Project: results of the first decade of experience in the Building Engineering-Architecture Course (2012-2022)	215
<i>Nicoletta Marconi and Valentina Florio</i>	
Teaching Architectural Conservation Design: a resilient experience during COVID-19 pandemic in Brazil	219
<i>Pedro Murilo Gonçalves de Freitas</i>	
Behavioural-design-based risk assessment and mitigation against floods in historical urban built environment: a virtual reality approach.....	221
<i>Gabriele Bernardini, Alessandro D'Amico, Enrico Quagliarini and Ruggiero Lovreglio</i>	
Toward quick multi-risk mitigation in historic Public Open Spaces: a behavioral-design approach in typological scenarios for heatwaves and terrorist acts	223
<i>Gabriele Bernardini, Enrico Quagliarini and Marco D'Orazio</i>	
Implementing open-source information systems for assessing and managing the seismic vulnerability of historical constructions.....	225
<i>Rafael Ramírez Eudave, Daniel Rodrigues, Tiago Ferreira and Romeu Vicente</i>	
Probabilistic analysis of the corrosion hazard at territorial scale for supporting the preservation of concrete structures in coastal areas.....	227
<i>Giuseppe Quaranta, Gian Felice Giaccu, Bruno Briseghella and Camillo Nuti</i>	
Spontaneous rural settlements in the Emilia 2012 seismic aftermath: strategies for the enhancement of the countryside landscape.....	229
<i>Montuori Manlio</i>	
Diagnostic campaigns and structural assessment of an existing masonry buildings	231
<i>Riccardo Mario Azzara, Vieri Cardinali, Maria Teresa Cristofaro and Marco Tanganelli</i>	
Compression behaviour of heavily damaged concrete specimens confined with FRP.....	233
<i>Alfonso Cobo Escamilla, María Isabel Prieto Barrio, Alicia Zaragoza Benzal and Daniel Ferrández Vega</i>	
Use of stainless-steel corrugated bar as reinforcements in new and heritage concrete structures that require enhanced durability	235
<i>Asunción Bautista and Francisco Velasco</i>	
Extreme wind events and risk mitigation: overview and perspectives for resilient building envelopes design in the Italian context	237
<i>Enrico S. Mazzucchelli, Giacomo Scrinzi, Sofia Pastori, Paolo Rigone, Angelo Lucchini, Dario Trabucco and Martino Milardi</i>	
Effect of corrosion on the mechanical behaviour of reinforcement in concrete structures.....	239
<i>Alfonso Cobo Escamilla, María Isabel Prieto Barrio, Alicia Zaragoza Benzal and Daniel Ferrández Vega</i>	
Traditional stone masonry walls subjected to blast and axial loadings	241
<i>J. F. M. Conceição, Fernando Pinho and Joaquim B.</i>	
Evaluation of the seismic vulnerability of Coimbra's old city center: A comparative study between 2009-2021.....	243
<i>Marcos Antonio Chiamulera, Tiago Ferreira, Romeu Vicente and J. Mendes da Silva</i>	
Optimal reinforcement of existing masonry and reinforced concrete structures using evolutionary algorithms.....	245
<i>Fabio Di Trapani, Antonio Pio Sberna, Cristofo Demartino and Giuseppe Carlo Marano</i>	
Methodology for Assessing the Degradation Level of Existing Structures with a Parameterized Cubic Damage Model	247
<i>Erik Dutra and João Pantoja</i>	

SHM for failure propagation detection in steel truss bridges	249
<i>Manuel Buitrago, Giacomo Caredda, Elisa Bertolesi, Cristina Porcu, Pedro Calderón and José Adam</i>	
Seismic vulnerability assessment of a Medieval urban cluster identified as a complex Historical Palace: Palagio di Parte Guelfa in Florence.....	251
<i>Vieri Cardinali, Anna Caranti, Anna Livia Ciuffreda, Massimo Coli, Mario De Stefano and Marco Tanganeli</i>	
Three in one. A step towards a rehabilitation 4.0	253
<i>Isabel Bentes, Jorge Pinto, Sandra Pereira, Carla Teixeira and Anabela Paiva</i>	
Reflections on the mismatch between historic preservation and risk management policies in Brazil: case study of the municipality of Cachoeira, Bahia	257
<i>Alexandra Cruz Passuello, Eloisa Maria Adami Gazzon, Vanessa Gomes Gonçalves, Bruna Souza Rosa and Maria da Graça Andrade Dias</i>	
The Assessment of Urban Identity: A Methodological Approach.....	259
<i>Alexandra Calheiros, Joana Correia, Íris Gouveia and Inês Lopes</i>	
Catastrophic Destruction of the Cultural Heritage of Odessa, XX-XXI c.c.....	261
<i>Nadiia Yeksarova, Vladimir Yeksarov and Andrii Yeksarov</i>	
Sarajevo military brownfields. Principles for adaptive reuse	263
<i>Salihbegović Amra and Chizzoniti Domenico</i>	
Mosul's cultural and social heritage reconstruction after ISIS war.....	267
<i>Laura Nicolini</i>	
Architectural heritage and armed conflicts. The bombing of Potenza in Basilicata in 1943	269
<i>Enza Tolla and Giuseppe Damone</i>	
War, yesterday and today. Documentation of the destruction of and damage to historic-monumental buildings through testimony and recounting by the mass media.....	271
<i>Maria Giovanna Putzu, and Fabrizio Oddi</i>	
The Fairground of Lebanon in Tripoli between pre-war and post-war period. Events, Meanings and Future	273
<i>Francesca Albani and Joe Zaatar</i>	
The DALIH database for recording disaster damage and loss data for cultural heritage	275
<i>Xavier Romão, Esmeralda Paupério and Olha Tikhonova</i>	
The renovation of the urban space of the industrial areas discontinued after the second world war. The case of the Costantino cotton factory in Bari.....	277
<i>Carla Chiaramonti</i>	
Workflow for virtualisation of historic gardens and their vegetation. The historic garden of la Arguijuela de arriba (Cáceres, España)	279
<i>Carlos Rodríguez Sánchez, Pablo Alejandro Cruz Franco and Elena Gómez Bernal</i>	
Some remarks on the interoperability performance of HBIM models for structural conservation and upgrading of building aggregates in the Italian minor centres.....	281
<i>Adriana Marra, Giovanni Fabbrocini and Ilaria Trizio</i>	
Pantalica Rupestre: digital survey for the image of rock-cut Architecture.....	283
<i>Carlo Inglese, Roberto Barni and Marika Griffò</i>	
Assessing the quality of Terrestrial Laser Scanning and Mobile Laser Scanning for a preliminary approach to a study on laser scanning of historic gardens	285
<i>Caroline Machado and Grazziella Del Duca</i>	
Computational 3D modeling supporting the preservation of historic timber roofs: the case of San Pietro's Cathedral in Bologna	287
<i>Angelo Massafra, Davide Prati, and Giorgia Predari</i>	
On surfaces over time: assessment of degradation and monitoring of the effectiveness of consolidation and protective treatments	289
<i>Graziella Bernardo, Antonella Guida and Francesca Visone</i>	

Decay detection in historic buildings through image-based deep learning	291
<i>Bruno Silvana, Rosella Alessia Galantucci and Antonella Mussico</i>	
Methodology for the generation of 3D city models and integration of HBIM models in GIS: Case studies	293
<i>César A. Carrasco, Ignacio Lombillo and Javier M. Sánchez-Espeso</i>	
Implementation of a structural health monitoring using optic fiber sensors in the Monastery of Batalha	295
<i>Inês Bourgeois, Luís Pereira, Paulo Antunes, Carlos Marques, Victor Ferreira and Hugo Rodrigues</i>	
Physical prototyping of digital twins for the documentation, protection and dissemination of Heritage	297
<i>María Pérez Sendín, Pablo Alejandro Cruz Franco and Antonio Gordillo Guerrero</i>	
Integration of 3D modelling with photogrammetry applied on historical images for cultural heritage.....	299
<i>Francesca Condorelli and Sara Morena</i>	
LabSAMPA – Laboratory for documentation of historical architecture in São Paulo: An experience of didactic cooperation between the Faculdade de Arquitetura e Urbanismo da Universidade de São Paulo and the Dipartimento di Architettura dell’Università degli Studi di Firenze, using Laser Scanner 3 D technology and photogrammetry.....	301
<i>Stefano Bertocci, Regina Helena Vieira Santos, Luciano Migliaccio and Beatriz Piccolotto Bueno</i>	
Scan-to-BIM applied to heritage conservation: a case study of Aldeia do Fujaco	303
<i>Gabriel Sugiyama, Hugo Rodrigues and Fernanda Rodrigues</i>	
3D digitalisation techniques for the HBIM modelling of an existing building. Application to the inventory of defects and the management of the maintenance of a facade	305
<i>César A. Carrasco, Javier M. Sánchez-Espeso and Ignacio Lombillo</i>	
Photogrammetry and 3D printing for conservation and disclosure of Cultural Heritage	307
<i>Sara Gonizzi Barsanti and Adriana Rossi</i>	
New life for on-site concrete demolition for a recovery project in Tres Cantos, Madrid: from residue to green finishing.....	309
<i>Giuseppe Trinchese, Alessia Verniero and García López de la Osa Gregorio</i>	
Monitoring the thermal comfort of a multifamily housing building from the Modern Movement period	311
<i>Ivo Silva, Carlos Maia and Paulo Mendonça</i>	
Remote Sensing and architectural survey for the restoration of Al Raabiya mosque, Mosul (Iraq).....	313
<i>Stefano Bertocci, Matteo Bigongiari and Pietro Becherini</i>	
Material re-use in 3D printed building components	315
<i>Stelladrianna Volpe, Sangiorgio Valentino, Andrea Petrella, Michele Notarnicola, Humberto Varum and Fiorito Francesco</i>	
Integrated approach based on UAV and NDT for assessment of Roman Concrete Groin Vaults.....	317
<i>Silvia Santini, Carlo Baggio, Valerio Sabbatini and Claudio Sebastiani</i>	
Implementation of a wireless structural monitoring system and reverse engineering for numerical analysis purposes of a 16th century church	319
<i>António Arêde, Susana Moreira, Gabriel Ferreira, Clara Vale, Hugo Pires, Luís Garcia and Orlando SousaSilvia Santini, Carlo Baggio, Valerio Sabbatini and Claudio Sebastiani</i>	
Visual and beyond: densifying data for rehabilitation projects	321
<i>André Ferreira, Nuno Ramos, Miguel Almeida and Sílvia Aires</i>	
Managing a complexity of details. Studies to re-use the stable of the Calendasco’s castle.....	323
<i>Michela Marisa Grisoni, Nicola Badan and Davide Zanon</i>	
Climate impacts on architectural heritage, an overview on deterioration processes and potential use of new technologies.....	327
<i>Diogo Bernardes Pereira, Pedro Miguel Rodrigues, Eduarda Vieira, Patrícia Moreira and Liliana Araújo</i>	

The factory and its doom. Considerations about the non-application of the different knowledge for the restoration and use of industrial heritage in the case of Olivetti Brasil

Di Mari Giuliana - Politecnico di Torino, Torino, Italia, guliana.dimari@polito.it

Garda Emilia - Politecnico di Torino, Torino, Italia, emilia.garda@polito.it

Abstract: The contribution aims to analyse the events surrounding the Olivetti factory in Brazil. The purpose is to reflect on the work from a broader panorama that sees it as deeply connected to its era - the second half of the 20th century -, to its ownership - Olivetti - and to the architect who designed it - Marco Zanuso. The factory is considered among the references of modern architecture produced in São Paulo during the 1950s, a pioneering case of globalised architecture produced by that group of European architects who influenced Brazilian architecture. In the 1990s, the factory underwent a reconversion that distorted its original composition, a fate from which it has not been possible to escape despite the efforts made to ensure its preservation. The occasion promotes a discussion related to the themes of the preservation of the industrial architectural heritage, still too fragile and too often subjected to building speculation that replaces historical-cultural values with political-economic ones. The factory and its doom are thus aimed at underlining the lack that played a role in the reuse of the factory. Lack of awareness, knowledge, methodology, and adherence to restoration principles, finally results in the lack of historical memory.

Keywords: Olivetti, Zanuso, Brazilian modern architecture, industrial heritage, reuse

The 20th century more than any other, experienced turmoil and ferment that resulted in the search for a culture common to all peoples, in clear opposition to the nationalist fervour that the politics of the beginning of the century imposed on all art. With the end of the Second World War, Italy was the scene of the formation of art groups linked to the resistance against fascism, and initially, Italian art was generated by all kinds of artistic manifestations, which were based on the recovery of elements linked to post-cubism, geometric abstraction, new realism and metaphysical painting. Across the ocean, in Latin America, European cultural avant-gardes had an impact, mainly in literature, music and painting. These influences undoubtedly stemmed from the political, economic, and social contradictions that defined a different way of assimilating rationalist codes at that time, on the one hand, identified with the most progressive political positions, and on the other a need for stylistic renewal in line with contemporary trends. However, the assimilation of the Modern Movement in Latin America cannot be analysed as a simple translation of stylistic features as it was conditioned in each case by the specific historical circumstances of each country (Gutiérrez, 1996).

During the 1940s, there were two important exhibitions at MoMA for the dissemination of Brazilian culture abroad: one on the Italian-Brazilian artist Cândido Portinari, and the other on Brazilian colonial and modern architecture. In the second case, Philip L. Goodwin, the curator of the catalogue, offered a vision of Brazilian architecture capable of experimenting and proposing solutions for Europe, thanks to a young, strong, and prosperous architecture. After Goodwin's 1943 book *Brazil Builds*, Brazil gained visibility with international publications and articles published in the magazines *Studio* and *Architectural Review* - both English - and the French magazine *L'Architecture d'Aujourd'hui*.

Latin America thus became a privileged territory for economic expansion, and it was no coincidence that Olivetti - which was already present with several subsidiaries and sales

offices distributing imported products - chose Argentina and Brazil to establish its industrial presence.

«Olivetti in Brazil, as a productive entity, besides contributing to industrial and economic progress in an undoubtedly beneficial way, represents a decisive step in the updating, in this country, of industrial design still too much left aside or reproduced by anyone. [...]» (Bardi, 1958)

Olivetti's industrial architecture integrated the factory's functionality with the beauty of the surrounding landscape (Olmo, 2018). Workplaces are designed on a human scale and at the same time are compatible with economic and production needs. In addition, industrial areas are placed in territories where human life is not sacrificed for production: through urban plans, workers' quarters, libraries, social services, canteens, and kindergartens, the needs of the individual and society are placed in the foreground. Tangible signs of Olivetti's architecture can also be found abroad, and this remains a field that has been investigated to a limited extent (Astarita, 2000).

Adriano Olivetti commissioned Marco Zanuso to design the South American factories who was, at the time, still a young architect. Guiducci stated in issue 216 of Casabella in 1957 that «[...] quite a few technicians from the client company, Olivetti, asked how many factories the architect had already built, what experience he had in industrial matters. [...] On the other hand, it had to be made clear that the specific technical experience for the type of factory that was to be built could only come from technicians specialised in that particular sector, and not from the architect, no matter how many other factories he had built or knew from old experience. [...] Therefore, the problem was finding formulas for the passage of industrial technical experience into industrial architectural experience» (Guiducci, 1957).

The desire for development and progress in the conviction that modern industry reflects the problems of modern society was Zanuso's design mission in Latin America. Zanuso's *modus operandi* finds full manifestation in the industrial architecture of the Olivetti commission. In these projects, one can see the search for structural logic capable of optimising the relationship between form and function. The workspaces are conceived as a continuum in which production can and must change to adapt to new requirements. By experimenting with the potential of reinforced concrete, Zanuso seeks the rationalisation of components to create an immediately recognisable structure. There is the search for a perfect balance between technique and language and this is realised in the use of a generating principle, which in Argentina is identified in the beam-pillar system and Brazil in the triangular module defined by vault and pillars.

This generating element is infinitely repeatable and thus responds to the principles of applicability, and flexibility, reproducibility. Through the elaboration of the project, and even more so between one project and the next, the architect gives back a global dimension of architecture through his design outcomes. The two South American projects highlight the progressive refinement of elements and distribution schemes and constitute the place of experimentation for those technological and morphological solutions that will eventually be implemented in Italy.

The reconstruction of the specific architectural event intervenes in analysing the constituent elements of Zanuso's design and the variations of the theoretical matrix applied to the specificities of the factories built for Olivetti. During the 1990s, Olivetti sold the Brazilian factory to a company that converted it into a shopping centre in 2007. From here began the process that led to the oblivion of the history of the factory, an icon of modern architecture in São Paulo and a rare work by Zanuso outside Italy.

