

**CURRICULUM VITAE**  
**VALERIA NATALINA PRACCHI**

Full Professor - Politecnico of Milan, Department of *Architecture, Built environment and Construction engineering* (ABC), Via E. Bonardi, 9, 20133 Milan – Italy

phone + 39 02 23995170                      fax + 39 02 23994931  
e-mail: valeria.pracchi@polimi.it

**SCIENTIFIC TITLES AND QUALIFICATIONS**

- **1983 – Classical Education**
- **1989 – University Degree cum laude**, Faculty of Architecture, Politecnico of Milan. Thesis title: *Il tiburio lombardo: analisi dei casi maggiori di Milano, Pavia, Como*, (The Lombard Lantern: Analysis of the Major Cases of Milan, Pavia, Como), Tutor Prof. L. Patetta, Supervisor Prof. L. Binda. Special Mention I.S.A.L. (Istituto di Storia dell’Arte Lombarda) award in 1990.
- **1990 – License to practice as an architect.**
- **1996 – Post Graduate Degree - School of Architectural and Landscape Heritage** (Politecnico of Milan). Thesis title: *Indagini e consolidamento strutturale: Palazzo Botta Adorno a Castelletto di Branduzzo* (Investigations and Structural Conservation: Palazzo Botta Adorno in Castelletto di Branduzzo) (100/100 cum laude). Special Mention national award ASSIRCO Youth.
- **1996 – Ph.D.** in Preservation of Architectural Heritage (VII Cycle) (1 November 1992- 31 October 1995). Thesis title: *“La logica degli occhi”: gli storici dell’arte, la tutela e il restauro dell’architettura tra positivismo e neoidealismo*. (“The Logic of the Eyes”: Art historians, Protection and Restoration of Architecture between Positivism and Neo-Idealism).
- **1999 – Scholarship** for post Ph.D research in the field of architectural preservation.
- **2001 – End of the Scholarship.** Thesis title: *La cassetta degli attrezzi. Pratiche di cantiere nel pensiero dei restauratori* (The Toolbox. Construction Site Practices in the Way of Thinking of the Restorers), Tutor prof. Amedeo Bellini.
- **2002 – (16<sup>th</sup> July 2002 -15<sup>th</sup> July 2003) Research grant** for the research program titled *Le pratiche di manutenzione specifiche per il patrimonio culturale* (The Specific Maintenance Practices for Cultural Heritage), Department of Building Environment Science and Technology – BEST.
- **2005 – University Researcher** from 17<sup>th</sup> January 2005, confirmed in 2008, (Disciplinary-scientific area ICAR 19 Restoration).
- **2010 – Associate Professor** from 16<sup>th</sup> December 2010 - (Academic discipline ICAR 19 Restoration) (confirmed in 2013) in the BEST Department, now *ABC Architecture, Built environment and Construction engineering*.
- **2017 – Entitled to the role of Full Professor in Restoration** (National Scientific Qualification, August 2017).
- **2021 Full professor**

**TEACHING ACTIVITY AT POLITECNICO OF MILAN**  
**(1<sup>st</sup> and 2<sup>nd</sup> level: Bachelor and Master of Science)**  
BETWEEN 1997 AND 2020 WITHOUT INTERRUPTION

*As adjunct professor:*

Academic years **1997-1998** and **1998-1999**

- LABORATORIO DI RECUPERO E CONSERVAZIONE DEGLI EDIFICI (• WORKSHOP FOR THE RE-USE AND PRESERVATION OF BUILDINGS) Mantua

Academic year **2000-2001**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)

Academic years **2001-2002** e **2002-2003**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO) and
- TEORIE E STORIA DEL RESTAURO (THEORIES AND HISTORY OF PRESERVATION)

Academic year **2003-2004**

- TEORIE E STORIA DEL RESTAURO (THEORIES AND HISTORY OF PRESERVATION)

Academic year **2004-2005**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)

*As university teacher:*

Academic years **2005-2006** and **2006-2007**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)
- TECNICHE DEL RESTAURO E DELLA RAPPRESENTAZIONE • PRESERVATION AND REPRESENTATION TECHNIQUES (Course of study: Architettura e Produzione edilizia- Architecture and building production)

Academic years **2007-2008** and **2008-2009**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)

Academic year **2009-2010**

- LABORATORIO DI CONSERVAZIONE E TUTELA DELLE RISORSE AMBIENTALI • CONSERVATION AND PROTECTION OF ENVIRONMENTAL RESOURCES WOKSHOP

Academic year **2010-2011**

- LABORATORIO DI CONSERVAZIONE E TUTELA DELLE RISORSE AMBIENTALI  
CONSERVATION AND PROTECTION OF ENVIRONMENTAL RESOURCES WORKSHOP
- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)

Academic years **2011-2012** and **2012 -2013**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)

Academic year **2013-2014**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO) (I and II semester Laurea Magistrale (LM) equivalent to MSc School of Architecture, Urban Planning, Construction Engineering)

Academic years **2014-2015, 2015-2016** and **2016-2017**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO)
- FONDAMENTI DI CONSERVAZIONE DELL'EDILIZIA STORICA • HERITAGE PRESERVATION FUNDAMENTALS

Academic years **2017-2018** and **2018-2019**

- LABORATORIO DI RESTAURO ARCHITETTONICO (ARCHITECTURAL PRESERVATION STUDIO) (I semester LM)
- LABORATORIO DI RESTAURO (PRESERVATION WORKSHOP) (II semester LM)

Academic year **2019-2020**

- ARCHITECTURAL PRESERVATION
- LABORATORIO DI RESTAURO (PRESERVATION STUDIO)

Academic year **A.A 2020-2021**

- INSIDE THE THEMATIC STUDIO THE PART OF PRESERVATION
- LABORATORIO DI RESTAURO (PRESERVATION STUDIO)

### **SOME THESES SHOWING DIFFERENT FIELD OF RESEARCH**

- *Laterizi e degrado da sali solubili: valutazione sperimentale dei danni attribuibili a quantità note di sali.* (Bricks and Degradation by Soluble Salts: Experimental Assessment of Damage Attributable to Known Quantities of Salts).  
Student: Simonetta Montonato
- *Le opere non esposte: problemi conservativi in alcuni depositi dei musei lombardi.* (Works not exhibited: Conservation Problems in Some Deposits of Lombard Museums).  
Student: Michele Radaelli
- *Palazzo Natta, Como: dalla conoscenza alla Conservazione programmata.* (Palazzo Natta, Como: from Knowledge to Planned Conservation).  
Students: Nicoletta Montoli, Alessandra Previtali
- *Palazzo Natta, Como: il progetto di valorizzazione e le limitazioni d'uso nell'ottica della conservazione programmata.* (Palazzo Natta, Como: The Enhancement Project and the Limitations of Use within Planned Conservation).  
Students: Valentina Calligaris, Piera Cavallaro, Paola Mussini
- *Analisi e proposte per la messa in sicurezza delle superfici esterne della Cascina Caldera, Milano.* (Analysis and Proposals for the Safety of the External Surfaces of Cascina Caldera, Milan).  
Student: Claudia Ines Savastano
- *Conoscenza delle tecniche costruttive storiche: protocolli e strumenti innovativi per la diffusione e l'applicabilità al processo di conservazione.* (Knowledge of Historical Construction Techniques: Protocols and Innovative Tools for their Dissemination and Applicability to the Conservation Process).  
Student: Agata Aiazzi

- *Sperimentazioni nel presente e lezioni dal passato: la sfida del miglioramento energetico nell'edificato storico.* (Experiments in the Present and Lessons from the Past: The Challenge of Energy Efficiency Improvement in Historic Buildings).  
Students: Elena Longo Giulia Schippa
- *Le problematiche energetiche del patrimonio costruito storico: analisi sperimentali e modellazioni.* (The Energy Problems of the Historical Built Heritage: Experimental Analyses and Modelling).  
Student: Paolo Sangalli
- *Isola Comacina, un patrimonio ancora da scoprire. L'elaborazione di uno strumento multimediale per la Speech di un valore esistente.* (Isola Comacina, a Heritage yet to Be Discovered. Development of a Multimedia Tool for Communicating an Existing Value).  
Students: Nicole Bego Francesca Vittorelli, Luca Trezzi
- *Efficienza energetica del patrimonio storico.* (Historical Heritage Energy Efficiency).  
Student: Alice Bellotti
- *Finestre storiche: conservazione o sostituzione. Qual è l'intervento più sostenibile? Situazione legislativa, casi studio e ricerche in corso.* (Historical Windows: Conservation or Replacement. What is the Most Sustainable Solution? Legislation, Case Studies and Ongoing Research).  
Students: Nicole Rat; Alessandra Verzeroli
- *“Il fascismo è una casa di vetro dove tutti possono e devono guardare”. L'analisi microclimatica della Casa del Fascio di Giuseppe Terragni a Como.* (“Fascism is a Glass House Where Everyone Can and Must Watch”. Microclimatic Analysis of the Casa del Fascio By Giuseppe Terragni in Como).  
Students: Martina Stellini, Alice Farinella, Davide Fedeli
- *Fragilità di un'architettura perfetta. Conoscenza degli aspetti materici e microclimatici della Casa del Fascio di Giuseppe Terragni a Como.* (Fragility of a Perfect Architecture. Knowledge of the Material and Microclimatic Aspects of the Casa del Fascio by Giuseppe Terragni in Como).  
Students: Sara Mauri, Federico Busnelli

Ongoing:

- *Il Palazzo di Giustizia di Milano: un museo sconosciuto.* • (The Palazzo di Giustizia in Milan: an Unknown Museum).  
Student: Angelica Santoro
- *Un uso sociale per una chiesa dismessa in un territorio difficile.* (A Social Use for an Abandoned Church in a Difficult Territory).  
Student: Marko Chinni

### **TEACHING ACTIVITY AT POLITECNICO OF MILAN** **(3<sup>rd</sup> level: PhD, Specialization and Master)**

Academic year **2005**

**MASTER:** *Conservazione programmata* (Preventive and planned conservation) Politecnico of Milan

Academic years **2009-2010, 2010-2011, 2011-2012 and 2012 -2013**

**DOCTORAL COURSE “PROGETTO E TECNOLOGIE PER LA VALORIZZAZIONE DEI BENI CULTURALI” (DESIGN AND TECHNOLOGIES FOR CULTURAL HERITAGE)**

- ANALISI, RAPPRESENTAZIONE E CONSERVAZIONE DEI BENI CULTURALI
- (ANALYSIS, REPRESENTATION AND CONSERVATION OF CULTURAL ASSETS)

**SOME THESES SHOWING DIFFERENT FIELD OF RESEARCH**

- *Communication and Cultural Heritage. Communication as Effective Tool for Heritage Conservation and Enhancement.*  
PhD student: Alessandra Chiapparini XXIV cycle
- *L'obiettivo del miglioramento dell'efficienza energetica nel processo di conservazione del costruito storico.* (The Goal of Improving Energy Efficiency in the Conservation Process of Historic Buildings).  
PhD student: Fabiana Pianezze XXIV cycle
- *La valorizzazione culturale delle aree rurali: aspetti procedurali e operativi per la creazione di un distretto culturale evoluto.* (The Cultural Enhancement of Rural Areas: Procedural and Operational Aspects for the Creation of an Evolved Cultural District).  
PhD student: Bergamini, Isabella XXV cycle
- *Continuity of Urban Culture. Challenges and Opportunities Facing Urban Conservation.*  
PhD student: Heba Elsayed XXVI cycle

Academic years **2011-2012 and 2012 -2013**

**ALTA SCUOLA POLITECNICA (POLITECNICO of MILAN and POLITECNICO of TURIN)**

- MULTI-CRITERIA DECISION ANALYSIS FOR CULTURAL HERITAGE CONSERVATION AND DEVELOPMENT duration 24 months, English course

Thesis with the same title

**SCUOLA DI SPECIALIZZAZIONE IN BENI ARCHITETTONICI E DEL PAESAGGIO  
POST GRADUATE SCHOOL IN ARCHITECTURAL AND LANDSCAPE HERITAGE**

Academic years 2017-2018 and 2019-2020

- EDIFICI STORICI E RISPARMIO ENERGETICO (HISTORIC BUILDINGS AND ENERGY SAVINGS)

**DOCTORATE PROGRAMME ARCHITECTURE, BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING (ABC PHD)**

*Within the ABC Doctoral program in Architecture, Built environment and Construction engineering (ABC-PHD) she is member of the teaching staff (from 2017), of the board of thesis reviewers, of the committee for the selection procedures and from 2019 she is Deputy Coordinator.*

Academic year **2019/2020**

- BUILT CULTURAL HERITAGE: INFORMATION SYSTEMS FOR CONDITIONS CONTROL OVER TIME

### **SOME THESES SHOWING DIFFERENT FIELD OF RESEARCH**

- *The Project of the "City for All" in UNESCO World Heritage Sites.* PhD student: Sebastiano Marconcini XXXI cycle
- *Energy Efficiency of Cultural Heritage: Guidelines and New Practices of Intervention.* PhD student: Alessia Buda XXXII cycle
- *«Tailor-made» Solutions to Improve the Thermal Performance of Historic Buildings,* PhD student: Sara Mauri XXXIV cycle

*As a tutor:*

- Elena Fioretto, *Empire on the Borders. A Study for the Protection and the Enhancement of Fragile Structures of the Byzantine's Commonwealth.*
- Flavio Menici, *Postwar Reconstruction of Aleppo's Architectural Heritage.*
- Elisa Panzera, *The Socioeconomic Impact of Cultural Heritage.*
- Anastasia Sedova, *Adaptive Re-use and Regeneration of Abandoned Spiritual Buildings.*
- Qin Ling, *Memory of Antiquity and the Tradition of the Modern in China*
- Zreika Nour, *The Valorization of Heritage in Vulnerable Sites (prospective).*

## TEACHING ACTIVITY IN OTHER FORA

- *Università Statale of Milan, Department of Humanities:*  
Lessons on the Preservation of Historic Built Cultural Heritage in the context of the History of Art course by Prof. Castelfranchi, A.Y.1991/92
- *University of Brescia, Department of Engineering:*  
Lesson on the restoration of the Parma Baptistery and the Annunziata Church, A.Y.1992/93
- *Enaip Lombardia. Vocational Training Centre of Botticino (BS):*  
A.Y.1992/93: Monuments Restoration course  
A.Y.1993/94: Theory of Restoration course
- *Corso di specializzazione per ingegneri e architetti "La conservazione dei beni culturali immobili ecclesiastici" (Specialisation course for Engineers and Architects "Preservation of Ecclesiastical Heritage buildings"), Brescia*  
A.Y. 1996/1997 Theory of Restoration course
- *Cesvip, Centro sviluppo imprenditoria di Piacenza*  
A.Y. 1996/97 Architectural Re-use course
- *Corso d'aggiornamento "Restauro e Conservazione e dei Beni Culturali"*, presso il Liceo artistico U. Boccioni, Milan, course for high school teachers, lesson on "Surveys, diagnostic investigations" (October 1998)
- As part of the course organized by Anvides for architects and construction contractors, dedicated to the consolidation of plaster and stucco, she holds ex cathedra lectures and seminars on site (Palazzo Natta).
- A.Y. 1999 "History of Styles" within the course of *Restauro e decorazione murale* (Preservation and wall decoration) organized by IRES.CO.GI, financed by Lombardy Region
- March 2001, "History of restoration techniques" within the course promoted by the Lombardy Region for *Tecnico esperto in diagnosi e catalogazione di edifici monumentali* (Monument Diagnosis and Cataloguing Technicians)
- January 2002 Varese, June 2002 Morbegno, "History of restoration techniques" within the course promoted by Lombardy Region for *Tecnico esperto in diagnosi e catalogazione di edifici monumentali* (Monument Diagnosis and Cataloguing Technicians)
- A.Y. 2002 "Theory of planned and preventive conservation" within the training course for *Tecnici ricercatori nel campo dell'applicazione alla tutela dei beni dei processi ad alto contenuto tecnologico* (Research technicians for the use of high-technology processes for the preservation of cultural heritage) (PROGETTO FSE 2000 –2001, - Definizione di un modello di Competitive Intelligence a supporto dell'innovazione e trasferimento tecnologico per le PMI) (Definition of a Competitive Intelligence model in support of SME innovation and technology transfer)

- A.Y. 2003 "Restoration' Theory and History" within the training course for *Tecnico delle indagini preliminari all'intervento di restauro per la redazione di un progetto di restauro scientificamente fondato*, (Pre-restoration survey technician for the drafting of a scientifically valid preservation project) Project n.60882 FSE 2002
- A.Y. 2004 "Re-use and preservation workshop" within the post-degree course for *Tecnico Transfrontaliero delle costruzioni* (Cross-border building technician)– organized by Politecnico of Milan and Formas, Varese
- A.Y. 2008 Training activities for the guides to the Oratory of Santo Stefano in Lentate sul Seveso (MB)
- A.Y. 2009 CORSO DI FORMAZIONE PER PROFESSIONISTI ADDETTI AL RESTAURO DEI BENI CULTURALI ECCLESIASTICI – CURIA DI PIACENZA (TRAINING COURSE FOR ECCLESIASTICAL HERITAGE PRESERVATION PROFESSIONALS)  
History of Preservation Theory and Techniques, Restoration vs Preservation, Maintenance and monitoring for Built Cultural Heritage
- A.Y. 2011 Training seminar for the BRESCIAN BUILDING SCHOOL: The Present of Buildings and the Future to be built: Problems, Ideas and Evolutionary Scenarios, Lesson: Conservation of the Historic Built Heritage
- A.Y. 2017 International Summer School in Brescia: Universal Design and Sustainable Tourism. Cidneo Hill and its Castle in Brescia, July 17-22, as a tutor.
- A.Y. 2018 International Summer School in Brescia: Universal Design and Sustainable Tourism: Cidneo Hill and its Castle - 2nd Attack", July 17-26, as a professor.
- A.Y. 2019 Teaching activity in Buenos Aires (Argentina), University of Belgrano, Facultad de Arquitectura y Urbanismo: cycle of lessons on preservation in Italy as part of the Erasmus+ KA107 International Credit Mobility (August, 1-13).



## ACTIVITIES FOR THE DEPARTMENT OF ARCHITECTURE, BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING AND FOR THE SCHOOL OF ARCHITECTURE, URBAN PLANNING, CONSTRUCTION ENGINEERING

- **Member of the board of the Research Doctorate programme** in PROJECT AND TECHNOLOGIES FOR THE ENHANCEMENT OF CULTURAL HERITAGE 2009 - 2012
- **Member of the Scientific Commission of the ABC Department** of Milan 2012 - 2016
- **Member of the board of the Research Doctorate programme** ARCHITECTURE, BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING since 2017
- **Deputy coordinator of the PhD course** ARCHITECTURE, CONSTRUCTION ENGINEERING AND BUILT ENVIRONMENT since 2019
- **Deputy Coordinator of the Scientific Commission** of the ABC Department since 2020
- POST GRADUATE SCHOOL OF ARCHITECTURAL AND LANDSCAPE HERITAGE cover **relations with University, School and Departments**
- **Member of the commission for the study of new master of science degrees** (2017)

## PARTICIPATION IN EDITORIAL COMMITTEES OF MAGAZINES

- Editor of *TeMA* magazine: Time, Matter, Architecture, director Prof. A. Bellini, from 1993 to 2004
- *Architectural Archeology* Reviewer (Steering Committee Gian Pietro Brogiolo, Francesco Doglioni, Roberto Parenti, Gianfranco Pertot) Magazine in class A
- *ArcHistor* Reviewer (Steering Committee Francesca Martorano, Bruno Mussari, Annunziata Maria Oteri, Francesca Passalacqua) Magazine in class A
- *Territorio* Reviewer (Director: Gabriele Pasqui, Co-director: Bertrando Bonfantini) Magazine in class A
- *Energy and Buildings* Reviewer (Editors-in-Chief: [Jianlei Niu](#), [Mattheos Santamouris](#)) Magazine in class A
- *Notiziario di Archeologia medievale* Reviewer

## ACHIEVEMENT OF PRIZES AND AWARDS FOR SCIENTIFIC ACTIVITY INCLUDING AFFILIATION TO ACADEMIES OF RECOGNIZED PRESTIGE IN THE SECTOR

- I.S.A.L. Award (Institute of Lombard Art History) 1990 for the degree thesis, Faculty of Architecture, Politecnico of Milan entitled: The Lombard Lantern: Analysis of the Major Cases of Milan, Pavia, Como, Supervisor Prof. L. Patetta, Co-rapporteur Prof. L. Binda.
- ASSIRCO Giovani 1996 National Award - for the post graduate degree - School in Architectural and Landscape Heritage (Politecnico of Milan) entitled: Investigations and Structural Conservation: Palazzo Botta Adorno in Castelletto di Branduzzo (Supervisor Prof. Jurina).

- Winner of the Polisocial Award 2017 with a collaborative project entitled ScAR (Scuola Attiva Risorse - School Activates Resources) (See Third-Mission Activities).
- Member of the scientific society SIRA (Italian Society for the Restoration of Architecture) since its foundation.
- Elected member of the Board of SIRA for the three-year period 2017 - 2020 (President S. Musso, Vice President M.A. Giusti, other members: R. Picone, M Pretelli, A.M. Oteri, M. Zampilli, E. Sorbo, M.G. Ercolino).
- • Reviewer of the SIR Scientific Independence of Young Researchers projects for the Ministry of Education, University and Research.

## ORGANIZATION OF OR PARTICIPATION AS A SPEAKER IN SCIENTIFIC CONFERENCES IN ITALY AND ABROAD

1995 (6-7 April) University of Brescia. Conference: *Storia delle tecniche murarie e tutela del costruito. Esperienze e questioni di metodo.* (History of Masonry Techniques and Building Protection. Experiences and Method Questions).

Speech: *Il modo di restaurare. Le tecniche nel cantiere di restauro tra '800 e '900: l'impiego del cemento armato.* (The Way to Restore. The Techniques in the Restoration Site between the 19th and 20th Centuries: The Use of Reinforced Concrete) (Published).

1996 (23-26 October) Como – Organization of the Conference for the sixth centenary of the Duomo.

Speech: *Il Duomo come monumento: la molteplicità delle possibili letture.* (The Duomo as a Monument: The Multiplicity of Possible Interpretations) (Published in S. Della Torre, T. Mannoni, V. Pracchi, ed. by, *Magisters of Europe. Events, Relationships, Structures of the Migration of Artists and Builders from Lombard Lakes*, Como 1997).

1998 (30 June-3 July), Bressanone – Conference: *Progettare i restauri. Orientamenti e metodi, indagini e materiali* (Designing Restorations: Orientations and Methods, Investigations and Materials)

Speech: *Il progetto di conoscenza, l'organizzazione dei dati, il programma di intervento* (The Knowledge Project, the Data Organization, the Intervention Program) (Published)

1998 (26-28 November) Conference: *L'edilizia storica lombarda Materiali e tecniche, metodi di rilevamento e di intervento* (Lombard Historical Buildings. Materials and techniques, survey and interventions methods)

Speech: *Strati di sacrificio o spessore storico considerazioni sul trattamento delle superfici in alcuni recenti interventi* (Layers of Sacrifice or Historical Thickness. Considerations on Surface Treatment in Some Recent Interventions) (Published)

1999 (16 December) Milan – Organization of the Conference *Unity and differences between architectural and pictorial restoration*, on the occasion of the end of the restoration work on Leonardo's Last Supper. Guests included: A. Bellini, G. Carbonara, S. Della Torre, P. C. Marani.

2000 – Como – Conference: *Tecniche della manutenzione dei materiali mobili, dell'edilizia storica, del territorio*, (Maintenance Techniques for Movable Artifacts, Historic Buildings, and Territory), by Lombardy Region and Appacuvi.

Speech: *L'adeguamento alle norme di sicurezza e l'abbattimento delle barriere architettoniche.* (The Compliance with Safety Standards and the Overcoming of Architectural Barriers in the Existing Buildings), (Published).

2001 (10-13 July) Bressanone – Conference: *Lo Stucco. Cultura, tecnologia, conoscenza.* (The Stucco. Culture, Technology, Knowledge)

Speech: *Gli stucchi di Giovan Battista Barberini nella sacrestia del collegio dei Gesuiti a Mantova*. (with R. Bugini). (The Stuccos by Giovan Battista Barberini in the Sacristy of the Jesuit College in Mantua) (Published)

2003 – Milan - *La conservazione del patrimonio storico architettonico: una visione sistemica*. (The Conservation of the Historical Architectural Heritage: A Systemic Vision).

2004 (18-19 June) Siena – Conference: *Il minimo intervento nel restauro*. (The Minimal Intervention in Preservation)

Speech: *Il restauro tra evento e processo: sfumature di significato nel concetto di minimo intervento* (with S. Della Torre). (Preservation between Event and Process: Nuances of Meaning in the Concept of Minimal Intervention) (Published)

2004 (30 August-3 September) 16<sup>th</sup> World Conference on Non-destructive Testing, Montreal Canada

Speech: *IRT Monitoring in planned Preservation of Built Cultural Heritage* (in collaboration) (Published)

2005 (12-15 July) Bressanone – Conference: *Sulle pitture murali. Riflessioni, Conoscenze, Interventi*. (On Mural Paintings. Reflections, Knowledge, Interventions)

Speeches (in collaboration):

- *Restauro e restauratori all'Oratorio di Santo Stefano a Lentate sul Seveso (MI): indagini e considerazioni in margine a un prossimo intervento di conservazione*; (Restoration and Restorers at the Oratory of Santo Stefano in Lentate sul Seveso (MI): Investigations and Considerations in View of an Upcoming Conservation Intervention)
- *L'intervento di conservazione all'oratorio di Santa Maria presso San Paolo a Cantù*; (The Conservation Intervention at the Oratory of Santa Maria at San Paolo in Cantù)

*Le indagini multispettrali per il riconoscimento telemetrico degli interventi di restauro nelle pitture murali*. (Multispectral Investigations for Telemetric Recognition of Preservation Interventions in Mural Paintings). (Published)

2006 (11-14 July) Bressanone – Conference: *Pavimentazioni storiche. Uso e conservazione* (Historic Flooring. Use and Conservation)

Speeches (in collaboration):

*Effetti della temperatura superficiale della pavimentazione sul degrado dei rivestimenti e sul microclima*; (Effects of the Surface Temperature of the Flooring on the Degradation of the Coatings and on the Microclimate)

*I pavimenti nella Sala dell'Hospitale spagnolo al Castello Sforzesco di Milano*. (The Floors in the Spanish Hospital at the Castello Sforzesco in Milan) (Published)

2006 (28-30 September) - Siena, Congresso Nazionale IGIIC, *Lo stato dell'arte* (The State of Art)

Speech: *I sali solubili negli edifici storici: alla ricerca di un valore di soglia* (Soluble Salts in Historic Buildings: Looking for a Threshold Value) (in collaboration) (Published)

2006 (30 November–2 December) Mantua – Conference: *Quale sicurezza per il patrimonio architettonico?* (What Safety for the Architectural Heritage?)

Speech: *Tra conservazione e sicurezza: il progetto di adeguamento e il piano di conservazione di Palazzo Natta a Como*. (Between Conservation and Safety: The Adaptation Project and the Conservation Plan of Palazzo Natta in Como) (In collaboration) (Published)

2007 (10-13 July) - Bressanone – Conference: *Il consolidamento degli apparati architettonici e decorativi*. (The Preservation of the Architectural and Decorative Apparatus)

Speech: *Mauro Pelliccioli, 'Restauratore principe': note sugli interventi di consolidamento.* (Mauro Pelliccioli, 'Prince Restorer': Notes on Preservation' Interventions) (Published)

2007 (21 November) - Campione d'Italia – Conference: progetto Interreg IIIA *L'arte dello stucco* (The Art of Stucco)

Speech: *Definizione di protocolli per il processo di conservazione di manufatti in stucco* (Protocols Definition for the Conservation Process of Stucco Artifacts) (in collaboration) (Published)

2007 (8 November) – Milan – Conference: *Tecniche costruttive storiche. Protocolli e strumenti innovativi per la diffusione e l'applicabilità al processo di conservazione.* (Historical Constructive Techniques. Protocols and Innovative Instruments for the Diffusion and the Applicability in the Conservation Process).

Organization and opening speech.

2008 (8 March) Presentation, with Philippe Daverio, of the book I edited *L'oratorio di Santo Stefano a Lentate sul Seveso Il restauro* (The Oratory of Santo Stefano in Lentate Sul Seveso. The Preservation).

2008 (24-27 June 2008) – Bressanone – Conference: *Restaurare i restauri.* (To Restore the Restorations)

Speeches:

- *Il follow up dei propri cantieri di restauro;* (The Follow Up of Our Own Restoration Sites)

*Compatibilità e durabilità dei restauri degli affreschi in condizioni microclimatiche severe* (Compatibility and Durability of Fresco Preservation in Severe Microclimatic Conditions) (in collaboration). (Published)

2008 (26-27 September) – Pescara, Facoltà di Architettura – *Muri parlanti. Prospettive per l'analisi e la conservazione dell'edilizia tradizionale.* (Talking Walls. Perspectives for the Analysis and Conservation of Traditional Construction) Conclusive Conference of the research COFIN 2005

Speech: *Il trasferimento delle conoscenze sulle tecniche costruttive storiche nella didattica universitaria e nella formazione professionale.* (The Teaching of Historical Construction Techniques in Italian Faculties) (Published)

2009 (13 February) – Cittadella Conference: *Accessibilità e tutela del patrimonio storico artistico.* (Accessibility and the Protection of the Historical and Artistic Heritage)

Speech: *Il superamento delle barriere architettoniche nell'edilizia storica* (Overcoming Architectural Barriers in Historic Buildings)

2009 (21 February) - Piacenza - Corso di Formazione per Professionisti addetti al Restauro dei Beni Culturali Ecclesiastici - Training Course for Professionals involved in the Restoration of Ecclesiastical Cultural Heritage – Final Conference.

Speech: *Preventive and Planned Conservation.*

2009 (20-24 May) – Cottbus – (Germany), III International Congress Construction History

Speech: *The teaching of the Historical Construction Techniques in the Italian Faculties* (Published)

2009 (3-4 September) - Fribourg - Conference on Preventive Conservation. Practice in the Field of Historical Monuments

Speeches: *Diagnostica, intervento e monitoraggio: il caso dell'oratorio di Santo Stefano a Lentate sul Seveso (Milano)* *Diagnostics, Intervention and Monitoring: The Case of the Oratory of Santo Stefano in Lentate Sul Seveso (Milan)*

*Il Documento Preliminare alla Progettazione sui Beni Culturali* (The Preliminary Document for Planning on Cultural Heritage) (in collaboration) (Published)

2009 (20 November) - Brescia Final Conference in the training course *Design for All. Design without Architectural Barriers*

2010 (13-16 July) - Bressanone – Conference: *Pensare la prevenzione. Manufatti, usi, ambienti* (To Think about Prevention)

Speeches:

*La prevenzione in medicina e la prevenzione nel restauro. Stato dell'arte del dibattito: spunti e criticità* (Prevention in Medicine and Prevention in Preservation. State of the Art of the Debate: Ideas and Critical Issues)

*Prevenire il degrado da umidità dopo il restauro. Soluzioni impiantistiche per il controllo del microclima presso l'oratorio di Santo Stefano a Lentate sul Seveso* (To Prevent Moisture Degradation after Restoration. Systems Solutions for Microclimate Control at the Oratory of Santo Stefano in Lentate sul Seveso)

*La prevenzione del danno secondo le prestazioni dei trattamenti conservativi: metodi diagnostici innovativi per applicazioni in situ* (Damage Prevention According to the Performance of Conservative Treatments: Innovative Diagnostic Methods for in situ Applications).

*Il concetto di prevenzione e la tutela del paesaggio* (The Concept of Prevention and Protection for the Landscape) (in collaboration) (Published)

2010 (6 December) - Florence - Conference Arkos 2010: *Dal progetto esecutivo al collaudo*. From the Final Project to the Testing Phase.

Speech: *Dalla programmazione al collaudo, e oltre: l'obiettivo della continuità tra le attività conservative*

(From Programming to Testing, and beyond: The Goal of Continuity among the Conservation Activities)

2011 (21-24 June) - Bressanone – Conference: *Governare l'innovazione. Processi, strutture, materiali e tecnologie tra passato e futuro*. (Governing Innovation. Processes, Structures, Materials and Technologies between Past and Future),

Speech: *Il Documento Preliminare alla Progettazione per i beni culturali come potenziale innovazione di processo*. (The Preliminary Design Document for Cultural Heritage as a Potential Process Innovation)

*Efficienza energetica e conservazione*. (Energy Efficiency and Preservation) (In collaboration) (Published)

2011 (13-15 July) – Leuven, Belgium - 27th International Conference on Passive and Low Energy Architecture (PLEA) Architecture & Sustainable Development

Speeches: *Methodological Procedure for Energy Performance Evaluation of Historical Buildings*

*Energy Behaviour in Historical Buildings: Limits and Potentials for the Project Evaluation* (in collaboration) (Published)

2011 (18 November 2011) - Sondrio Conference: *Cultura e progetto dell'accessibilità*. (Culture and Accessibility Design)

Speech: *Accessibilità e tutela del patrimonio storico artistico e architettonico* (Accessibility and Historical, Artistic and Architectural Heritage Protection)

2012 (18-19 June) – Mendrisio - Accademia di architettura – Università della Svizzera italiana Giornate studio internazionali / International seminar Diritto e salvaguardia dell'architettura del XX secolo / Law and the preservation of 20th century architecture / Organised by Roberta Grignolo, Bruno Reichlin, con il patrocinio di / Under the auspices of DoCoMoMo International - Società svizzera degli ingegneri e degli architetti (SIA)

Speech: *Q.B. (Quanto Basta). La deroga e il concetto di sicurezza equivalente* (Q.S. (Quantum Sufficit). Derogation and "Equivalent Level of Safety")

2012 (19 October) - Bologna - 30 Conference AICARR: *Oltre la certificazione energetica: progettazione e gestione del sistema edificio-impianto per ottimizzare il comfort ed i consumi energetici reali* (Beyond the Energy Certification: Design and Management of the Building-Plant System to Optimize Comfort and Real Energy Consumption)

Speech: *Efficienza energetica dell'edilizia storica. I sistemi di valutazione statica e dinamica: caratteristiche limiti e potenzialità* (Energy Efficiency of Historic Buildings. Static and Dynamic Evaluation Systems: Characteristics, Limits and Potential) (in collaboration) (Published)

2012 (7-10 June) - Politecnico of Milan, Conference EAAE/ARCC International Conference on Architectural Research, *Cities in Transformation Research and Design. Ideas, Methods, Techniques, Tools, Case Studies*

Speech: *Continuity of Urban Culture. Challenges and Opportunities Facing Urban Conservation* (in collaboration) (Published)

2012 (7-9 November) - Lima, Peru - 28th Conference on Passive and Low Energy Architecture (PLEA), *Opportunities, Limits & Needs towards an Environmentally Responsible Architecture*

Speech: *Experimental Measurements on Thermal Transmittance of the Opaque Vertical Walls in the Historical Buildings* (in collaboration) (Published)

2013 (20 March) – Milan – Organization and opening speech of the Conference *L'efficienza energetica nell'edilizia storica* (Energy Efficiency in Historic Buildings)

2013 (9 July) OSMI Borsa Immobiliare di Milano - Camera di Commercio di Milano

Conference: *Efficientamento energetico per la valorizzazione del patrimonio immobiliare* (Energy Efficiency for the Enhancement of Real Estate Assets)

Speech: *Efficienza energetica e patrimonio architettonico* (Energy Efficiency and Architectural Heritage)

2013 (17-18 July) - Milan - Scuola di Specializzazione in Beni Architettonici e del Paesaggio (Postgraduate School in Architectural and Landscape Heritage) Politecnico of Milan - Conference *Conoscere e conservare i serramenti storici* (To Know and to Preserve the Historical Windows)

2013 (16-18 September) - Bolzano - *3rd European Workshop on Cultural Heritage Preservation*

Speeches:

*Energy Modelling of Historic Buildings: Applicability, Problems and Compared Results*

*Protecting Historical Buildings doesn't Mean only to Respect their Appearance* (in collaboration) (Published)

2013 (18-20 November) Milano – International Conference *Built Heritage 2013*, Politecnico of Milan Speech: *Historical Buildings: Energy Performance and Enhancement* (in collaboration) (Published)

2013 (10-12 September) - Monaco - 29<sup>th</sup> International PLEA Conference *Sustainable Architecture for a Renewable Future*

Speech: *Static and Dynamic Evaluation Methods for Energy Efficiency in Historical Buildings* (in collaboration) (Published)

2014 (4 June) - Conference ANCE Milano nei cantieri dell'arte –

Speech: *Recupero ed efficientamento energetico: un binomio possibile?* (Energy Efficiency and Preservation: A Possible Combination?)

2014 (29-30 September) - Madrid - Actas del Congreso Internacional de Eficiencia Energética y Edificación Histórica / Proceedings of the International Conference on Energy Efficiency and Historic Buildings

Speech: *Historic Windows: Conservation or Replacement. What's The Most Sustainable Intervention? Legislative Situation, Case Studies and Current Researches* (in collaboration) (Published)

2015 (9 July) - Conference RICS (Royal Institution of Chartered Surveyors) “I vincoli di interesse culturale sugli immobili: impatti legali, tecnici e valutativi” (The Constraints of Cultural Interest on Buildings: Legal, Technical and Evaluation Impacts)

2016 (29 February) Conference: *Pensare dalla Ripa*, Albino (Bergamo).

Speech: *La cura del passato tra restauro e manutenzione* (The Care of the Past between Preservation and Maintenance)

2016 (20 April) - Milano - Scuola di Specializzazione in Beni Architettonici e del Paesaggio (Postgraduate School in Architectural and Landscape Heritage), Politecnico of Milan, Conference: *Museografia e restauro. Architettura degli interni e allestimento museale* (Museography and Preservation. Interior Architecture and Museum Layout)

Speech: *L’Ospedale Spagnolo al Castello Sforzesco: un nuovo spazio per la Pietà Rondanini* (The Spanish Hospital at Castello Sforzesco: A New Space for the Rondanini Pietà)

2016 (28 June-1 July) - Bressanone – Conference: *Eresia e Ortodossia nel restauro. Progetti e realizzazioni* (Heresy and Orthodoxy in the Restoration. Projects and Realizations)

Speech: *Efficienza energetica e Patrimonio Culturale: un contributo alla discussione alla luce delle nuove linee di indirizzo* (Energy Efficiency and Cultural Heritage: A Contribution to the Discussion in the Light of the New Guidelines) (Published)

2016 (12-15 July) - Lisbon Portugal - *Heritage 2016* 5th International Conference on Heritage Sustainable Development

Speech: *Balancing Different Needs: Enhancing Energy Efficiency and Preserving Historic Windows* (in collaboration) (Published)

2016 (26-27 September) – Rome - I Conference SIRA *Ricerca Restauro*

Speech: *La ‘domanda’ o il ‘bisogno’ di fruizione dei beni culturali* (The 'Demand' or 'Need' for the Fruition of Cultural Heritage) (Published)

2016 (10-11 October) – Bern Switzerland– Conference *Advanced Building Skins*

Speech: *The Energy Efficiency Improvement of Listed Buildings through Textile-Based Innovative System* (in collaboration) (Published)

2017 (31 January) - Brescia – Presentation of the book I edited collecting the studies of Gian Paolo Treccani, title: *Per una definizione non univoca del concetto di conservazione* (For a Non-Univocal Definition of the Conservation' Concept)

2017 (16 February) - Palermo – Presentation of the book edited by R. Prescia F. Trapani, title: *Rigenerazione urbana, innovazione sociale e cultura del progetto*. (Urban Regeneration, Social Innovation and Project Culture)

2017 (17 February) - Palermo – University of Palermo. Conference by invitation within the "Restoration experiences" cycle, entitled “The Spanish Hospital at the Castello Sforzesco: a new space for the Rondanini Pietà”

2017 (14-16 June) - Braga, Portugal. Heritage 2017, 3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures. Speech: *From Arazzo to Textile-Based Innovative System for Energy Efficiency of Listed Buildings*, in collaboration, (Published)

2018 (19 January) – Lecce – “Dialogues on cultural heritage” Conference by invitation –

Speech: Energy Efficiency and Built Heritage. The Challenge of Improving Performances in Historic Buildings

2018 - 9 March - Politecnico of Milan - *Design for All. Principi strategie e architetture a confronto* (by invitation) (Design for All. Principles, Strategies and Architectures)

2018 - 24 May - Venice *Clima negli edifici di culto, esperienze e prospettive* (The Climate in Places of Worship, Experiences and Perspectives) (by invitation)

2018 (3-6 July) - Bressanone – Conference: *Intervenire sulle superfici dell'architettura tra bilanci e prospettive* (Intervening on the Surfaces of Architecture between Evaluations and Perspectives)

Speech: *Scritte sui muri: i graffiti antichi tra indifferenza e considerazione* (Writings on the Walls: Ancient Graffiti between Indifference and Consideration) (in collaboration). (Published)

2018 (12-15 June) - Granada - Spain. Heritage 2018, 6th International Conference on Heritage and Sustainable Development. Speech: *Management Models for Public Cultural Heritage: A Comparison between the Italian and Russian Approaches*, in collaboration; and *Achilles and the Tortoise: A Paradox between Authenticity and Cultural Tourism*. (Published)

2018 (21-22 September) – Bologna. II Convegno Nazionale SIRA. Restoration: Knowledge, Project, Construction Site, Management

Speech: *Le Linee di Indirizzo per il miglioramento dell'efficienza energetica nel patrimonio culturale: indagine per la definizione di uno strumento guida adeguato alle esigenze della tutela* (The Guidelines for the Improvement of Energy Efficiency in Cultural Heritage: Survey for the Definition of a Guide Tool Suited to the Needs of Protection) (in collaboration). (Published)

2018 (26-27 September) – Visby, Sweden The3<sup>rd</sup> International Conference on Energy Efficiency in Historic Buildings. Speech: *Removable Textile Devices to Improve the Energy Efficiency of Historic Buildings* (in collaboration); and *Potentialities and Criticalities of Different Retrofit Guidelines in their Application on Different Case Studies*. (In collaboration) (Published)

2019 (20-22 February) - Venice 51<sup>o</sup> International Conference AiCARR THE HUMAN DIMENSION OF BUILDING ENERGY PERFORMANCE.

Speech: *Built Heritage: People Involvement as a Strategy for Minimizing Interventions* (in collaboration). (Published)

2019 (8–10 May) – Milan, GEORES 2019 – 2nd International Conference of Geomatics and Restoration, Speeches: *Revealing the Everyday Landscape: Innovative Systems for Heritage Education in Schools. The ScAR (School Activates Resources) Project* (in collaboration);

*Inclusive Cultural Heritage Sites: ICT as a Tool to Support the Design Process and Share Knowledge* (in collaboration);

*On the Relationship between Geomatics and Conservation: Lessons Learned from Integrated Restoration Laboratories* (in collaboration). (Published).

2019 (24 June) - Amsterdam Netherlands Conference: EdMedia + Innovate Learning

Speech: *Schools as Protagonists in the Valorization and Communication of their Local Cultural Heritage*, (in collaboration). Published.

2020 (3-4 September) – Bergamo. XVI Conferenza del Colore,

Speech: *The Role of Colour in Modern Movement Architecture. The Case of Terragni's Casa del Fascio in Como* (in collaboration). Published.



## **“THIRD MISSION” ACTIVITIES** (Public Engagement and Social Activities)

### **The “School Activates Resources” project [www.scar.polimi.it](http://www.scar.polimi.it)**

(For its recognized value, it was nominated as one of the official event for the 2018 European year of cultural heritage by MiBACT (Ministry of Cultural Heritage and Activities))

The well-known definition by the European Landscape Convention defines it as “a certain part of the territory, as perceived by the populations, whose character derives from the action of natural and/or human factors and their interrelations”. The broad meaning that the Convention establishes is not restricted to the protection of exceptional landscapes, but also takes everyday landscapes, including even degraded areas, into consideration. It is in this framework that the project “School Activates Resources: mending the lost heritage of the suburbs” is being developed. ScAR is a two-year research project by Politecnico di Milano, which began in April 2018. The areas of interest are some suburbs of the city of Milan, a hub of commerce and business activities but nonetheless (or due to this!) home to critical situations in its outskirts. The selected area is characterized by settlement fragmentation, isolated neighborhoods and strong deterioration of public buildings. The goal of the project is to empower schools to become catalysts of rediscovery, interpretation, valorization and communication processes regarding the hidden heritage of their territory.

The working group comprises five scholars from different fields (educational technology, ICT for Cultural Heritage representation, Cultural Heritage protection and enhancement, urban planning). There are numerous additional partners who represent the various stakeholders in the project’s mission: two of the city’s municipalities, the local and regional branches of the ministry for education, the Prada Foundation (by the Italian fashion brand), which runs a museum in the area, a local eco-museum, plus other social and cultural associations and educational centers. The heart of the project, though, are the seven schools, from primary to high-school, involved, characterized by critical issues such as early school leaving, low performance, high-percentage of immigrants. The first year was devoted to preparatory activities (documentation campaign on the territory, teachers’ training on the use of the ICT tools, networking with local experts and associations) as well as to the activities with the schools. The second year was devoted to evaluation and dissemination. The ScAR core idea is to put schools at the center of a process of discovery of their local heritage, based on innovative teaching methods and the use of an array of Information and Communications Technologies (ICT). The main pedagogical paradigms involved are: authentic learning (students are aware that whatever they produce, will be made public and shared well beyond their school’s boundaries); constructivism (they have to build their own knowledge, making reference to various sources and scavenging the territory); project-based learning (they take part in activities that have a precise goal, deliverable and time-frame); game-based learning and collaborative work. Information and Communication Technologies are central to the ScAR project. Following prompts by the Italian Ministries of Culture and of Education, suggesting that relations with cultural heritage can be stimulated by the use of new technologies that have radically changed the way we consume and produce culture and advocating that students be turned into “critical consumers” and “producers” of digital content, the project has put into place technologies ranging from augmented reality to digital storytelling authoring tools.

The ScAR project's mission could therefore be summarized as the intent to enable youngsters to shift from a passive (often unwilling and not-well understood) "consumption" of heritage to an active ownership and authorship of heritage themes and values, in an "active citizenship" perspective. The idea is to foster a generation of people ready to share responsibility (and care and affection) for the territory they live in.

## **The Project Activities**

ScAR entails a number of technology-based activities meant to encourage students to roam their territory, meet local people (from normal citizens to experts) gather info, facts, materials (images, videos, drawings, documents...) as basis for valorization and communication actions. Through the creation of multimedia guides, urban gaming applications, drawings and digital storytelling students get involved in a constructivist approach where they become the experts in their own cultural landscape and communicate it to peers and other citizens. Schools could choose between assisted and non-assisted activities. The former required teachers to be trained on tools and their educational uses and mentoring by the project staff; the later, considered more manageable, implied remote training (via an online course plus handbooks) and a remote help desk. The idea was to experiment different modes in view of the scalability of the project's educational formats.

The project made it possible to carry out numerous third mission activities, with a summary of the events carried out appearing below in addition to the publications inserted later.

The kick off meeting at the Politecnico (8 May 2018) was attended by numerous teachers and some managers, representatives of partner institutions (Municipi 4 and 5, Fondazione Prada, Provincial School Office). The presentation of the project was followed by a participatory planning phase which involved 18 teachers and 3 managers. Teacher training was carried out in November-December 2018. It focused on the themes of education on widespread cultural heritage and the use of innovative technologies for the knowledge and sharing of the cultural landscape

Teacher training course program: <http://www.scar.polimi.it/wp-content/uploads/2018/11/formazione-ScAR.pdf>

The students articulated and deepened their knowledge of the territory surrounding the school or related to the neighborhoods, and discovered that they are studying / living in a territory that is a repository of history and memories; they exercised their critical spirit and activated their ability to observe the city, appropriating it. The children produced reflections on their life context and exercised a critical sense of the territory and the state of conservation of cultural heritage, both in a positive sense (discovery of previously ignored values, re-evaluation of one's own context of life), and in a negative and proactive way (observation of degraded elements, identification of degraded or badly used urban spaces and activation of redevelopment hypotheses). They did it through Video, Photographs, and Annotations. The senior students produced interactive multimedia guides for mobile devices with the izi.travel application and virtual tours of their neighborhoods in augmented reality.

- Attached:

  - Documentation dossier, integrated with a geodatabase on cultural heritage <http://www.scar.polimi.it/wp-content/uploads/2018/11/Dossier-patrimonio-culturale-ScAR.pdf> (password scar2018!)

- - Cartographic reading activity <https://bit.ly/2LH1bp6>

- - Students share cultural heritage with social media: <https://bit.ly/2LDSdZV>

- - Students test virtual tours ahead of the Digital Week <https://bit.ly/2Vns7Ka>

- - Creation of two geo-localized game itineraries on the themes of the cultural landscape for mobile devices with the pilot classes of the secondary school.
- - Creation of the digital atlas of memories, a digital platform for the (georeferenced) collection of images and testimonies related to the territory and to the tangible and intangible values that are intertwined in the textures of the suburban landscape. The activity of building their own digital map to share on the platform lead students to learn about the local heritage, the history of everyday places and the signs of their transformations.

Numerous events and meetings also saw the involvement of local administrators, citizens and other schools in the area. The final event "ScAR al Poli - Schools for the cultural urban landscape" of May 31, 2019 saw the presentation of all the works produced by the schools, which received prizes and special mentions (4 VR viewers for the first 3 ranking classes and the school award) and a personal certificate for each student and teacher.

#### INTERNATIONAL CONFERENCES IN WHICH ScAR PARTICIPATED:

- GEORES (Geomatics and Restoration) conference 2019, Milan, May 8-10.
- ED-MEDIA 2019. World Conference on Educational Multimedia, Hypermedia & Telecommunications, June 24-28, 2019; Amsterdam
- AISU 2019. IX Congresso internazionale dell'Associazione Italiana di Storia Urbana AISU (IX International Conference of the Italian Urban History Society AISU). 11-14 September , 2019; Bologna
- ATLAS Annual Conference on Turism Transformation 2019. 17-20 September 2019; Girona (Spain)
- IMG 2019 Convegno internazionale e interdisciplinare su immagini e immaginazione. Images. (International and Interdisciplinary Conference on Images and Imagination. Images) 4 e 5 July; Alghero (presentazione della mappa "A scuola di paesaggio".) (Presentation of the "The landscape school" map)

The approach and results of the ScAR project led to the candidacy for a reuse project for the church of "San Vittore and 40 Martiri" in Viale Lucania in Milan under the "School in the neighborhoods" of the municipality of Milan. The preparatory activity took place in the AY 2018 2019 during the preservation workshop I held, which ended with an exhibition entitled "R.S.V.P. Riapre San Vittore al Pubblico (San Vittore reopens to the public)". The abandoned church conservation and reuse projects, drawn by the students of the School of Architecture, Urban Planning and Construction Engineering of the Politecnico di Milano were exhibited. On the occasion of the opening and closing event, consultation activities were carried out with visitors and residents of the neighborhood on the prospects for reuse of the space and for its return to the citizenship. (12-19 October 2019, Church of San Vittore and 40 Martiri, viale Lucania Milan)

As a summary verifiable product:

Casonato, C.; Di Blas, N.; Bordin, M.; Bonfantini, B.; Pracchi, N.; Villa, D.; Vedoà, M.; Cossa, G.; Greppi, A.; Negro, E. *A scuola di paesaggio. Mappa partecipata del patrimonio culturale di Milano sud*, (School of Landscape. Participatory Map of the Cultural Heritage of Southern Milan Planum, Milano 2019, ISBN: 9788899237165

<http://www.scar.polimi.it/wp-content/uploads/2019/09/A-scuola-di-paesaggio-copia.pdf>

The map collects a selection of the works carried out within the project during the 2018-2019 school year. These are educational projects based on developing the knowledge and interpretation of familiar and inhabited places in everyday life and on the reading and communication of the values contained in them. The activities presented are the result of the shared planning between teachers and the Politecnico teams: in some cases the collaboration was assiduous (pilot classes), in others the teachers moved independently on the basis of the stimuli provided by the project and training courses, adapting them to the specificities of their classes and to the age of their pupils. The paths taken and the products created are therefore very heterogeneous in form and content, since they positively reflect the contribution of the many souls of the project. The map describes the distribution of the mapped points of interest on the territory and the digital products of the project, and also shows the itineraries traced by the mobile use systems.

## RESEARCH ACTIVITY

In recent years, the candidate has been participating in research projects co-financed by MIUR (Ministry of Instruction, University and Research) or by the European Union, in particular:

**MURST Research**, University of Brescia, Constructive Techniques History (studying the introduction of reinforced concrete in restoration interventions).

Verifiable product: *Il modo di restaurare. Le tecniche nel cantiere di restauro tra '800 e '900: l'impiego del cemento armato*, (The way to Restore. The Techniques in the Restoration Site between the 19th and 20th Centuries: The Use of Reinforced Concrete), in S. Della Torre, ed. by, *Storia delle tecniche murarie e tutela del costruito. Esperienze e questioni di metodo*, (History of Masonry Techniques and Building Protection. Experiences and Questions of Method), Milano 1995, pp. 263-275.

**PRIN** (Research Project of National Interest): **Conoscenza delle tecniche costruttive storiche: protocolli e strumenti innovativi per la diffusione e l'applicabilità al processo di conservazione** (Knowledge of Historical Construction Techniques: Innovative Protocols and Tools for their Dissemination and Applicability to the Conservation Process)

Research co-financed in 2005 - duration 24 months

Scientific Coordinator: prof. Stefano Della Torre

Title of the research done at Politecnico of Milano, as Lead Manager: *Conoscenza delle tecniche costruttive storiche degli antichi edifici lombardi in età moderna: finiture e coperture*. (Knowledge of the Historical Construction Techniques of Ancient Lombard Buildings in the Modern Age: Finishing and Coverings)

The study of historical construction techniques has become a central component of the preservation discipline. Although neither the complex of the relationships between the plurality of approaches practiced within the field of studies, nor the modalities through which this form of knowledge produces an improvement in the conservation process have been adequately clarified, the fact that some methodological currents have produced excellent cognitive moments and discussed applications, while other positions seem to miss the problematic and the opportunities of the traditional techniques knowledge, demonstrates the need to investigate the links between knowledge and practice. Two steps are fundamental: the moment of recognition and the evaluation of the current resources of the elements. The first one concerns the need to substantiate and disseminate the ability to recognize objects as a product of know-how, and as evidence of a technological culture. The second concerns the application of knowledge to the conservation process, in particular by evaluating the possibility that the elements still perform their function, and can therefore be maintained, possibly repairing them, according to a sustainability perspective.

The candidate coordinated the researches and supported the relations between the various Universities involved (Naples, prof. G. Fiengo; Rome "La Sapienza", prof. G. Carbonara; L'Aquila, prof. D. Fiorani; Pescara, prof. C. Varagnoli), devoting himself in particular to the development of the methodological interest themes, to the structuring and implementation of the website [www.tecnicocostuttive.it](http://www.tecnicocostuttive.it), to the organization of the "Historical Construction Techniques. Innovative Protocols and Tools for the Dissemination and the Applicability to the Conservation Process" conference held in Milan, November 8, 2007 (invited as external speakers: Tiziano Mannoni, Carlo Tosco, Claudine Remacle, Luca Mocarrelli).

Verifiable products: V. Pracchi, ed. by, *Lo studio delle tecniche costruttive storiche: stato dell'arte e prospettive di ricerca*, (The Study of Historical Construction Techniques: State of the Art and Research Perspectives) and V. Pracchi, ed. by, *Pratiche costruttive storiche: manufatti in stucco e strutture lignee di copertura in edifici lombardi*, (Historical Building Practices: Stucco Artefacts and Wooden Roofing Structures in Lombard Buildings), Como, 2008.

**SIDART – Sistema integrato per la Diagnostica dei Beni Artistici. Pratica MIUR n. 12828 / SSPAR / 2001 (Integrated System for the Diagnostics of Artistic Heritage)**

The S.I.D.ART research project is an initiative financed by the EU and the MIUR within the 2000-2006 NOP (National Operational Programme) for the Objective 1 Regions "Scientific Research, Technological Development and Higher Education". The project stems from the need to aggregate different skills present on the national territory, in order to establish a highly integrated distributed system, capable of addressing the problem of the diagnosis of artistic and architectural heritage in all its aspects. Indeed, the protection of artefacts of particular historical and artistic interest requires a series of investigations to acquire data on the constitutive aspects of the work, on the state of conservation and on any processes of alteration and degradation. This collection of information must be carried out in a systematic and scientific manner in order to allow an accurate diagnosis of the mechanisms that cause the deterioration of the works and to intervene with the most effective and appropriate remedies. The current trend is to implement preventive measures and limit actions on the products; this implies the ability to monitor any degradation rather than subsequently providing for demanding restorations.

In particular, the unit worked on the OR4 objective, "Methods of analysis of structures for the diagnosis of their state of conservation and degradation processes" whose purpose it was to develop a protocol for the application of the innovative diagnostic techniques developed and tested by the other partners of the project on the artefacts of widespread architecture. With this in mind, the three activities, 4.5 Analysis of diffuse architectural artefacts, 4.6 Methods for evaluating the residual qualities of architectural artefacts and 4.7 Transfer and application of diagnostic techniques for artistic heritage to artefacts of diffuse architecture, have been articulated and developed in totally connected and cross-sectional way, taking inspiration from the most recent and innovative research carried out in the field of conservation, such as Georeferencing, the Risk Map, Preventive and Planned Conservation and ICT for data management.

**UNIONE EUROPEA P.I.C. INTERREG III A 2000-2006**

**Project Title:** L'arte dello stucco nel Parco dei Magistri Comacini (Intelvesi, Campionesi e Ticinesi) delle valli e dei laghi: valorizzazione, conservazione e promozione. (The Art of Stucco in the Parco dei Magistri Comacini (Intelvesi, Campionesi and Ticinesi) of the Valleys and Lakes: Enhancement, Conservation and Promotion).

The main objective of the project is to establish ideal and model itineraries of the stucco artifacts executed between late Mannerism and Neoclassicism, in Ticino and in Lombardy, to discover plastic and decorative groups made by skilled workers in this artistic technique. The purpose of the itineraries is to stimulate visits to peripheral areas far from the traditional tourist routes. The scientific investigations envisaged by the project constitute a valid support for the enhancement, preservation and dissemination of this artistic, historical and cultural heritage intrinsically linked to the identity of the historical, secular and religious architecture of the area. The assumption is that in order to properly preserve the sculptural artefacts, their knowledge is fundamental both on a cultural, historical and artistic level, and on the material level with regard to the composition of the stucco and its interaction with the environment. The research provided information on the production of the artifacts, fundamental data for conservation interventions and for the study of techniques, methodologies and the use of new materials in view of conservation activities.

Verifiable product: S. Della Torre, V. Pracchi, P. Rotondi, *Definizione di protocolli per il processo di conservazione di manufatti in stucco*, (Protocols Definition for the Conservation Process of Stucco Products), in *L'arte dello stucco*, (The Art of Stucco), Conclusive conference of the project Interreg IIIA,

PRIN (Research Project of National Interest) 2008: **L'obiettivo del miglioramento dell'efficienza energetica nel processo di conservazione del costruito storico (The Goal of Improving Energy Efficiency in the Conservation Process of Historic Buildings)**

Partner: Politecnico of Milan, University of Genoa, University of Architecture of Venice, University of Bergamo, CNR - ISAC. Not funded

**INTERREG PROJECTS Italy / Switzerland cross-border cooperation program 2007/2013**

**PO project Alpine culture: knowing how to enhance the territory - PIT SAPALP - Project ID: 13819636**

The INTERREG Project, P.O Participated Training: "Knowing how to learn to live in a sustainable way" is part of the P.I.T SAPALP, Saperi ALPini: "Paths of sustainability along the Comasco Ticinese watershed" Integrated Territorial Project which also includes the Ordinary Project called Alpine Culture: knowing how to enhance the territory. The main objective is the creation of thematic cultural itineraries, or rather thematic networks, which contribute to the enhancement of the specificities of the territory between the western shore of the Lario and the whole Sottoceneri, a territory deeply influenced by the close strategic proximity to the cultural and religious axes that ran from the north to the south of Europe. The networks will have an artistic, religious and ethnographic character, to recover traditional paths such as that of the smugglers of Casasco and to continue to follow and catalog the traces of the Comacini Magisters, considered one of the factors of European cultural unity, on the natural and built landscape. It is also intended to reconstruct the pilgrimage and visit routes of St. Charles, a further link of this 'lateral' area with the European main axes. The construction of an integrated enhancement of these specific features of the cultural and traditional heritage and other territorial peculiarities finds an ideal location within the PIT 'SAPALP Saperi Alpini: sustainability paths along the Como-Ticino watershed' Integrated Territorial Project.

**PRIN (Research Project of National Interest): Modellazione e gestione delle informazioni per il patrimonio edilizio esistente (Built Heritage Information Modeling / Management – BHIMM)**

Research co-financed in 2011 - duration 36 months

Scientific Coordinator: prof. Stefano Della Torre

The aim of the project is to test actions that support/promote the improvement of building heritage management policies and the cultural heritage conservation and enhancement, thanks to the adoption of technological and process innovation based on Building Information Modeling (BIM), seen also as an indispensable innovation in the construction industry. BIM is an innovative system that has spread rapidly around the world in connection with new construction. Its application to interventions on the existing buildings, starting from survey techniques and 3D modeling, has yet to be addressed. The research project intends to investigate issues related to the quality of the building process in terms of standards (graphic and otherwise) of the project for the preservation of public buildings, starting from the definition of a precise hierarchy of data (Preliminary Requirements). The goal is to exploit information technologies in an advanced way and, starting from the concept of software interoperability, to define a new working philosophy based on BIM also in the monitoring, management and maintenance phase. The project plans to explore the most delicate and characteristic sectors of preservation activities, therefore, the themes of energy efficiency, structural improvement, documentation of the works performed and quality control, with the aim of defining the "Final BIM Requirements" and of optimizing the process by defining an easily replicable methodology. The determination of the theoretical concepts and their application to case studies will allow the integration of information on design, implementation and management (including maintenance) with BIM methodology, which guarantees the integration of all data in a single database containing all the information in a constantly updated way.

**RESEARCH PROJECT "HISTORICAL-ARCHITECTURAL HERITAGE: PROTOCOLS FOR DIAGNOSTICS AND CONSERVATION"**

commissioned by the Lombardy Region (thematic line "Process innovation for cultural heritage: protocols and guidelines", Center for the enhancement of Cultural Heritage in Lombardy) to the Center for the Conservation and Enhancement of Cultural Heritage of the Politecnico of Milan, director Maurizio Boriani, coordinator Lucia Toniolo.

The project is inspired by the analysis of the current situation relating to the design, conservation and enhancement of the historical-architectural heritage, in which there is a total absence, of univocally codified and shared procedures. The existing procedures show a wide margin of interpretation, especially as regards the qualification of the various activities and the mutual interactions, in terms of time and operation, which contribute to the preparation of an adequate project of conservation and enhancement. The main objective of this research was therefore the re-composition and definition of a methodological framework for the reorganization of guidelines and protocols for the knowledge, the diagnostics and the conservation of Built heritage, and specifying the various definitions of the activities that qualify the conservation and enhancement process. The research therefore began with a survey of the existing protocols, as it was deemed appropriate to work on deepening of the process analysis leading to the conservation interventions of the historical-architectural heritage, in order to define a grid of reference in which the actions that substantiate the design process could be inserted and interfaced.

Verifiable product: M. Catalano, V. Pracchi, *La redazione del documento preliminare alla progettazione per i beni culturali*, (The Writing of the Preliminary Design Document for Cultural Heritage), 2012, Santarcangelo di Romagna (RN) 2012. ISBN 978-88-387-6916-8

**Research Project Funded by the University for Basic Research (FARB), 2011-2013, “Energy efficiency and historic buildings. Measuring the thermophysical characteristics of ancient walls”**, proponents R.S. Adhikari, R. Brumana, I. Paoletti, V. Pracchi, E. Rosina.

The project aims to understand the energy functioning of historic buildings, analyzing the reference literature, measuring the energy performance of different types of ancient walls and evaluating the functioning of static and dynamic simulation systems.

Among the verifiable products, please refer to the papers related to the Energy Efficiency and Historic Buildings topic included among the publications (27 papers).

Participation in the **COST Project (March-April 2012) "The relationship between conservation and energy efficiency in historical buildings - number 2012-1-12494"**

The objective of the project was the establishment of a European research group dedicated to the energy efficiency of historic buildings, in order to compare the literature, legislation, regulations, practical approaches and experiments carried out by the five states involved (Italy, Spain, Sweden, Denmark, Greece and Great Britain) - not funded

**INTERREG PROJECTS Operational program of cross-border cooperation Italy / Switzerland 2007/2013 - Axis 3 measure 1 “The planned conservation in the Rhaetian common space” CPRE project**

The project "Planned conservation in the Rhaetian common space - CPRE" intends to enhance and expand the significant network of relationships and skills that was established in the Valtellina area as a result of technical-scientific research activities in the field of the planned conservation of monumental buildings developed in the last decade. It wants to be a model case of approach to the planned conservation of cultural heritage in the Alpine territory, pursuing a significant impact both in cultural terms and in terms of employment in the reference area. The project is divided into the following thematic fields: knowledge, conservation and enhancement and in the areas of training and management. The analysis activities of the available data and the inspection of the buildings restored in past years (Cultural District project) will be extended to other artefacts and to samples in the Grisons territory of typically similar buildings, in order to analyze the recurring maintenance aspects and to evaluate common strategies of conservation management; the archaeological research data gathered in the last decade and relating to the Valtellina area will be analyzed and systematized, with reference to similar researches developed in the Canton of Grisons. Cognitive activities will be developed, through analysis, diagnostics and monitoring, with regard to relevant and historically representative artefacts of the territory pertaining to the project. A specific approach to conservation and maintenance will be developed based on the BIM (Building Information Modeling) methodologies, sharing the experiences currently underway in this sector in Italy and Switzerland. This design approach will guide the specific restoration and enhancement interventions envisaged for some of the buildings indicated above.

**Collaboration with the Cariplo Foundation - Cultural Districts Project (2008-2010)**

The candidate was a consultant for the creation of the Oltrepò Mantua cultural district.

In particular, she was involved in the planning and technical financial analysis of all the buildings to be restored belonging to the district project. (CARIPO financing equal to approximately 3,000,000 euros, total cost of the entire design, including activities related to intangible assets and services approximately 11,000,000 euros).

<http://www.fondazioneCARIPLO.it/static/upload/dom/dominus.pdf>



<http://www.oltrepomantovano.eu/dominus/>

**Heritage Plus Joint Call: Energy Efficiency in Heritage Buildings: *Integrating Users' Perceptions, Attitudes and Behaviours into Decision-Making Frameworks (2015)***

The European decarbonization policies will inevitably affect the heritage values of domestic and non-domestic 'heritage buildings'. Moreover, existing energy efficiency policies and decision-making frameworks for assessing values of 'heritage buildings' during energy efficient projects are based only on professional judgment. As the largest stock of those buildings is used by private owners, tenants or state organizations, who do not necessarily hold expertise in heritage or energy conservation, it is vital to investigate users' attitudes towards energy efficiency. This project will conduct, through inter-disciplinary methods, the first transnational study of how users of domestic and non-domestic 'heritage buildings' make decisions about energy efficiency interventions.

Participants: May Cassar University College London, Annika Haugen Norwegian Institute for Cultural Heritage Research, Valeria Pracchi Politecnico of Milan, Tor Broström Uppsala University, Natalia Stash Eindhoven University of Technology.

Not funded (Nowadays this is one of the trend topics in this field of research, but just 5 years ago it was considered not so relevant).

Scientific manager of the Milan operational unit for the **PRIN RESEARCH PROJECTS OF RELEVANT NATIONAL INTEREST - Call 2015 Prot. 2015ZY8S3K Mankind and cultural heritage. Accessibility as a resource for the restoration and enhancement of archaeological areas, historic centers and sites in a state of ruin.**

National Coordinator R. Picone University of NAPLES "Federico II" Partner: University of FLORENCE, University of BRESCIA, University of TRIESTE, Polytechnic of Milan, University of "Mediterranea" of REGGIO CALABRIA, University of Studies of PALERMO, University of PAVIA, University of ROMA TRE. Not funded

**Equal Project - European Technology Platform for Accessibility Evaluation and Enhanced Visualization** November - December 2016

ITEA Calls: ITEA is the EUREKA (a publicly-funded, intergovernmental network, involving over 40 countries) Cluster programme supporting innovative, industry-driven, pre-competitive R&D projects in the area of Software-intensive Systems & Services (SiSS), a key driver of innovation in Europe's most competitive industries. ITEA promotes projects in an open community of large industrial players, SMEs, universities, research institutes and user organizations.

The EQUAL project focuses on providing the Equal Participation of people with disabilities in social and economic fields such as culture, tourism, transport, renting and real states business.

The EQUAL project will develop and implement Cloud technologies that combine Building Information Modeling and Virtual reality tools, empowered with Data Mining and other innovative techniques, to drive the most accurate information to people with accessibility needs.

Partners: Avantalia Soluciones S.L, BEIA Consult International, MITI - Madeira Interactive Technologies Institute, The Mountain Tourism Cluster, Ocide Asesores S.L., Once Foundation for Cooperation and the Social Inclusion of People with Disabilities, Politecnico of Milan, Poznan University of Technology, Red Estable (Spanish Network for Accessible Tourism), Stress, Turistec, ULL Università Studi of Brescia, University of Naples, University of Lisbon, WowSystems.

2017 - 2021 the candidate is one of the components of **Task 59 / Annex 76 - Solar Heating and Cooling Program - International Energy Agency IEA. Title: Historic Buildings. Deep Renovation of Historic Buildings towards Lowest Possible Energy Demand and Co2emission (Nzeb)**

Members: Italy: EURAC and Milan Polytechnic, Austria: e7 and Innsbruck University, Sweden: Uppsala University, Great Britain: Historic Environment Scotland, Belgium: Catholic University of Leuven and Belgian Building Research Institute, Germany: Fraunhofer ISE & IBP, Denmark: Danish Building Research Institute, Carrig / ICOMOS (IE), Spain: Tecnalia, Cupa innovacion, USA: PSU, New Zealand: Auckland and Victoria University, Switzerland: SUPSI.



Publications:

Herrera-Avellanosa, D.; Haas, F.; Leijonhufvud, G.; Broström, T.; Buda, A.; Pracchi, V.; Webb, A. L.; Huttler, W.; Troi, A. *Deep Renovation of Historic Buildings: The IEA-SHC Task 59 Path towards the Lowest Possible Energy Demand and CO<sub>2</sub> Emissions* INTERNATIONAL JOURNAL OF BUILDING PATHOLOGY AND ADAPTATION, 2019, pp.1-15 DOI 10.1108/IJBPA-12-2018-0102

Akkurt, G. G.; Aste, N.; Borderon, J.; Buda, A.; Calzolari, M.; Chung, D.; Costanzo, V.; Del Pero, C.; Evola, G.; Huerto-Cardenas, H. E.; Leonforte, F.; Lo Faro, A.; Lucchi, E.; Marletta, L.; Nocera, F.; Pracchi, V.; Turhan, C. *Dynamic Thermal and Hygrometric Simulation of Historical Buildings: Critical factors and Possible Solutions*, in RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol.118, pp. 1-17.

A. Buda, E. J. de Place Hansen, A. Rieser, E. Giancola, V. Pracchi, S. Mauri, V. Marincioni, V. Gori, K. Fouseki, C. S. Polo López, A. Lo Faro, A. Egusquiza, E. Leonardi, F. Haas and D. Herrera

*Conservation-Compatible Retrofit Solutions in Historic Buildings: An Integrated Approach (on going)*

**2018 - 2020 Winner** (with C. Casonato, D. Villa, B. Bonfantini, N. Di Blas) **of the Polisocial award 2017 funding the research entitled ScAR (Scuola Attiva Risorse - School Activates Resources)** lasting 24 months

(Please see the “THIRD MISSION” ACTIVITIES paragraph)

Verifiable products:

Bertone, G., Bordin, M., Casonato, C., Di Blas, N., Pracchi, V. & Vedoà, M., *Schools as Protagonists in the Valorization and Communication of their Local Cultural Heritage*, in Proceedings of EdMedia + Innovate Learning (pp. 1562-1568). Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE).

B. Bonfantini, C. Casonato, D. Villa, N. Di Blas, V. Pracchi, and M. Vedoà, *Revealing the everyday landscape: innovative systems for heritage education in schools. The ScAR (School Activates Resources) project*, pp. 255-261

**University funding for the interdisciplinary scholarship proposal (XXXIV cycle)**

PhD courses proposing: ABC and Conservation of Architectural Heritage (DASTU)

Research title: "Tailor made" solutions to improve the energy efficiency of historic buildings.

Research topic: Cultural Heritage

Proponents: Valeria Pracchi (ICAR 19) - Doctorate ABC and Giovanna Franco (ICAR 12) - Doctorate in Conservation of Architectural Heritage (DASTU)

2018 – 2020 The candidate participated in the **Erasmus + KA107 International Credit Mobility in Architecture project with the Universidad de Belgrano, Argentina**, presented in the 2018 call (project code 2018-1-IT02-KA107-047412) (score 94/100) focused on the training of teachers and students in the field of knowledge and protection of the architectural heritage of Italian origin in Argentina.

As part of this project, she spent a period at the Partner University teaching Argentine students during their mobility period at the Polytechnic as provided for by the project.

**2018-2020 Cluster MIUR - TICHE “Technological Innovation in Cultural Heritage”**

**CHERIE Project - Technological Innovation in Cultural Heritage Interoperable Environment.**

The project starts from the analysis of the cultural heritage management process. It examines the gap between the current digitalization practices of the single phases of the process (survey, cataloging, documentation, maintenance) and promotes the widest diffusion of BIM tools in professional practice. It builds the guidelines for the BIM modeling of historic buildings with a view to the creation of an interoperable platform and the construction of an interoperable virtual platform prototype.

Project leader: Suor Orsola Benincasa University

Partner: Politecnico of Milan; La Sapienza University of Rome; Federico II University of Naples, University of Genoa

**2019 Energy Performances Improvement in Built Cultural Heritage in MEDiterranean Countries** Acronym **EPICH\_MED** Applicant Regione Sicilia – Assessorato Regionale dell'Energia e dei Servizi di Pubblica Utilità. Duration (months) 30

Thematic Objectives B.4 - Environmental protection, climate change adaptation and mitigation

Priority B.4.3 - Support cost-effective and innovative energy rehabilitations relevant to building types and climatic zones, with a focus on public buildings. EU

Partners/Countries 6. MPC Partners/Countries 4. Associated partners 5

Geographic coverage Italy, Greece, Malta, Egypt, Jordan, Lebanon. Budget 2,780,331.66 €

EPICH\_MED addresses the challenge of creating a cross-border agreement to support and develop energy rehabilitation policies and strategies for historic buildings in hot climates, with a focus on public heritage, bringing together two main issues in the agenda of many countries. Currently, built heritage energy improvement faces a duality: on one hand the topic is dealt with as mere money saving, with the effect of high-impact interventions, on the other, interventions are excluded due to the importance of the relevant asset, creating the need to adopt very energy-demanding spot measures, affecting the conditions of both users and artworks. Neither allows to reach the goal of improving its performances without losing values.

To overcome this, EPICH\_MED acknowledges the need for a decision-making support web platform to enhance the ability of building operators and professionals to identify affordable rehabilitation criteria and solutions in MED climate, recovering also the knowledge of passive systems for mitigating the building indoor conditions.

6 Countries (3 EUMCs, 3 MPCs) share different expertise (policy making, researchers, heritage preservation, monitoring and technological innovation): this makes it possible to assess the efficacy of new low-impact materials (e.g. thermo-plaster with nanotechnologies or natural fibers) and removable devices (curtains, tapestries, etc. with innovative materials) never tested before in cross-border pilot cases, different in type and function. While it is considered impossible to reach the same performances of new buildings (without a detriment of values), it is possible to enhance their performances - at least - up to 50%, mixing passive and active solutions, while preserving their uniqueness. Finally, public actors involvement in training activities and workshops will be fundamental to raise awareness of a different approach. Results will be disseminated through an open access web platform.

## CONSTRUCTION SITES ACTIVITIES

(From 2002 to 2015 she practiced the profession in an associated form, with architects Gianfranco Pertot and Paola Rotondi. Studio Pertot, Pracchi, Rotondi associated architects)

### 1991

- Battistero in Parma (cleaning, consolidation, plastering and protection of the stone facing, internship of the School of Specialization in Restoration of Monuments).
- Chiesa della SS. Annunziata in Parma (cleaning, consolidation, plastering and protection of the plaster, internship of the Specialization School in Restoration of Monuments)

### 1992

- Cortile centrale dell'Ospedale Maggiore in Milan (cleaning, consolidation, plastering and protection of the stone facing, internship of the School of specialization in Restoration of monuments).

### 1996

- Villa Monastero in Varenna (LC) (Geometric, material and decay survey, on computer support, of the appurtenances and part of the Villa) (with arch. G. Pertot).

### 1997

- Palazzo Natta in Como (diagnostic investigations and conservation project) (with Prof. S. Della Torre).  
*Customer:* City Administration of Como.

### 1998

- Archivio di Stato in Mantova (Survey of the materials and decay of the Ex Sacristy with stuccoes by Barberini, conservation project, Survey of the materials and decay of the wooden and cast iron structures of the late nineteenth century and related conservation project) (with Prof. S. Della Torre).  
*Customer:* Design studio COPRAT, Mantova.
- Consultancy for assessing the state of decay of the Palazzo d'Arco in Mantua.  
*Customer:* Design studio COPRAT, Mantova.

### 1999

- Conservation project of the church of S. Maria at San Paolo in Cantù (with Prof. S. Della Torre) (I lot).  
*Customer:* Associazione Amici dei Musei.
- Commission for the survey of some structures and appurtenances of the Broletto of Como.  
*Customer:* Politecnico of Milan.

### 2000

- Assignment for the preparation of the tender specifications, estimate of quantities and price analyses of the preservation project for Palazzo Natta in Como.  
*Customer:* City Administration of Como.

## 2001

- Survey of the ancient hospital and the basement of the Rocchetta in the Visconteo Sforzesco Castle of Milan  
*Customer:* Soprintendenza del Castello, Milan.
- Survey of the central nave of the church of Santa Maria delle Grazie in Milan.  
*Customer:* Soprintendenza per i Beni Architettonici e per il Paesaggio della Lombardia, Milan.

## 2002

- Conservation project of the façade of the parish church of San Giacomo Maggiore in Ospitaletto (BS) (with arch. G.P. Treccani).  
*Customer:* Parrocchia di San Giacomo Maggiore, Ospitaletto (BS).
- Consultant for the preservation intervention at Palazzo Natta in Como (II lotto).  
*Customer:* City Administration of Como.
- Architectural survey and graphic restitution of part of the plans, sections and elevations of the Castello Sforzesco in Milan, sector of the Piazza delle Armi.  
*Customer:* City Administration of Milan.
- Conservation project of the parish church of Flero (BS) (with arch. G.P. Treccani).  
*Customer:* Parrocchia Conversione di San Paolo, Flero (BS).
- Conservation project of the Oratory of Santa Maria at San Paolo in Cantù (with Prof. S. Della Torre) (II lotto).  
*Customer:* City Administration of Cantù.
- Geometric, material and stratigraphic surveys of the oratory of San Biagio in the hamlet of Rossate di Lavagna in Comazzo (MI).  
*Customer:* Soprintendenza per i Beni Architettonici e per il Paesaggio della Lombardia, Milano.

## 2003

- Supervision and organization of the realization of the assignment, entrusted to the BEST Department, regarding the geometric, material and decay surveys of the Villa Reale in Monza. I lot  
*Customer:* Regione Lombardia e Comune di Monza.
- Conservation and reuse project of the Ancient Hospital of the Castello Sforzesco in Milan.  
*Customer:* City Administration of Milan.
- Geometric survey of the parish church of Travagliato (BS).  
*Customer:* Parrocchia dei Santi Pietro e Paolo, Travagliato (BS).
- Survey of the apse of the church of Santa Maria delle Grazie in Milan.  
*Customer:* Soprintendenza per i Beni Architettonici e per il Paesaggio della Lombardia, Milano.

## 2004

- Supervision and organization of the realization of the assignment, entrusted to the BEST Department, regarding the geometric, material and decay surveys of the Villa Reale in Monza II lotto
- Supervision of works at the Oratory of Santa Maria at San Paolo in Cantù (II lotto).  
*Customer:* City Administration of Cantù.

- Conservation project of the Oratory of Santo Stefano in Lentate sul Seveso (MI).  
*Customer:* City Administration of Lentate sul Seveso.

## **2005**

- Conservation and reuse project of Palazzo Robati in Capergnanica (CR)  
*Customer:* City Administration of Capergnanica (CR)
- Conservation project of the religious chapel in the San Fruttuoso cemetery (Monza).  
*Customer:* City Administration of Monza.
- Conservation and reuse project of the former Monastery of SS. Faustino and Giovita, Isola Comacina (CO).  
*Customer:* City Administration of Ossuccio (CO).

## **2006**

- Work management of Oratorio di Santo Stefano in Lentate sul Seveso (MI).  
*Customer:* City Administration of Lentate sul Seveso.

## **2007**

- Conservation works management of Palazzo Robati in Capergnanica (CR)  
*Customer:* City Administration of Capergnanica (CR)
  - Conservation works management of the religious chapel in the San Fruttuoso cemetery (Monza).  
*Customer:* City Administration of Monza.
- Project for the preservation and enhancement of the prehistoric Castelliere del Caslè in the municipality of Ramponio Verna (CO).  
*Customer:* City Administration of Ramponio Verna (CO)  
Work co-financed by the Lombardy Region

**2006-2010** Conservation and re-use project of the former Monastery of Saints Faustino and Giovita on the Comacina Island – Ossuccio (CO).  
Assignment for: geometrical and digital surveys, historical research, preservation project, work management, safety coordination in the design and execution phase, maintenance plan (SIRCOP - Lombardy Region)  
*Customer:* City Administration of Ossuccio (CO) Del. G.C. n. 100 (19/10/2005).

**2009** –. Conservation and reuse project of the Castle of Mairano (Noviglio - MI) and its adaptation to the municipal seat  
Assignment for: surveys and historical research, preliminary and executive design.  
*Customer:* City Administration of Noviglio (MI)

**2009** – Conservation and reuse project of the ancient hospital of the Castello Sforzesco in Milan.  
Assignment for: geometrical and digital surveys, historical research, preservation project, work management, safety coordination in the design and execution phase, maintenance plan (SIRCOP – Regione Lombardia)  
*Customer:* City Administration of Milan.

**2012-** Technical consultancy report concerning the parish house of Maccagno on behalf of the Regional Administrative Court for Lombardy, Second Section, G. R. 2479/2009, I.M. Dr. Giovanni Zucchini. Dispute initiated by the Municipality of Maccagno against the Ministry for Cultural Heritage.

**2013 – 2015.** Conservation and reuse project of the Ancient Hospital of the Castello Sforzesco in Milan.

Assignment for: work management, general accounting.

*Customer:* City Administration of Milan.

## PUBLICATIONS

*Italian Title* – (English Title) in grey the chosen ones

### 1991

1. *Esigenze del costruito e nuovi modi di vita*, (Needs of The Built Heritage and New Ways of Life), in G. Guarisco, ed. by, *A-LETHEIA*, 2. *Architetture lombarde dimenticate; studi per il riuso*, (Forgotten Lombard Architectures: Studies for their Reuse), Alinea, Firenze 1991, p. 28. **ASIN:** B008BO2N6Q

2. *La Raccolta Martinelli al Castello Sforzesco di Milano*, (The Martinelli Collection at the Castello Sforzesco in Milan), in “Il Disegno di Architettura” (“The Drawing of Architecture”), n. 3, April 1991, pp. 5-24. ISSN 1121-8770

3. *La Raccolta Martinelli al Castello Sforzesco di Milano*, (The Martinelli Collection at the Castello Sforzesco in Milan), in “Il Disegno di Architettura” (“The Drawing of Architecture”), n. 4, November 1991, pp. 9-28. ISSN 1121-8770

The two articles analyze and catalogue the Martinelli collection highlighting the material collected in its nine volumes, including about 850 drawings for churches, altars, temples, scenography etc. In addition to Martinelli's drawings there are works by Giovan Battista Montano, Pietro da Cortona, Filippo Juvarra.

### 1992

In S. Della Torre, ed. by, *Il Mestiere di costruire. Documenti per una storia del cantiere. Il caso di Como*, (The Vocation of Building. Documents for a History of the Construction Yard. The Case of Como), Nodolibri, Como 1992, ISBN 9788871850269:

4. *Tecnologia ed organizzazione edilizia nel territorio di Como: appunti e considerazioni*, (Technology and Building Organization in the Como Area: Notes and Considerations), pp. 29-75.

"Very interesting, although necessarily contained within the predefined limits of the research ... The text offers us an overview of the different aspects that make up the Como yard from the end of the 16th century to the mid-18th century", from the review by D. Fiorani in "Palladio ", Year V, n. 10, December 1992, p. 133.

5. *La cupola del Duomo*, (The Dome of the Duomo), pp. 167-191.

"The richest series of drawings, twelve in all for three different projects ... have been carefully studied ... and judiciously placed in a convincing sequence", from the Introduction by H. A. Millon in M. L. Casati and S. Della Torre, ed. by, “The project for the dome of the Como Cathedral”, p. 12.

6. *Glossario*, (Glossary), pp. 193-205.

"The text is completed by an accurate glossary which has the purpose of facilitating the reading of the archive documents contained in the text and to allow comparison with those relating to contemporary construction sites in the rest of Italy", from the review by D. Fiorani in "Palladio ", Year V, n. 10, December 1992, p. 134.

### 1993

7. *Ricostruire o meno la Torre crollata*, (Rebuild or Not Rebuild the Collapsed Tower), in *TeMA*, n. 4 1993, p. 41.

### 1994

8. *Architetto, capomastro, committente*, (Architect, Foreman, Customer), in F. Cani, G. Monizza, ed. by, *Como e la sua storia. La città murata*, (Como and its History. The Walled City), Nodolibri, Como 1994, p. 295, ISBN 8871850335.

9. *Specificità costruttive locali e nuovi metodi di datazione*, (Local Construction Specificities and New Dating Methods), in F. Cani, G. Monizza, ed. by, *Como e la sua storia. I Borghi e le frazioni*, (Como and its History. The Villages and the Hamlets), Nodolibri, Como 1994, p. 30, ISBN8871850335.

In S. Della Torre, ed. by, *Vita e arte di cantiere. Immagini, materiali, testimonianze per la storia dell'edilizia nel comasco e nel lecchese. 1850-1950*, (Life and Art of the Construction Site. Images, Materials, Evidence for the History of the Construction in the Como and Lecco Areas. 1850-1950), Nodolibri, Como 1994, ISBN 8871850343:

**10.** *'Tutte le cose che si credono antichissime, furono nuove un tempo'*. *Brevi note sulla storia dei materiali da costruzione nel territorio lariano*, ('All Things That Are Believed To Be Very Old, Were New In The Past'. Brief Notes on the History of Building Materials in the Como Area) pp. 27-52.

The study of the construction site, the techniques used, its organization, the linguistic nuances that inhabit it, issues that require a progressive focus within a history that is based on the culture of materials.

**11.** *Il cantiere del restauro*, (The Restoration Site), pp. 273-329.

The evolution of the techniques used in the restoration site: the use of traditional practices is gradually replaced by the use of new scientific findings that exploit the potential offered by modern materials, making the restoration site increasingly specialized.

### 1995

**12.** Recensione a *La Ca' Granda di Milano. L'intervento conservativo sul cortile richiniano*, (Review: La Ca' Granda in Milan. The Conservative Intervention on the Courtyard of Richini), Pizzi Milano, in "Palladio", a. VIII, n. 15, giugno 1995, pp. 134-137, ISSN 11247169.

**13.** *Il modo di restaurare. Le tecniche nel cantiere di restauro tra '800 e '900: l'impiego del cemento armato*, (The Way to Restore. The Techniques in the Restoration Site Between the 19th and 20th Centuries: The Use of Reinforced Concrete), in S. Della Torre, ed. by, *Storia delle tecniche murarie e tutela del costruito. Esperienze e questioni di metodo*, (History of Masonry Techniques and Building Protection. Experiences and Method Questions), Guerini, Milano 1995, pp. 263-275, ISBN 8878026719.

The essay evaluates the transformation of the restoration site in the wake of technological innovations, it follows and documents the resistance of traditional techniques to such innovations, and it searches for the signs of a specialization of the technique used

**14.** *La via del cemento* (The Way of the Cement), pp. 3-10, in AA.VV., *Stabilimento di Cassago* (Cassago Plant), Nodolibri, Como 1995.

### 1996

**15.** *La disputa intorno al metodo per la storia dell'architettura: Gustavo Giovannoni versus Lionello Venturi* (The Dispute over the Method for the History of Architecture: Gustavo Giovannoni versus Lionello Venturi), in "TeMA", n. 2 1996, pp. 68-72.

The famous controversy has been repeatedly reviewed by art and restoration historians. A new document, emerging from the Venturi archive, proposes a different and more nuanced interpretation of the facts and the return of the related writings to the natural writers of the texts.

**16.** Recensione a *Camillo Boito e il sistema delle arti. Primo incontro di studi*, (Review: Camillo Boito and the System of the Arts. First Study Meeting), in "TeMA", n. 2 1996, pp. 45-46.

**17.** *Il cristallo e la città*, (The Crystal and the City), in "Storie" ("Stories"), supplemento a "Il Caffè dei laghi" ("The Coffee of the Lakes"), n. 9, October 1996, pp. 28-29.

### 1997



**18.** *The neo-Renaissance in Nineteenth-century in Italy: The Search for Self-Representation in City Architecture*, con S. Della Torre, in *Reviving the Renaissance. The Use and Abuse of the Past in Nineteenth-century Italian Art and Decoration*, ed. By R. Pavoni, Cambridge University Press, 1997, pp. 177-206, ISBN 0521481511.

Brief review of the theoretical debate and the building events of cities considered emblematic, such as Milan, Turin, Rome, in an attempt to define a series of alternatives in the adoption and use of neo-Renaissance language by the architectural culture of nineteenth-century Italy.

**19.** *Il Duomo come monumento: la molteplicità delle possibili letture*, (The Duomo as a Monument: The Multiplicity of Possible Interpretations) in S. Della Torre, T. Mannoni, V. Pracchi, eds. by, *Magistri d'Europa. Eventi, relazioni, strutture della migrazione di artisti e costruttori dai laghi lombardi* (Magisters of Europe. Events, Relationships, Structures of the Migration of Artists and Builders from Lombard Lakes) (Conference Proceedings, Como 23-26 October 1996), Nodolibri, Como 1997, pp. 109-135, ISBN 8871850521.

Material sources and written sources: what does the measurement of the slabs making up the south side of the Como Cathedral suggest, linking this type of analysis to what is known in literature.

## 1998

**20.** *Un inedito a proposito della polemica fra Adolfo Venturi e Gustavo Giovannoni*, (A Previously Unknown Document about the Controversy between Adolfo Venturi and Gustavo Giovannoni), in "Istituto Lombardo Accademia di Scienze e Lettere", ("Lombard Institute Academy of Sciences and Letters") Rendiconti, vol.130 (1996), fasc.1 e 2, pp. 53-74, ISSN 2348-9150.

**21.** *Intervista a Giuseppe Pontiggia*, (Interview with Giuseppe Pontiggia), in "TeMA", n. 1 1998, pp. 14-18.

A writer attentive to social phenomena and all forms of artistic expression, Pontiggia has first-hand knowledge of the problems of disability through his son. For these reasons he was considered the best person to verify, on a general level, also the problems that accessibility poses to the culture of architectural conservation.

**22.** *Conservazione e normativa*, (Conservation and Legislation), in "TeMA", n. 1 1998, pp. 52-60.

Evolution of the legislation on the overcoming of architectural barriers in relation to architectural conservation, which has almost remained a spectator of a debate that has instead involved many and different professionals.

**23.** *Il progetto di conoscenza, l'organizzazione dei dati, il programma d'intervento* (The Knowledge Project, the Data Organization, the Intervention Program), (with S. Della Torre) in "La conservazione del Palazzo Natta di Como: un progetto in cantiere", ("The Conservation of Palazzo Natta in Como: A Project On Site"), in "Progettare i restauri: orientamenti e metodi. Indagini e materiali" ("Designing Restorations: Orientations and Methods. Investigations and Materials"). Conference Proceedings, Bressanone, 1998, pp. 278-281, ISBN 9788895409023.

The relationship between analysis and intervention in a lucky case in which it was possible to have a scaffolding specially prepared for the "preventive preservation" phase, as well as to allow the most urgent repairs.

## 1999

**24.** *Riflessi di una sublime rovina: l'Ultima Cena. Intervista a Pietro C. Marani*, (Reflections of a Sublime Ruin: The Last Supper. Interview with Pietro C. Marani), in "TeMA", n. 4 1998 (ma 1999) pp. 16-23.

The links between pictorial and architectural restoration: the concrete experience of those who directed the restoration of Leonardo's fresco, one of the most celebrated works over the years, serves to compare some approaches or, on the contrary, some aporias in the theoretical panorama of the architectural conservation sector.

**25.** *Un mondo in maschera: appunti sulla politica di tutela del paesaggio*, (A Masked World: Notes on the Policy of Protecting the Landscape), in "La Valle Intelvi. Contributi per la conoscenza di arte archeologia, ambiente, architettura e lettere intelvesi", (The Intelvi Valley. Contributions to the Knowledge of Art, Archeology, Environment, Architecture and Intelvesi Letters), Quaderno n. 4, 1998 (ma 1999), pp. 17-21, ISSN 2284-1563.

**26.** *"La protezione dei monumenti è lotta da combattere giorno per giorno". Lettere di Benedetto Croce a Corrado Ricci*, ("The Protection of Monuments is a Struggle to Be Fought Day by Day". Letters from Benedetto Croce to Corrado Ricci), in "Napoli Nobilissima", vol. XXXVIII, fasc. I-VI, January - December 1999, pp. 175-184, ISSN 0027-7835.

A group of unpublished letters, which the Neapolitan philosopher sent to Corrado Ricci, offers the starting point for some considerations on the interest he showed in the protection and conservation of Neapolitan buildings, as well as on the way in which some restoration theorists have reread his thought.

## 2001

**27.** *"La logica degli occhi": gli storici dell'arte, la tutela e il restauro dell'architettura tra positivismo e neoidealismo*, ("The Logic of the Eyes": Art Historians, the Protection and Restoration of Architecture between Positivism and Neo-Idealism), New Press, Como 2001, ISBN 9788893560153.

"Investigating the relationships between architects - restorers and art historians involved in itself a little reassuring sortie with respect to the field traced by the previous models ... The problem therefore had to be faced, we had to denounce what in our way of acting, of speaking, still weighs that "stringent logic of the eyes" to which we have been educated and which often predetermines our way of thinking even when we reason to found different logics ". From the Preface by S. Della Torre.

**28.** *Progetto di conservazione del Castelletto di Branduzzo (Pavia)*, (Conservation Project of the Castelletto di Branduzzo (Pavia)) (with E. Romoli e A. Falcone), in *Dialoghi con la materia dell'architettura*, (Dialogues with the Material of Architecture), L. Galli, ed. by, Unicopli edizioni, Milano 2001, pp. 23-46, ISBN 8840006613.

The text outlines the meager historical information known, the recent events that have affected and contributed to damaging the complex, the attempts made previously to resolve the instability. The analysis plan prepared and the design resolution are then illustrated, adopting a philosophy able to reconcile conservative requests with the needs of the structures. The latter often tending more to the sphere of mathematical certainties, rather than listening to needs that are different each time, not comparable, and which constitute the diversity of each building.

**29.** *Cultura della sicurezza e specificità dell'intervento sull'esistente: intuizionisti versus empiristi*, (Culture of Safety and Specificity of the Intervention on the Existing: Intuitionists versus Empiricists), in "TeMA", n. 1 2001, pp. 6-13.

**30.** *La gestione della sicurezza. Intervista a Mauro Marchini*, (Safety Management. Interview with Mauro Marchini), in "TeMA", n. 1, 2001, pp. 72-75 (with F. Amendola).

**31.** *La domanda o il bisogno di conservare l'eredità del passato*, (The Demand or Need to Preserve the Legacy of the Past), in *Beni Culturali. Giustificazione della tutela*, in Cultural Heritage. Justification of Protection), F. Ventura, ed. by, Utet, Torino 2001, pp. 115-143, ISBN 8825172745.

"In the essay, the dialectic between conservation and transformation is brought back within the essential core of the discipline of restoration, that is, to the specific material operations through which it intervenes on existing artifacts, pursuing the objective of safeguarding what has cultural value. And the analysis of some examples provides clear evidence that the choices regarding which operations are appropriate from time to time depend and derive their justification from how the fundamental questions about what the nature of art and on the meaning of history... ". From the Foreword by R. Rozzi.

**32.** *Gli stucchi di Giovan Battista Barberini nella Sacrestia del Collegio dei Gesuiti a Mantova*, (The Stuccos by Giovan Battista Barberini in the Sacristy of the Jesuit College in Mantua) in "Lo Stucco. Cultura, tecnologia, conoscenza" ("The Stucco. Culture, Technology, Knowledge"), Conference Proceedings Bressanone, 2001, pp. 141-149, (with R. Bugini), ISBN 9788895409054.

### 2003

**33.** *Il Programma di conservazione: indicazioni di metodo per le attività preventive*, (The Conservation Program: Methodological Indications for Preventive Activities), in S. Della Torre, ed. by, *La conservazione programmata del patrimonio storico architettonico*, (The Planned Conservation of the Historical Architectural Heritage), Guerini, Milano 2003, pp. 69-75, ISBN 9788883353598.

**34.** *L'adeguamento alle norme di sicurezza e l'abbattimento delle barriere architettoniche per l'esistente*, (The Compliance with Safety Standards and the Overcoming of Architectural Barriers in the Existing Buildings), in "La Valle Intelvi. Contributi per la conoscenza di ambiente, archeologia, architettura, arte, lettere e storia delle valli e dei laghi comacini", ("The Intelvi Valley. Contributions to the Knowledge of the Environment, Archeology, Architecture, Art, Literature and History of the Comacine Valleys and Lakes), Quaderno n. 15 2003, pp. 53-64, ISSN 2284-1563.

**35.** *Le chiese come beni culturali. Suggerimenti per la conservazione*, (Churches as Cultural Heritage. Suggestions for the Preservation), Electa, Milano 2003, ISBN 9788837021788. (with S. Della Torre).

(In particular the chapters on Preventive and Programmed Conservation, Adaptation due to New Liturgical Needs, Adaptation in Order to Increase Safety, The Conservation Project: Aims and Requirements, The Economic Management of the Property, are written by V. Pracchi, while the chapters on The Adaptation or Insertion of the Plants, The Structural Consolidation, The Financing of the Interventions are signed by S. Della Torre. The introduction, The premise to the Adaptation works and the Conclusions were elaborated jointly).

"In these pages, using an easily accessible language, what has matured in the disciplinary field in the last decades is transcribed. This essay collects the results of a long debate in which the meaning to be attributed to words was discussed, often harshly. Even the non-experts will have noticed that the word restoration is almost no longer used, but we prefer to talk about conservation. Because we want to underline the importance of approaching our cultural heritage carefully, favoring care and knowledge, rather than emphasizing the power of our current technical resources ". From the Presentation by R. Cecchi.

**36.** A. Bellini, V. Pracchi, ed. by, *TeMA, Dossier cantieri*, Como 2003.

**37.** *Strati di sacrificio o spessore storico. Considerazioni sul trattamento delle superfici in alcuni recenti interventi*, (Layers of Sacrifice or Historical Thickness. Considerations on Surface Treatment in Some Recent Interventions), in "L'edilizia storica lombarda", ("Lombard Historical Buildings"), eds. by D. Banchieri, M. De Marchi, G. Armocida, Nicolini editore, Varese 2003, pp. 107-122.

Brief considerations regarding the treatment of surfaces: particularly those considered not very durable, such as plasters and stuccos. Through some examples of consolidation, we want to resume a discussion perhaps muddled by the dispute between "layers of sacrifice" and "historical depth". The reasoning, rather than the method, focuses on two important aspects in the restorer's profession: what he offers to the "sight" of those who observe the restored building, and the very meaning of the operations he performs to do this, obviously interrelated issues.

### 2004

**38.** A. Bellini, R. Fant, L. Bauce, V. Pracchi, ed. by, *TeMA, Dossier cantieri*, Como 2004.

**39.** *L'esito di "una tormentata storia critica": un restauro semplice. Riflessioni sulla ricostruzione di un passato (in)certo*, (The Outcome of "a Troubled Critical History": A Simple Restoration. Reflections on the Reconstruction of an (Un) Certain Past), in G. Pertot, *"Tutto è rifatto... e del nuovo quasi non ti accorgi". I restauri alla basilica e al battistero di Agliate*, ("Everything is Redone... And You Hardly Notice the New". The Restoration of the Basilica and the Baptistery of Agliate), Biassono, 2004, pp. 181-199, ISBN 9788890805622.

Since 1873, the medieval complex of Agliate has represented a site which restorers have deeply affected, in at least five major campaigns, trying to reconstitute the primitive (or supposedly so) Romanesque formal unit, modified over time by multiple interventions. From the reinterpretation of the events related to the various restorations, conducted through a considerable amount of completely unpublished archive documents, an opportunity was taken to present critical observations on the cultural matrices of the various protagonists of the restorations, on their tools and on the contextual technical knowledge, as well as on the cultural climate in which removals, restorations, falsifications and more recent de-restoration operations have been carried out from time to time.

**40.** *Il restauro tra evento e processo: sfumature di significato nel concetto di minimo intervento* (Preservation between Event and Process: Nuances of Meaning in the Concept of Minimal Intervention) (with S. Della Torre), in "Il minimo intervento nel restauro", ("The Minimal Intervention in Preservation"), Nardini, Firenze 2004, pp. 27-38, ISBN 8840444149.

**41.** E. Rosina, N.P. Avdelidis, A. Moropoulou, S. Della Torre, V. Pracchi, G. Suardi, *IRT Monitoring in Planned Preservation of Built Cultural Heritage*, 16<sup>th</sup> World Conference on Nondestructive Testing, Montreal Canada 2004, ISBN 0973657723.

## 2005

**42.** *Il progetto di conservazione: finalità e requisiti*, (The Conservation Project: Aims and Requirements), in S. Della Torre, ed. by, *Il restauro della Madonnina di S. Paolo*, (The Preservation of S. Paolo's Madonnina), Cantù 2005, pp. 41-46.

The restoration work, the most significant part of which concerns the conservation of the cycle of frescoes by Ambrogio da Vigevano, offers the opportunity to discuss some issues of particular relevance, in particular the methodological process of the project that must include the future attention to be paid to the building to ensure the duration of the interventions implemented and the need, in the current endemic lack of funds, to organize control and prevention activities in a systemic form.

In "Sulle pitture murali. Riflessioni, Conoscenze, Interventi", ("On Mural Paintings. Reflections, Knowledge, Interventions"), Conference Proceedings Bressanone, 2005, ISBN 9788895409092:

**43.** A. Bellini, G. Pertot, V. Pracchi, *Restauro e restauratori all'Oratorio di Santo Stefano a Lentate sul Seveso (MI): indagini e considerazioni in margine a un prossimo intervento di conservazione*, (Restoration and Restorers at the Oratory of Santo Stefano in Lentate sul Seveso (MI): Investigations and Considerations in View of an Upcoming Conservation Intervention), pp. 1-9.

This essay presents the research carried out in view of the conservation intervention. The stages of a long story are thus retraced: from the construction of the oratory at the end of the 14th century, to the restoration work by Gaetano Landriani at the end of the 19th century, to the restoration of the cycle of frescoes that characterize the interior, carried out by Mauro Pellicoli in the twentieth century. The investigations currently carried out in order to finally discuss the design choices are also presented.

**44.** S. Della Torre, V. Pracchi, E. Rosina, G. Suardi, *L'intervento di conservazione all'oratorio di Santa Maria presso San Paolo a Cantù*, (The Conservation Intervention at the Oratory of Santa Maria at San Paolo in Cantù), pp. 707-715.

The restoration site, already presented in a previous publication, offers the opportunity to discuss other, more usual issues in the context of conservation activities, in particular: the difficulty of finding documentation on restorations carried out in the past; the need to use analytical activities both to find and understand past events, and to assess the state of conservation and the ongoing degradation processes (which methods, with which limits and which possibilities for development); problems arising from regulatory developments and concerning the relationship between architect designer and restorer; the construction of ICT tools designed to collect data to leave clear documentation of what happened in the past, what has been implemented today and what must or may happen in the future (construction of the medical record).

**45.** S. Della Torre, E. Rosina, V. Pracchi, G. Suardi, N. Ludwig, V. Redaelli, A. Sansonetti, R. Negrotti, *Le indagini multispettrali per il riconoscimento telemetrico degli interventi di restauro nelle pitture murali*, (Multispectral Investigations for Telemetric Recognition of Preservation Interventions in Mural Paintings), pp. 907-915.

The research stems from the need to develop diagnostic techniques that support operational choices in emergency interventions. The ability to ascertain the state of conservation, albeit qualitatively but for large extensions, quickly and with low costs, makes it possible to operate in conditions of greater awareness and "safety" precisely in an emergency. In such a delicate phase, the choices can be guided by the results of the first checks on both the materials and the environmental conditions in which they are found. The analytical techniques object of the research were applied to the case study (oratory of S. Caterina and S. Ambrogio in Solaro) to know the area most subject to condensation and therefore to possible decay from a distance.

## 2006

**46.** S. Della Torre, V. Pracchi, *Saper vedere (la complessità dell'architettura)*, (Knowing How to See (the Complexity of) Architecture), in N. Cucuzza, M. Medri, ed. by, *Archeologie. Studi in onore di Tiziano Mannoni*, (Archeologies. Studies in Honor of Tiziano Mannoni), Edipuglia, Bari 2006, pp. 453-456, ISBN 8872284414.

The archeology of architecture is not a new disciplinary field; however, its inclusion in the field of architectural conservation is recent. In these brief notes we examine the outcomes of this "new alliance", and the reasons why, today, it takes on considerable weight and peculiar characteristics, although it was expected since the beginning of restoration as a discipline.

In "Pavimentazioni storiche. Uso e conservazione", ("Historic Flooring. Use and Conservation"), Conference Proceedings Bressanone, 2006, ISBN 9788895409153:

**47.** V. Pracchi, E. Rosina, *Effetti della temperatura superficiale della pavimentazione sul degrado dei rivestimenti e sul microclima*, (Effects of the Surface Temperature of the Flooring on the Degradation of the Coatings and on the Microclimate), pp. 453-461.

In non-air-conditioned environments, in severe climatic conditions (low temperatures and high humidity) the presence of surfaces with thermal anomalies implies risk factors for the conservation of their finishes. The authors underline that, among the less investigated surfaces from a thermo-hygrometric point of view, the flooring is worthy of note: there is an almost absolute lack of studies that consider flooring as a fundamental element for thermal balance in ancient environments, which hints at a poor consideration of the systemic processes affecting architecture

**48.** V. Pracchi, G. Pertot, *I pavimenti nella Sala dell'Hospitale spagnolo al Castello Sforzesco di Milano*, (The Floors in the Spanish Hospital at the Castello Sforzesco in Milan), pp. 725-734.

The conversion of spaces previously dedicated to other functions is very frequent, but the particular case - within the theme of historical flooring - offers interesting points for discussion. The text traces the events that occurred to the floorings of the room in the recent past, and discusses the problems and results of the research conducted during the design phase, in particular: the documented overlapping of historical floors over time; their removal in search of ancient layers; the highlighting of the last remaining floor layer (not matching the decorations of the vault); the creation of architectural barriers as a result; the needs determined by the new use which are incompatible with what emerged due to the very strong impact and the impossibility of providing suitable maintenance cycles; research and design decisions that involved lengthy discussions, especially with the Superintendence.

In "Lo stato dell'arte", ("The State of Art"), Congresso Nazionale IGIIC, Siena 28 – 30 settembre 2006, Nardini editore, Firenze 2006, ISBN 8840441506:

**49.** C. Colombo, S. Montonato, R. Negrotti, V. Pracchi, M. Valentini, *I sali solubili negli edifici storici: alla ricerca di un valore di soglia*, (Soluble Salts in Historic Buildings: Looking for a Threshold Value), pp. 469-475.

The results of an in-depth bibliographic research concerning the studies relating to the content of soluble salts present in buildings and in works of historical and artistic interest (made of natural and artificial stone materials) are presented. The goal was to collect the largest number of data in the literature to identify the relationship between the observable degradation of the materials and their content in soluble salts. Indeed, there is an increasing need to find a "numerical correlation" between the macroscopically observable

degradation and the agents of such degradation. We therefore tried to establish a starting point for a reflection on the possibility of defining a "damage threshold", determined by the quantity of one or more saline species present in the walls.

## 2007

V. Pracchi, ed. by, *L'oratorio di Santo Stefano a Lentate sul Seveso. Il restauro*, (The Oratory of Santo Stefano in Lentate sul Seveso. The Preservation), Silvana editoriale, Milano 2007, ISBN 9788836608997.

The book summarizes the research experience and the results of the conservation intervention carried out at the oratory of Santo Stefano in Lentate sul Seveso (MI). The first part presents investigations relating to the history of the building, its transformations over time, the restoration campaigns of the past, the illustration of the conditions it was in at the time of the project. In the second part, the analyses carried out to support the design are illustrated, as well as how they guided the various phases of the construction site illustrated here. Many authors have offered their skills to try to build a multifaceted picture of the problems and resources present.

Inside:

**50.** *Il restauratore principe: Mauro Pelliccioli*, (The King of the Restorers: Mauro Pelliccioli), pp.79-99

**51.** *Il progetto, il cantiere, il piano di conservazione*, (The Project, the Construction Site, the Conservation Plan), (with G. Pertot e P. Rotondi), pp. 133-155

**52.** S. Della Torre, V. Pracchi, P. Rotondi, *Definizione di protocolli per il processo di conservazione di manufatti in stucco*, (Protocols Definition for the Conservation Process of Stucco Artifacts), in *L'arte dello stucco*, (The Art of Stucco), Conclusive conference of the project Interreg IIIA, Como 2007, pp. 17-26 ISBN 9788890282003.

The issue of defining the protocols useful for the conservation process can be reduced in a certain sense in building the knowledge path. We refer to a cognitive activity that holds together the different readings deriving from the exact sciences and the humanities, a careful way of studying the field of construction practices, trying to clarify how the infinite complexity and variety of real cases can be examined within common protocols that are comparable to each other, and that help to frame multiple researches - by definition conducted at the local or micro-historical scale - within wider and more multifaceted research areas.

In "Il consolidamento degli apparati architettonici e decorativi", ("The Preservation of the Architectural and Decorative Apparatus", Conference Proceedings Bressanone, 2007, ISBN 9788895409115:

**53.** *Mauro Pelliccioli, 'Restauratore principe': note sugli interventi di consolidamento*, (Mauro Pelliccioli, 'Prince Restorer': Notes on Preservation' Interventions), pp. 457 - 466.

The methods of intervention employed by restorers, including in the recent past, are almost completely unknown. The study examines Mauro Pelliccioli's activity, in particular in the consolidation phase, concerning some of the the most important cycles of frescoes in Italian artistic historiography. The past years and the evolution of the techniques have caused, in most cases, the disappearance of these interventions, both in terms of knowledge and in strictly physical terms. The point under discussion is not to look nostalgically at the old restorations, but to study the techniques and mentalities that presided over them to better understand how to operate today.

In A. Arenghi, ed. by, *Design for all. Progettare senza barriere architettoniche*, (Design for All. Design without Architectural Barriers), Utet, 2007, ISBN 9788859802112:

**54.** S. Della Torre, V. Pracchi, G. P. Treccani, *Restauro e fruizione dell'architettura*, (Preservation and Use of Architecture), pp. 187- 195;

**55.** S. Della Torre, V. Pracchi, *Valutazioni multicriteriali per il progetto di restauro*, (Multi-criteria Evaluations for the Preservation Project), pp. 195-199;

**56.** V. Pracchi, *Aggiungere, sottrarre, rivisitare*, (To Add, to Subtract, to Revisit), pp. 205-224.

In the last twenty years, on the occasion of conferences, publications and didactic activities in the university context, a reflection has been encouraged in the field of architectural restoration in Italy, on the issues of accessibility of historic buildings and the problems related to their protection. The reports present a synthesis of this recent experience, indicating the fundamental stages, but also the major obstacles, of this maturation process, also specifying the main points that define today's critical and methodological reference framework. The works that can be defined as representative for their design quality and above all for consistency of method are then illustrated through examples. The

reports discuss the motivations and the procedures for developing accessibility projects for historic buildings. In particular, it is considered useful to show the application of "multi-criteria evaluations", as a tool to address the need, most often addressed in the current disciplinary debate, to reconcile the reasons for the use of all of them with those of safeguarding historic buildings.

## 2008

**57.** S. Della Torre, P. Pappalardo, V. Pracchi, *Tra conservazione e sicurezza: il progetto di adeguamento e il piano di conservazione di Palazzo Natta a Como*, (Between Conservation and Safety: the Adaptation Project and the Conservation Plan of Palazzo Natta in Como), in A. Centroni, ed. by, *Quale sicurezza per il patrimonio architettonico?* (What Safety for the Architectural Heritage?), Nuova Argos, Roma 2007, pp. 596-607, ISBN 8888693122.

The text discusses the concept of monitoring and maintenance as risk management tools, with a view to minimal intervention. The essay illustrates the maintenance plan drawn up with the Sircop software (Regional Information System for Planned Conservation), developed for Palazzo Natta in Como on behalf of the Lombardy region. We tried to show how the achievement of safety objectives is necessary (in fact, it is not possible to protect buildings considered to be of particular value and require less attention for them in view of their long life) in ways and forms calibrated and commensurate with the "residual performance" of the existing matter.

In "Restaurare i restauri", ("To Restore the Restorations"), Conference Proceedings Bressanone, 2008, ISBN 9788895409122:

- **58.** *Il follow up dei propri cantieri di restauro*, (The Follow Up of Our Own Restoration Sites), pp. 885-894;

- **59.** *Compatibilità e durabilità dei restauri degli affreschi in condizioni microclimatiche severe*, pp. 537-546 (Compatibility and Durability of Fresco Preservation in Severe Microclimatic Conditions) (with E. Rosina, N. Ludwig, G. Suardi).

V. Pracchi, ed. by, *Lo studio delle tecniche costruttive storiche: stato dell'arte e prospettive di ricerca*, (The Study of Historical Construction Techniques: State of the Art and Research Perspectives), Nodolibri, Como 2008, ISBN 9788871851495.

The study of historical construction techniques has become a central component of the restoration discipline, even though neither the complex of the relationships between the plurality of approaches practiced within the field of studies, nor the modalities through which this form of knowledge produces an improvement in the conservation process have been adequately clarified.

Inside:

**60.** *Studio delle tecniche costruttive storiche. Riflessioni e prospettive di ricerca*, (Study of Historical Construction Techniques. Reflections and Research Perspectives), pp.9-24

**61.** V. Pracchi, G. Pertot, *L'oratorio di Santo Stefano a Lentate sul Seveso*, (The Oratory of Santo Stefano in Lentate sul Seveso), in "Kermes" n. 67/68, 2008, pp. 15-17, ISSN 1122-3197.

V. Pracchi, ed. by, *Pratiche costruttive storiche: manufatti in stucco e strutture lignee di copertura in edifici lombardi*, (Historical Building Practices: Stucco Artefacts and Wooden Roofing Structures in Lombard Buildings), Nodolibri, Como, 2008, ISBN 9788871851518.

The volume represents the synthesis of a study dedicated to wooden roofing structures and stuccos in the Lombard territory, in the modern age. It is part of a larger work, conducted with other Italian universities, and dedicated to the theme of historical building techniques. The main intent of the text, which gives an account of the choices and analyses made, remains primarily that of proposing a current cross-section of the studies, above all by collating a large fragmented collection of materials and presenting different case studies to think about questions of method relating to the construction of a future "material history of construction".

Inside:

**62.** *Stucchi e strutture lignee di copertura: due facce nella "conoscenza delle tecniche costruttive storiche"*, (Stucco and Wooden Roofing Structures: Two Sides in the "Knowledge of Historical Construction Techniques"), pp.7-20.

## 2009

63. V. Pracchi, *The Teaching of the Historical Construction Techniques in the Italian Faculties*, pp. 1201 – 1208, vol. 3, in Proceedings of the Third International Congress on Construction History, May 20-24 2009 Cottbus, Germany, ed. By K. Kurrer, W. Lorenz, V. Wetzck ISBN 978 – 3- 936033 – 31 – 1

In “*Conservazione preventiva. Prassi nell’ambito dei monumenti storici*”, (“Preventive Conservation. Practice in the Field of Historical Monuments”), Conference Proceedings 3-4 September, Friburgo 2009. ISBN 978 – 3 – 033 – 02088 – 7:

- 64. D. Del Curto, C. Manfredi, G. Pertot, V. Pracchi, E. Rosina, L.Valisi, *Diagnostica, intervento e monitoraggio: il caso dell’oratorio di Santo Stefano a Lentate sul Seveso (Milano)*, (Diagnostics, Intervention and Monitoring: The Case of the Oratory of Santo Stefano in Lentate sul Seveso (Milan), pp. 62 – 69.

- 65. M. Catalano, V. Pracchi, *Il Documento Preliminare alla Progettazione sui Beni Culturali*, (The Preliminary Document for Planning on Cultural Heritage), pp. 127-133.

66. *L’insegnamento delle tecniche costruttive storiche nelle facoltà italiane*, (The Teaching of Historical Construction Techniques in the Italian Faculties), in C. Varagnoli, ed. by, *Muri parlanti. Prospettive per l’analisi e la conservazione dell’edilizia storica*, (Talking Walls. Perspectives for the Analysis and Conservation of Traditional Constructions), Conference Proceedings Pescara, 26-27 September 2008, Firenze 2009, pp. 55-68, ISBN 978-88-6055-480-2

The text is a reflection on the weight and meaning of teaching historical construction techniques in Italian faculties. The attention paid to the so-called cultural heritage has grown significantly over time, without however leading to the design of training profiles suited to current needs. The subject of the study of historical construction techniques lends itself just as a litmus test. How to deal with an adequate preparation of activities concerning the heritage without knowing how it was built, by which workers, with what mentality, knowledge and social structures? How to make sense of conservation activities without recognizing the value inherent in the material culture represented there? The awareness of facing architectures that, as such, are complex systems, leads to the evaluation of the need for renewed didactic approaches, open to the understanding of pre-scientific worlds, and of the parallel need to no longer accept certain simplifications of an engineering culture, which confuses habitual models with reality.

## 2010

In “*Pensare la prevenzione*”, (“To Think about Prevention”), Conference Proceedings Bressanone, 2010, ISBN 9788895409146:

- 67. *La prevenzione in medicina e la prevenzione nel restauro. Stato dell’arte del dibattito: spunti e criticità* (Prevention in Medicine and Prevention in Preservation. State of the Art of the Debate: Ideas and Critical Issues), (with G.L. Capella, A. Capetti, C. La Vecchia), pp.101-110

- 68. *Prevenire il degrado da umidità dopo il restauro. Soluzioni impiantistiche per il controllo del microclima presso l’oratorio di Santo Stefano a Lentate sul Seveso* (To Prevent Moisture Degradation after Restoration. System Solutions for Microclimate control at the Oratory of Santo Stefano in Lentate sul Seveso) (with D. Del Curto, C. Manfredi, G. Pertot, E. Rosina, L. Valisi), pp.243-251

- 69. *La prevenzione del danno secondo le prestazioni dei trattamenti conservativi: metodi diagnostici innovativi per applicazioni in situ* (Damage Prevention According to the Performance of Conservative Treatments: Innovative Diagnostic Methods for In Situ Applications), (with E. Rosina, N. Ludwig, A. Sansonetti, F. Gerenzani, M. Gargano), pp.745-754

- 70. *Il concetto di prevenzione e la tutela del paesaggio* (The Concept of Prevention and Protection for the Landscape), (with S. Della Torre, F. Putignano), pp.827-836

71. *Efficienza energetica e patrimonio architettonico: stato dell’arte e prospettive di ricerca* (Energy Efficiency and Architectural Heritage: State of the Art and Research Perspectives), (with S. Della Torre, F. Pianezze), in “*Arkos*”, n.23, 2010, pp.52-58, ISSN 1974-7950

## 2011



In PLEA 2011 - ARCHITECTURE & SUSTAINABLE DEVELOPMENT - Magali Bodart Arnaud Evrard Editors, Conference Proceedings, 27th International Conference on Passive and Low Energy Architecture Louvain-la-Neuve, Belgium, 13-15 July 2011, - ISBN: 9782874632761

- **72.** *Methodological Procedure for Energy Performance Evaluation of Historical Buildings* (con R. S. Adhikari, E. Longo, V. Pracchi, A. Rogora, E. Rosina, G. Schippa), Vol. 2, pp. 577-582.

- **73.** *Energy Behaviour in Historical Buildings: Limits and Potentials for the Project Evaluation* con R. S. Adhikari, E. Longo, V. Pracchi, A. Rogora, E. Rosina, G. Schippa) Vol. 2, pp. 515-520.

**74.** R.S. Adhikari, V. Pracchi, A. Rogora, E. Rosina, *La Valutazione delle prestazioni energetiche negli edifici storici: sperimentazioni in corso*, (Evaluation of Energy Performance in Historic Buildings: Ongoing Experimentations), in “Progetto Sostenibile”, (“Sustainable Design”), n. 28, 2011, pp. 20-27, ISSN 1974-3327.

In “Governare l’innovazione. Processi, strutture, materiali e tecnologie tra passato e futuro”, (“Governing Innovation. Processes, Structures, Materials and Technologies between Past and Future”), Conference Proceedings Bressanone, 2011, ISBN 9788895409153:

- **75.** M. Catalano, M. Leoni, V. Pracchi, *Il Documento Preliminare alla Progettazione per i beni culturali come potenziale innovazione di processo*, (The Preliminary Design Document for Cultural Heritage as a Potential Process Innovation), Padova 2011, pp. 173-182.

- **76.** R. S. Adhikari, E. Longo, V. Pracchi, A. Rogora, E. Rosina, G. Schippa, *Efficienza energetica e conservazione*, (Energy Efficiency and Conservation), Padova 2011, pp. 673-682.

**77.** A. Arengi, S. Della Torre, V. Pracchi, *Conservation, Accessibility, Design. Discussion and practice in Italy*, in L. Kealy, S. Musso, ed, *Conservation, Transformation*, Lovanio 2011, pp.55-66, ISBN 9782930301501.

## 2012

**78.** M. Catalano, V. Pracchi, *La redazione del documento preliminare alla progettazione per i beni culturali*, (The Writing of the Preliminary Design Document for Cultural Heritage), Santarcangelo di Romagna (RN) 2012. ISBN 978-88-387-6916-8

Planning the restoration activity means having access to shared and widespread conceptual and operational tools. In Italy, the legislative structure has gradually shifted towards an articulation which, in the process of conservation of cultural heritage, has already introduced technical-administrative innovations. However, many of the tools conceived by the regulatory development, dedicated to achieving a close and fruitful connection between the different procedural phases of the contract, are designed for the generic sector of public works and not specifically for cultural heritage, while remaining valid also in this area. Among these in particular, the Preliminary Design Document, placing itself between the planning phase of the works and the design phase, is a key tool for guiding, controlling and managing the entire process of carrying out the public work and makes it possible, at least in intention, to outline the procedural and executive scenario *a priori*. Starting from these assumptions, the text outlines the structure and contents of the PDD for specific application to interventions on publicly owned cultural assets, calibrating them in relation to the cultural and methodological needs, the complexity and specificity of the artefacts, and the relationships with the territorial context, the type and extent of the interventions, the executive and managerial criticalities. The purpose, also on the basis of some significant experiences of the use of the PDD on listed buildings, is to provide public clients with an aid for the management of large assets. The reasons that motivate this contribution are therefore linked both to the particular nature of cultural heritage and to the insufficient knowledge of its peculiarities and updates in the protection sector, and to the underestimation of the potential of the PDD, a mandatory but little “used” document, especially for listed buildings.

**79.** R. Adhikari, E. Lucchi, V. Pracchi, E. Rosina, *Efficienza energetica dell'edilizia storica. I sistemi di valutazione statica e dinamica: caratteristiche limiti e potenzialità*, (Energy Efficiency of Historic Buildings. Static and Dynamic Evaluation Systems: Characteristics, Limits and Potential), in “Oltre la certificazione

*energetica: progettazione e gestione del sistema edificio-impianto per ottimizzare il comfort ed i consumi energetici reali*”, (“Beyond the Energy Certification: Design and Management of the Building-plant System to Optimize Comfort and Real Energy Consumption”), Bologna, pp. 77-89. ISBN 9788895620121

**80.** V. Pracchi, H. Elsayed, *Continuity of Urban Culture. Challenges and Opportunities Facing Urban Conservation*, in *Cities in transformation — Research & Design*, Milano, 7-10 June, Criticism, Conservation and Restoration (vol.3), pp. 937-944. ISBN 9782930301563

**81.** In PLEA2012 - 28th Conference, Opportunities, Limits & Needs Towards an Environmentally Responsible Architecture, Lima, Perú 7-9 November 2012: R.S. Adhikari, E. Lucchi, V. Pracchi, *Experimental Measurements on Thermal Transmittance of the Opaque Vertical Walls in the Historical Buildings*, ISBN 978-612-4057-89-2

### 2013

**82.** V. Pracchi, A. Chiapparini, *Il restauro e i possibili modi per “comunicare” il patrimonio culturale*, (Preservation and Possible Ways to "Communicate" Cultural Heritage), in *IL CAPITALE CULTURALE. Studies on the Value of Cultural Heritage*, n.8 2013, ISSN: 2039-2362, pp.137-155.

**83.** V. Pracchi, A. Canziani, *Q.B. (Quanto Basta). Deroga e “sicurezza equivalente”*, (Q.S. (Quantum Sufficit). Derogation and "Equivalent Level of Safety"), in Grignolo R. (ed by) *Diritto e Salvaguardia dell'Architettura del XX Secolo*, (Law and the Conservation of 20th Century Architecture), Silvana, Mendrisio Academy Press, 2013, pp. 157-169, ISBN: 9788836627226.

In A. Troi, E. Lucchi (ed by), *Cultural Heritage Preservation, Proceedings of 3<sup>rd</sup> European Workshop on Cultural Heritage Preservation (EWCHP)*, ISBN: 978-88-88307-26-8, Bolzano 16-18 September 2013:

**84.** R.S. Adhikari, E. Lucchi, V. Pracchi, 2013, *Energy Modeling of Historic Buildings: Applicability, Problems and Compared Results*, pp.119-125

**85.** V. Pracchi, E. Rosina, 2013, *Protecting Historical Buildings doesn't Mean only to Respect their Appearance*, pp.211-217

**86.** R.S. Adhikari, E. Lucchi, V. Pracchi, 2013, *Historical Buildings: Energy Performance and Enhancement*, Proceedings of International Conference “Built Heritage 2013. Monitoring Conservation Management”, Milan, 18-20 November 2013, pp. 1312-1320, ISBN 978-88-908961-0-1,

**87.** E. Lucchi, V. Pracchi, eds. by, *Efficienza energetica e patrimonio costruito. La sfida del miglioramento delle prestazioni nell'edilizia storica*, (Energy Efficiency and Built Heritage. The Challenge of Improving Performance in Historic Buildings), Maggioli Editore, Sant'Arcangelo di Romagna, 2013, ISBN: 978-88-387-6260-4

The text collects and synthesises the studies of recent years dedicated to the theme of energy efficiency of the historical built heritage. Indeed, the topic is much discussed but there are not many texts addressing the issue of improving the energy performance of the listed heritage and of especially sensitive buildings included in historic centers, which constitutes the true fabric of quality in our country. This lack was the first reason that inspired the project of this book. The second reason is linked to the consideration that this aspect is strictly part of the conservation of ancient buildings, which, due to the very nature of the objects on which we work, require commensurate and compatible operations. The third reason is the profound affinity that exists between a culture of conservation and a culture of sustainability.

Contrary to the structure of a manual, in which precise technical solutions to be applied are available, this work operates on the basis of a logic closer to that of a "guide" to the choices to be made and as an introduction to the specificities of the historical building to be taken into consideration in view of future adaptation interventions. The idea is that in a context with such a diversity of types, methods of use, properties, objects contained or users, it is not possible to offer more or less valid solutions in themselves, but it is rather necessary to propose a process of knowledge leading to the definition of a sort of "Tailor-made" project in which the operational choices derive from the range of opportunities

calibrated on the individual case. The book is divided into two parts, first framing the issue and then follow with proposals for intervention that exemplify the application possibilities, within a logic of attention to existing buildings.

The articulation of the chapters that make up the "theoretical part" was chosen to illustrate the faces of the problem. There is first a summary of the regulatory framework, to consider how the issue was seen and set up: from here the total underestimation of the characteristics of the artifacts created to make the most out of the possibilities inherent in the ancient construction techniques and in the relationship with the surrounding environment is immediately clear. For this reason the constructive principles are recalled. This is followed by a discussion of the thermo-physical behavior of existing buildings, examined in relation to what is required today for the calculation of energy needs.

The next step is the analysis of the energy performance evaluation methods, by comparing the certification and diagnostic procedures applied to the historical heritage. Also in this case it becomes evident that the applications are designed for new buildings, and therefore are not very accurate in estimating the performance of architectures characterized by different peculiarities, such as the high thickness of the walls and their consequent thermal inertia. It goes without saying that, if the tools are not refined, the results of the analysis will be inaccurate and the intervention risks is to be oversized (and this often results in the loss of parts of the existing building) or capable of inducing pathological phenomena.

A further part is related to the analysis of the "critical" points from the point of view of the thermo-hygrometric exchanges with the environment, which can generate risk conditions for the conservation of the building, and which are challenging for energy improvement. A part dedicated to interventions could not be omitted, with the aim not of providing abacuses of available technologies, but of examining the range of possibilities offered today, with respect to their compatibility and effectiveness in the application to historical buildings.

Given the purpose of the text, which does not intend to examine the question of energy efficiency in a broad sense, but rather its relationship with the existing heritage, including listed items, it seemed appropriate to clarify the role and tasks assigned to the Ministry of Cultural Heritage, through its peripheral bodies, carried out through measures aimed at conforming and regulating rights inherent to the cultural heritage. The first part closes with a review of the outlined picture, to retrace its criticalities and try to propose corrective measures, with a view to accepting the challenge of energy improvement also in the case of the historical built heritage, without unnecessary sacrifices that would cause an unexpected decrease in its values. Indeed, only by identifying the limits present today, it is possible to find the appropriate forms of modulation to implement policies that are more "adherent" to the area treated here.

In the second part, various case studies that consider important and complementary aspects are presented, both as regards the larger scale and that of the single building. In the diversity of experiences and proposals, a general consonance emerges from the fundamental requirement of a proper intervention, namely, the knowledge of what is in front of you, and the demonstration of the need to find *ad hoc* interventions avoiding "automatisms", which cannot be adopted in this area.

In particular V. Pracchi, in addition to the introduction, also edited part of chapter II "Environmental characteristics of pre-industrial architecture", part of chapter 6 "Interventions to improve energy efficiency", chapter 8 "Between protection and improvement of the energy efficiency of the built heritage".

**88.** R.S. Adhikari, E. Lucchi, V. Pracchi, E. Rosina, 2013, *Static and Dynamic Evaluation Methods for Energy Efficiency in Historical Buildings*, in Proceedings of 29<sup>th</sup> International PLEA Conference "Sustainable Architecture for a Renewable Future", Monaco 10-12 September 2013 (scientific review). E-Book of Proceedings Hrsg.: Werner Lang 2013, 1186 p., num. col. illus., tab., Language: English Fraunhofer IRB Verlag, ISBN 9783816790549.

## 2014

**89.** V. Pracchi, Historic Buildings and Energy Efficiency, in *Journal of Historic Environment or The Historic Environment*, Vol. 5, No. 2, July 2014, pp. 210–25  
Doi <http://dx.doi.org/10.1179>, Print ISSN 1756-7505, On line ISSN 1756-7513

**90.** V. Pracchi, N. Rat, A. Verzeroli, *Historic Windows: Conservation or Replacement. What's The Most Sustainable Intervention? Legislative Situation, Case Studies and Current Researches*, in LÓPEZ, M.; YÁÑEZ, A.; GOMES DA COSTA, S.; AVELLÀ, L., (Coord.). *Actas del Congreso Internacional de Eficiencia Energética y Edificación Histórica / Proceedings of the International Conference on Energy Efficiency and Historic Buildings (Madrid, 29-30 Sep. 2014)*. Madrid: Fundación de Casas Históricas y Singulares y Fundación Ars Civilis, 2014. ISBN: 978-84-617-3440-5, pp.432 – 449.

## 2015

91. V. Pracchi A. Oppio, M. Bottero, V. Ferretti, U. Fratesi, D. Ponzini, *Giving Space to Multicriteria Analysis for Complex Cultural Heritage Systems: The Case of the Castles in Valle D'Aosta Region, Italy*, in *Journal of Cultural Heritage*, vol. 16, issue 6, pp.779-789, IF 1.111, doi:10.1016/j.culher.2015.03.003, ISSN 1296-2074

## 2016

92. In “*Eresia ed ortodossia nel restauro. Progetti e realizzazioni*”, (“Heresy and Orthodoxy in the Restoration. Projects and Realizations”), Conference Proceedings Bressanone, 2016:

V. Pracchi, *Efficienza energetica e patrimonio culturale: un contributo alla discussione alla luce delle nuove linee di indirizzo*, (Energy Efficiency and Cultural Heritage: A Contribution to the Discussion in the Light of the New Guidelines), pp. 717-726. ISBN 978-88-95409-20-7 ISSN 2039-9790

93. V. Pracchi, N. Rat, A. Verzeroli, *Balancing Different Needs: Enhancing Energy Efficiency and Preserving Historic Windows*, in *Heritage 2016, 5th International Conference on Heritage and Sustainable Development*, ed by R. Amoeda, S. Lira, C. Pinheiro, Green Lines Institute for Sustainable Development Lisbona, 12-15 July 2016, pp.581-591. ISBN 978-989-8734-15-0, eISBN 978-989-8734-14-3

94. C. Monticelli, A. Zanelli, S. Aliprandi, V. Pracchi, E. Rosina, *The Energy Efficiency Improvement of Listed Buildings Through Textile-Based Innovative System*, in *Advanced Building Skins*, 10-11 October 2016, Berna, pp.192-202, ISBN: 978-3-98120539-8

## 2017

95. V. Pracchi, *La 'domanda' o il 'bisogno' di fruizione dei beni culturali* (The 'Demand' or 'Need' for the Fruition of Cultural Heritage), in *RICerca/REStauo*, D. Fiorani, ed. by, sezione 4 *Valorizzazione e gestione delle informazioni*, (Enhancement and Management of Information), R. Prescia, ed. by, Edizioni Quasar, Roma 2017, pp.857-865, eISBN 978-88-7140-764-7

96. V. Pracchi, F. Busnelli, S. Mauri, L. Ambrosini, *Como: ottant'anni di vita della Casa del Fascio di Terragni*, (Como: Eighty Years of Terragni' Casa del Fascio' Life), in *ANANKE* n. 80, 2017, pp.75-81. ISSN 1129-8219 ISBN 9788898743988

97. V. Pracchi, G. Pertot, P. Rotondi, *L'arte come spettacolo? Il nuovo allestimento per la Pietà Rondanini al Castello Sforzesco di Milano*, (Art as a Show? The New Staging for the Pietà Rondanini at the Castello Sforzesco in Milan), in *Confronti*, n. 6-7, 2017, pp. 227-237 ISSN 2279-7920 ISBN 978-88-569-0547-2

98. V. Pracchi, E. Rosina, A. L'Erario, C. Monticelli, S. Aliprandi, A. Zanelli, *From Arazzo to Textile Based Innovative System for Energy Efficiency of Listed Buildings*, in *REHAB 2017, Proceedings of the 3rd International Conference on Preservation, Maintenance and Rehabilitation of Historical Buildings and Structures*, ed by R. Amoeda, S. Lira, C. Pinheiro, Green Lines Institute for Sustainable Development Braga, Portugal, 14-16 June 2017, pp.1093-1103. ISBN 978-989-8734-24-2 eISBN 978-989-8734-23-5

99. V. Pracchi, *In equilibrio tra 'soppesare' e misurare. Alcune riflessioni su sostenibilità ed efficienza energetica nell'edilizia storica*, (Balancing between 'Weighing' and Measuring. Some Reflections on Sustainability and Energy Efficiency in Historic Buildings), in *Materiali e strutture. Problemi di conservazione. Restauro e impianti*, (Materials and Structures. Conservation Problems. Restoration and Plants) Nuova serie VI, n.11 2017, pp. 67-82 ISSN 1121-2373

## 2018

**100.** V. Pracchi, *Achilles and the Tortoise: A Paradox between Authenticity and Cultural Tourism*, in HERITAGE 2018 Proceedings of the 6<sup>th</sup> International Conference on Heritage and Sustainable Development, vol. 2, pp. 1841 – 1850, ISBN 978-84-338-6261-7

**101.** C. Boniotti, A. Sedova, V. Pracchi & A. Ciaramella, *Management Models for Public Cultural Heritage: A Comparison between the Italian and Russian Approaches*, in HERITAGE 2018 Proceedings of the 6<sup>th</sup> International Conference on Heritage and Sustainable Development, vol. 1, pp. 13 – 22, ISBN 978-84-338-6261-7

**102.** D. Oreni, G. Pertot, V. Pracchi, R. Valente, *Scritte sui muri: i graffiti antichi tra indifferenza e considerazione*, (Writings on the Walls: Ancient Graffiti between Indifference and Consideration), in “*Intervenire sulle superfici dell'architettura tra bilanci e prospettive*”, (“Intervening on the Surfaces of Architecture between Evaluations and Perspectives”), Conference Proceedings Bressanone 2018 pp. 697-707. ISBN 9788895409221

## 2019

**103.** V. Pracchi, A. Buda, *Potentialities and Criticalities of Different Retrofit Guidelines in their Application on Different Case Studies*, in Conference Report – Energy Efficiency in Historic Buildings ed. By T. Broström, L. Nilsen, S. Carlsten EEHB 2018 Visby, pp. 283-293. ISBN 9789151908380

The paper aims to investigate the criticalities and potentialities of the Italian Cultural Heritage Ministry’s Guidelines (October 2015) and of the European Guidelines for Improving Energy Performance of Historic Buildings (EN 16883 – June 2017), comparing and applying them to selected case studies. The documents represent an instrument to help public authorities and designers to follow an iterative retrofit process; in both cases it is possible to notice some difficulties in their technical application. Thus, we have identified their critical and positive features through the assessment of case studies. The purpose is to underline possible issues and to suggest new solutions in both cases, improving the existing guidelines with other targets to obtain a calibrated evaluation method, which could guide the retrofit project.

**104.** V. Pracchi, E. Rosina, A. Zanelli, C. Monticelli, *Removable Textile Devices to Improve the Energy Efficiency of Historic Buildings*, in Conference Report – Energy Efficiency in Historic Buildings ed. By T. Broström, L. Nilsen, S. Carlsten EEHB 2018 Visby, pp. 127-134. ISBN 9789151908380

**105.** V. Pracchi, A. Buda, *Built Heritage: Strategies of People Involvement for Minimizing Retrofit Interventions. A Review of Documents and Case Studies*, in THE HUMAN DIMENSION OF BUILDING ENERGY PERFORMANCE in Conference Proceedings (Venice, 20-22 February 2019), pp. 221-238. ISBN: 8895620631

*The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLII-2/W11, 2019* GEORES 2019 - 2nd International Conference of Geomatics and Restoration, Editor(s): R. Brumana, V. Pracchi, F. Rinaudo, A. Grimoldi, M. Scaioni, M. Previtali, and L. Cantini:

**106.** B. Bonfantini, C. Casonato, D. Villa, N. Di Blas, V. Pracchi, and M. Vedoà

*Revealing the Everyday Landscape: Innovative Systems for Heritage Education in Schools. The ScAR (School Activates Resources) Project*, pp. 255-261

The Italian Plan for Cultural Heritage Education identifies the training related to cultural heritage as a possible way of contributing to the cultural and social improvement of the life of every person, also developing, through a conscious use, the sense of belonging to one or more cultures and territory.

Given these potentialities, the document reveals a lack of response to training needs and underlines how the launch of educational courses that put school and university in synergy in the places of culture is among the priorities to be achieved in the period 2016-2018. The Italian Digital School Plan also stresses the importance of a renewed

educational approach and effort to promote heritage and provides for all students to be offered courses on the digital management of Cultural Heritage. The interest in the heritage, after all, is identified by European policies as part of the right of every citizen to freely participate in cultural life.

The ScAR project aims to address these requests with an experimental and methodologically innovative action, set in a context rich in critical issues and on a fragile and scarcely recognized heritage such as that of a part of the Milan urban periphery. The aim is to promote the shared knowledge of the latent urban patrimony and increase the sense of belonging to one's neighborhoods, the sense of active citizenship and the responsibility for the care of the common good, especially in young people. Another priority is to provide schools with tools for educational innovation, inclusion, and technological update, to prevent early school leaving.

**107.** S. Marconcini and V. Pracchi, *Inclusive Cultural Heritage Sites: ICT as a Tool to Support the Design Process and Share Knowledge* <http://hdl.handle.net/11311/1090202>, pp. 793 800

Within the European strategies for a sustainable development, the role of cultural heritage as an economic, environmental and social driver has become increasingly significant. As an asset in people's lives, it's necessary to guarantee an opportunity to access it for everyone. For this reason, urban transformation policies must offer the proper compromise between the requirements of conservation and physical/cognitive accessibility. This entails a clear design complexity, which however cannot justify the lack of intervention, but must propose new governance models for an inclusive design process. In a broader research framework, the implementation of ICT has turned out to be a solution that can address some issues, enhancing the level of inclusion in cultural heritage sites. Particularly, the conception of an interactive map seemed the proper way of producing a feasible operative tool. The first aim is linked to the necessity of having an information system thanks to which everyone, particularly users with special needs, is able to organize their movements and be aware of the proposed services and fulfilled inclusive strategies. The second target is connected to the management of the projects related to the development of inclusion, therefore it is addressed to municipal administrators and other key actors involved in the governance of cultural heritage. Finally, the discussion about the main objectives and features of an interactive map wants to highlight the role that ICT can play within an inclusive design approach, which requires a tool able to support the intervention on the physical environment and to offer further essential services.

**108.** V. Pracchi and L. Barazzetti, *On the Relationship between Geomatics and Conservation: Lessons Learned from Integrated Restoration Laboratories*, pp. 981 988

The paper aims at investigating results, research perspectives, and limitations emerging from the synergy between geomatics and conservation. Recent didactic experiences carried out in restoration laboratories at Politecnico of Milan are illustrated and discussed. The authors tested innovative survey techniques, with particular attention to the conservation problem. The aim was to exploit novel 360° virtual/immersive environments able to collect and manage traditionally useful data for conservation projects, such as thematic maps of historical building techniques, construction technologies, deterioration pathologies, and data from diagnostics. Results are presented for two case studies entailing completely different shapes, pathologies, and reuse: the Albergo Diurno di Porta Venezia in Piazza Oberdan, and the Church of San Vittore and the Forty Martyrs (both in Milan). The work carried out with students made it possible to evaluate the pros and cons of a novel 360° immersive solution. The outcomes suggest other possible uses in related activities. The last part of the paper reconsiders the proposed "renewed" relationship between geomatics and restoration. Starting from the basic requirements of existing regulations, the paper explores the research fields and practical applications that could benefit from an intersection of geomatics and restoration.

**109.** Bertone, G., Bordin, M., Casonato, C., Di Blas, N., Pracchi, V. & Vedoà, M., *Schools as Protagonists in the Valorization and Communication of their Local Cultural Heritage*, in J. Theo Bastiaens (Ed.), *Proceedings of EdMedia + Innovate Learning* (pp. 1562-1568). Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE). Retrieved August 28, 2019 from <https://www.learntechlib.org/primary/p/210175/>.

Cultural heritage education is an important part of the identity-making process of the citizens of every nation around the world. While its relevance is widely recognized and advocated by several governmental pronouncements, the design, deployment and – most importantly – sharing of initiatives where students are actors in a process of discovery-knowledge-interpretation-representation-communication of their local heritage are still lagging behind. More often than not, student involvement is enacted through school trips and visits to cultural places and institutions, where students "fight for the only available bench". This paper presents the ScAR (School Activates Resources) project, that through an array of technology-based activities (digital storytelling, creation of multimedia guides for tourists, virtual and augmented reality for cultural heritage, simulation of urban



planning, urban gaming...) is succeeding into turning students (from primary to high-school) from passive – and often quite unwilling! – visitors into enthusiast cultural heritage communicators.

**110.** Herrera-Avellanosa, D.; Haas, F.; Leijonhufvud, G.; Broström, T.; Buda, A.; Pracchi, V.; Webb, A. L.; Huttler, W.; Troi, A. *Deep Renovation of Historic Buildings: The IEA-SHC Task 59 Path Towards the Lowest Possible Energy Demand and CO<sub>2</sub> Emissions* INTERNATIONAL JOURNAL OF BUILDING PATHOLOGY AND ADAPTATION, 2019, pp.1-15 DOI 10.1108/IJBPA-12-2018-0102

Improving the energy performance of historic buildings has the potential to reduce carbon emissions while protecting built heritage through its continued use. However, implementing energy retrofits in these buildings faces social, economic, and technical barriers. The purpose of this conceptual paper is to present the approach of IEA-SHC Task 59 to address some of these barriers to achieve the lowest possible energy demand for historic buildings. This paper proposes a definition for this concept and identifies three key socio-technical barriers: the decision-makers' lack of engagement in the renovation of historic buildings, a lack of support during the design process and limited access to proven retrofit solutions. Two methods – dissemination of best practices and guidelines – are discussed in this paper as critical approaches for addressing the first two barriers. An assessment of existing databases indicates a lack of best-practice examples focused specifically on historic buildings and the need for tailored information describing these case studies. Similarly, an initial evaluation of the guidelines highlighted the need for process-oriented guidance and its evaluation in practice. This paper provides a novel definition of lowest possible energy demand for historic buildings that is broadly applicable in both practice and research. Both best practices and guidelines are intended to be widely disseminated throughout the field.

**111.** Buda, A.; Pracchi, V.; Sannasardo, R. *Built Cultural Heritage and Energy Efficiency. The Sicily Case: Pros and Cons of an Innovative Experience*, IOP CONFERENCE SERIES. EARTH AND ENVIRONMENTAL SCIENCE vol. 296, 2019, pp.1-9.

The paper aims to present a study carried out within the Regional Operational Program - European Regional Development Fund 2014/2020 financing project for the efficiency improvement of 106 public heritage assets owned by the Sicily Region. 38 case studies of this stock have been selected, having different uses (museum, library, office, etc.), typology and construction period, ranging from XI to XX century buildings. The sample heterogeneity gives a large-scale overview of the Mediterranean heritage, making it possible to assess the efficacy of energy policies (at Regional level) and to suggest feasible retrofit solutions for historic public buildings. The strengths and weaknesses of each case are highlighted, comparing an energy audit (based on bills and simulated energy performance data) and an on-field survey. The inclusion of interviews to stakeholders in the walk-through investigation clarified the efficacy of building and plants management. Finally, as tangible results, it is suggested to consider low-impact retrofit interventions accordingly to the building microclimate, as well as objects and users' needs, as a win-win strategy.

## 2020

**112.** Akkurt, G. G.; Aste, N.; Borderon, J.; Buda, A.; Calzolari, M.; Chung, D.; Costanzo, V.; Del Pero, C.; Evola, G.; Huerto-Cardenas, H. E.; Leonforte, F.; Lo Faro, A.; Lucchi, E.; Marletta, L.; Nocera, F.; Pracchi, V.; Turhan, C. *Dynamic Thermal and Hygrometric Simulation of Historical Buildings: Critical Factors and Possible Solutions*, in RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol.118, pp. 1-17.

**113.** S. Mauri, V. Pracchi, *The Role of Colour in Modern Movement Architecture. The Case of Terragni's Casa del Fascio in Como*, in Colour and Colorimetry. Multidisciplinary Contributions. Vol. XVI B, Ed. by V. Marchiafava, M. Picollo, pp.99-106. ISBN 978-88-99513-13-9

**114.** V. Pracchi, *Sostenibilità versus sostenibilità. Alcuni equivoci tra conservazione e efficienza energetica*, (Sustainability versus Sustainability. Some Misunderstandings between Conservation and Energy Efficiency), in *Recupero e conservazione*, n.161, settembre ottobre 2020, special number dedicated to historical windows, pp.14-23.

**115.** A. Buda, V. Pracchi, *Le Linee di Indirizzo per il miglioramento dell'efficienza energetica nel patrimonio culturale: indagine per la definizione di uno strumento guida adeguato alle esigenze della tutela*, (The Guidelines for the Improvement of Energy Efficiency in Cultural Heritage: Survey for the Definition of a Guide Tool Suited to the Protection Needs), in *Restauro: Conoscenza, Progetto, Cantiere, Gestione*, (Restoration: Knowledge, Project, Construction Site, Management) Quasar, Roma 2020, pp.772-782.

Over the last decades, the combination of energy efficiency and cultural heritage has gained increasing importance, becoming one of the growth objectives for Governments and Institutions and, at the same time, a key point in the conservation planning process: the integration of efficiency-enhancing solutions, calibrated on the building needs, is intended as an activity aimed at ensuring the best conditions of use of the heritage itself. Four years after the publication of the MiBAC Guidelines for the energy efficiency improvement of cultural heritage (October 2015), this study aims to examine them to understand their use in professional practice and their validity in bridging the discrepancy between normative acts and project practice. The Guidelines are a non-obligatory guiding tool, but were designed to help the actors involved in the heritage conservation process (designers and competent authorities), in a well-balanced evaluation of all possible solutions, before their implementation. The observations of a large number of Superintendents, architects and energy professionals were gathered by means of interviews and questionnaires. From the document pros and cons, attention is placed on how much, and in which occasions, is a valid driving tool and how much, instead, deviates from the heritage protection needs. The final aim of this survey is to understand how to modify and enrich the contents of the Ministry's guidelines, if necessary, to support a calibrated interventions choice. According to that, some possible considerations will be presented as a starting point for a future discussion.

### **In progress**

- V. Pracchi, S. Volpi, *L'antico Ospedale Spagnolo: riscoperta e restauri*, (The Ancient Spanish Hospital: Rediscovery and Preservation), Skira editore.
- V. Pracchi, *Una nuova sede per la Pietà Rondanini. Note attorno al dibattito sulla conservazione dell'allestimento museale dei BBPR in Castello Sforzesco a Milano*, (A New Location for the Pietà Rondanini. Notes on the Debate on the Conservation of the Museum Layout of the BBPR at Castello Sforzesco in Milan), in II volume dei saggi in onore di G. Carbonara. L'ERMA di BRETSCHNEIDER Roma
- **In EEHB 2020 the 4th International Conference on Energy Efficiency in Historic Buildings**
- S. Mauri, V. Pracchi, *Traditional and Innovative Materials and Solutions to Improve the Energy Efficiency of Historic Windows: A Literature Review*
- S. Mauri, V. Pracchi, *Balancing Energy Efficiency and Conservation Aspects of Terragni's Casa del Fascio in Como: Thermal Analysis, Energy Modelling and Intervention Proposals*
- **In SBE21**
- S. Mauri, V. Pracchi, *Literature Review of High-Performance Materials and Technological Solutions to Improve the Thermal Performance of Historic Buildings*
- S. Mauri, V. Pracchi, L. Scazzosi, *Renewable Energy Integration and Landscape*



***Dichiarazione sostitutiva di certificazione (art. 46 D.P.R. n. 445/2000)***

*Avvalendomi della facoltà concessa dall'art. 46 D.P.R. 445/2000, consapevole delle responsabilità e delle pene stabilite dalla legge per false attestazioni e mendaci dichiarazioni, sotto la mia personale responsabilità DICHIARO che i dati inseriti nel presente CV sono veritieri.*

***Declaration in lieu of certification (art. 46 D.P.R. n. 445/2000)***

*In compliance with the relevant provision of art. 46 D.P.R. 445/2000, and fully aware of the legal responsibilities and penalties in case of false statements and mendacious declarations, under my personal responsibility I HEREBY DECLARE that the data entered in this CV are true.*

*Data: \_\_Luglio 2021\_\_*

*Firma:*

Below, in attachment, a summary representation of the Curriculum Vitae.

The first image shows the division between theoretical and applicative areas and the partial and total number of publications.

The second one highlights the main research fields to which my scientific products can be referred to, in relation to the number of publications in total.

Whilst the CV presents my scientific production in a chronological order, the following pages group the entire production in thematic order, according to the same research fields illustrated in figures 1 e 2.

**Figs. 1 and 2**

### **Humanistic area**

**Tot. 56 publications**

History of Construction Site /  
Material Culture and Historical  
Constructive Techniques

**14 publications (Curator of 3 books)**

Preservation Theory: to the roots of the discipline (the  
relationship between art historians and restorers)

**6 publications (1 book)**

Preservation Theory and History (always considering real  
cases and problems)

**19 publications**

Preventive and Planned Conservation

**8 publications (1 book)**

Review and short articles

**9 publications**

### **Technical application area**

**Tot. 59 documents**

Construction site and case studies

**8 publications (1 book)**

Application / diagnostics / monitoring / treatments  
aspects

**10 publications**

Legislation and problems of re-use

**6 publications (1 book)**

Overcoming architectural barriers in Built Cultural  
Heritage

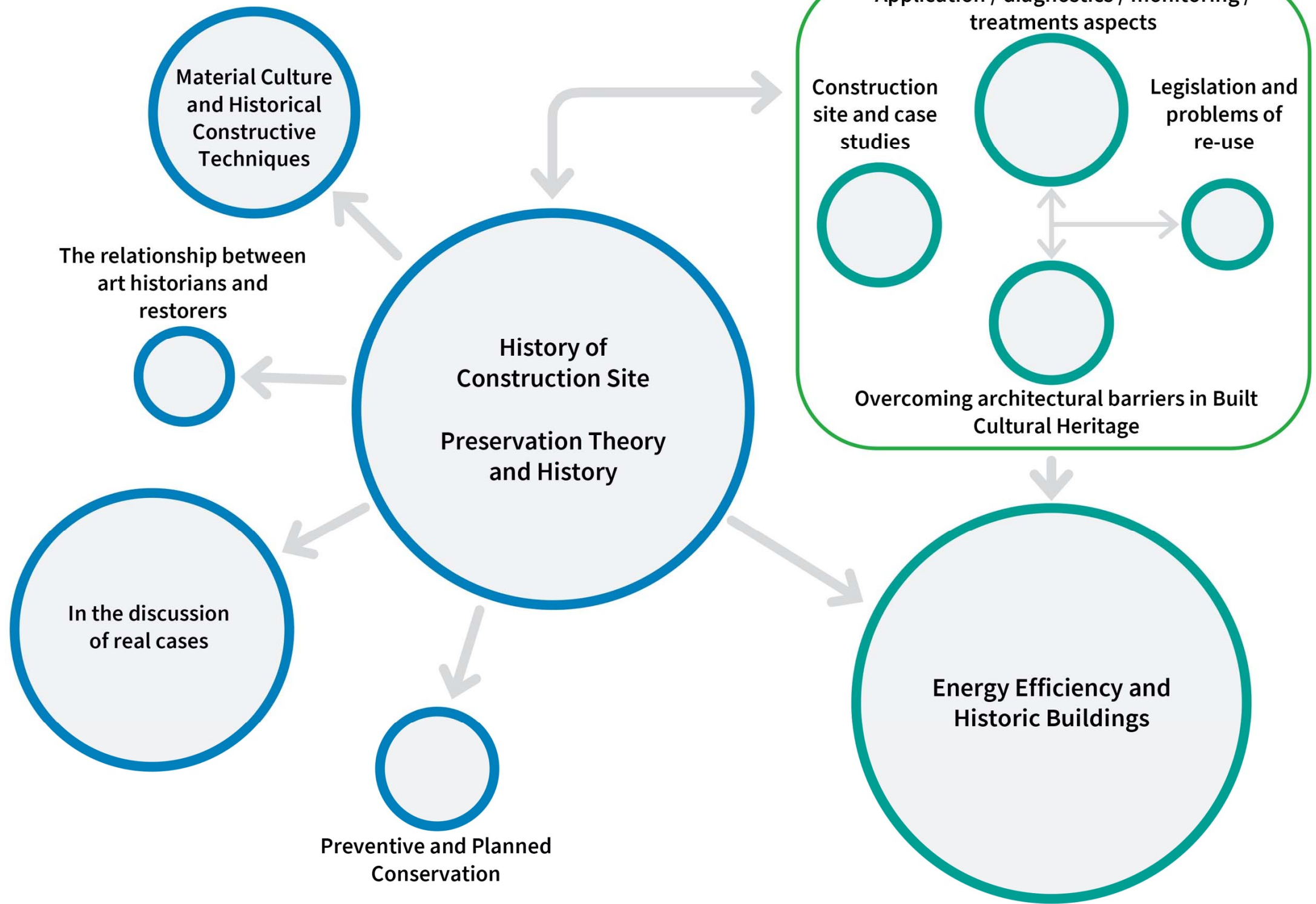
**8 publications**

Energy Efficiency and Historic Buildings

**27 publications (1 book)**

**Tot. 115 publications**

\*The size of the circles is in relation to the number of publications in total\*



- **Reviews / Short articles**

1. *Needs of The Built Heritage and New Ways of Life*, in G. Guarisco, ed. by, *A-LETHEIA*, 2. *Forgotten Lombard Architectures. Studies for Their Reuse*, Alinea, Firenze 1991, p. 28.
7. *Rebuild or not Rebuild the Collapsed Tower*, in *Tema*, n. 4 1993, p. 41.
12. Review: *La Ca' Granda in Milan. The Conservative Intervention on the Courtyard of Richini*, in "Palladio", a. VIII, n. 15, June 1995.
16. Review: *Camillo Boito and the System of the Arts. First Study Meeting*, in "TeMa", n. 2 1996, pp. 45-46.
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- **History of Architecture**

2. *The Martinelli Collection at the Castello Sforzesco in Milan*, in "Il Disegno di Architettura", n. 3, April 1991, pp. 5-24.
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18. *The Neo-Renaissance in Nineteenth-Century Italy: The Search for Self-Representation in City Architecture*, with S. Della Torre, in *Reviving the Renaissance. The Use and Abuse of the Past in Nineteenth-Century Italian Art and Decoration*, ed. by R. Pavoni, Cambridge University Press, 1997, pp. 177-206.

- **History of Construction Site / Material Culture and Historical Constructive Techniques**

In S. Della Torre, ed. by, *The Vocation of Building. Documents for a History of the Construction Yard. The Case of Como*, Como 1992:

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  9. *Local Construction Specificities and New Dating Methods*, in F. Cani, G. Monizza, ed. by, *Como and its History. The Villages and the Hamlets*, Como 1994, p. 30.
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  13. *The Way to Restore. The Techniques in the Restoration Site between the 19th and 20th Centuries: The Use of Reinforced Concrete*, in S. Della Torre, ed. by, *History of Masonry Techniques and Building Protection. Experiences and Method Questions*, Milano 1995, pp. 263-275.
  14. *The Way of Cement*, pp. 3-10, in AA.VV., *Cassago Plant*, Como 1995.
  19. *The Duomo as a Monument: The Multiplicity of Possible Interpretations*, in S. Della Torre, T. Mannoni, V. Pracchi, eds. by, *Magisters of Europe. Events, Relationships, Structures of the Migration of Artists and Builders from Lombard Lakes*, Como 1997, pp. 109-135.



- V. Pracchi, ed. by, *The Study of Historical Construction Techniques: State of the Art and Research Perspectives*, Como 2008, Inside: **60. Study of Historical Construction Techniques. Reflections and Research Perspectives**, pp.9-24
- V. Pracchi, ed. by, *Historical Building Practices: Stucco Artefacts and Wooden Roofing Structures in Lombard Buildings*, Como, 2008, Inside: **62. Stucco and Wooden Roofing Structures: Two Sides in the "Knowledge of Historical Construction Techniques"**, pp.7-20.
- 63.** V. Pracchi, *The Teaching of the Historical Construction Techniques in the Italian Faculties*, pp. 1201 – 1208, 2009 Cottbus, Germany
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- **Preservation Theory: to the roots of the discipline (the relationship between art historians and restorers)**

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- 20.** *A Previously Unknown Document about the Controversy Between Adolfo Venturi and Gustavo Giovannoni*, in "Lombard Institute Academy of Sciences and Letters", vol.130 (1996), fasc.1 e 2, pp. 53-74.
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- 26.** *"The Protection of Monuments is a Struggle to be Fought Day by Day". Letters from Benedetto Croce to Corrado Ricci*, in "Napoli Nobilissima", vol. XXXVIII, fasc. I-VI, January - December 1999, pp. 175-184.
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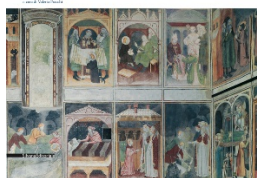
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82. V. Pracchi, A. Chiapparini, *Restoration and Possible Ways to "Communicate" the Cultural Heritage*, in *IL CAPITALE CULTURALE. Studies on the Value of Cultural Heritage*, n.8 2013, pp.137-155.
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- In “To Think About Prevention”, Conference Proceedings Bressanone, 2010:
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48. V. Pracchi, G. Pertot, *The Floors in the Spanish Hospital at the Castello Sforzesco in Milan*, pp.725-734.
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- **Application / diagnostics / monitoring / treatments aspects**



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- 58. *The Follow Up of Our Own Restoration Sites*, pp. 885-894 and
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In “Preventive Conservation. Practice in the Field of Historical Monuments”, Conference Proceedings, Friburgo 2009: - 64. D. Del Curto, C. Manfredi, G. Pertot, V. Pracchi, E. Rosina, L. Valisi, *Diagnostics, Intervention and Monitoring: The Case of the Oratory of Santo Stefano in Lentate Sul Seveso (Milan)*, pp. 62-69.

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