

# EXHIBITION CATALOGUE

## INTERNATIONAL ITINERANT EXHIBITION "RESEARCH IN BUILDING ENGINEERING EXCO'25"

INTERNATIONAL ITINERANT EXHIBITION EXCO 2025  
**ETS DE INGENIERÍA DE EDIFICACIÓN**  
UNIVERSITAT POLITÈCNICA DE VALÈNCIA  
Camino de Vera S/N, 46022 Valencia – Spain

**Location:**

***Università degli Studi della Basilicata***  
***(Matera - Italia)***

*From 11<sup>st</sup> to December 19<sup>th</sup> 2025*  
*Piano Terra Blocco B*  
*Via Lanera, 20, 75100 Matera MT, Italia*

**Curators of Exhibition:**

Antonella Guida (Local Curator)  
Graziella Bernardo (Local Curator)  
Giuseppe Andrisani (Local Curator)  
José Ramón Albiol Ibáñez (International Curator)

**Exhibition**

**XXXIX INTERNATIONAL SHOWROOM OF CONSTRUCTION TECHNOLOGIES - EXCO 2025 ©**


**INTERNATIONAL ITINERANT EXHIBITION "Research in Building Engineering - EXCO'25"**











Page 1



## INDEX

CURATORS	1
PROLOGUE	3
INTERNATIONAL SCIENTIFIC COMMITTEE	7
INTERNATIONAL ORGANIZATION COMMITTEE	10
CHAPTER INDEX – Research Communications	13











Page 1



## PROLOGO MATERA

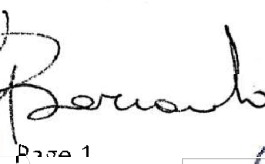
EXCO 2025 Matera è stato un prestigioso convegno internazionale che ha fatto riflettere i ricercatori provenienti dai cinque continenti sul concetto di riuso del patrimonio architettonico, urbanistico, industriale e sulla conservazione dei beni culturali. Tutto ciò è stato affrontato in una prospettiva interdisciplinare, scientifica e globale. Il congresso ha affrontato questioni metodologiche, tecniche, accademiche o progettuali inerenti alla documentazione, la conservazione, il riutilizzo e il recupero del patrimonio architettonico, urbano o paesaggistico. Una delle attività più importanti è stata l'esposizione di lavori di ricerca internazionali presentati ogni anno sotto forma di Poster, e che nel 2017 per la prima volta sono stati esibiti come mostra itinerante in diverse Università estere prendendo il via dall'Università della Basilicata e si è spostata poi in altre università. L'Università degli Studi della Basilicata ha organizzato anche quest'anno "EXCO 2025 Matera". Molto spesso arte e scienza colgono insieme, quasi all'unisono, lo "spirito dei tempi" e lo rafforzano. La sincronia talvolta è stupefacente, pressoché perfetta. Matera ha ospitato, quindi, per la seconda volta la mostra itinerante internazionale sui materiali e le tecnologie costruttive "EXCO Matera 2025" organizzata dal DIUSS Dipartimento per l'Innovazione Umanistica Scientifica e Sociale, dell'Università della Basilicata). Si è trattato di un evento che si tiene da più di 30 anni a giugno, a Valencia in concomitanza con la fiera espositiva 'Cevisama', una delle più importanti al mondo sui materiali ceramici, vetri e allestimenti e finiture per gli ambienti interni. Evento coordinato dal Direttore "EXCO 2025" Prof. Dr. José Ramón Albiol-Ibáñez.

Prof. Antonella GUIDA; Prof. Graziella BERNARDO; Prof. Giuseppe ANDRISANI

## PROLOGUE MATERA

"EXCO Matera 2025" was a prestigious international conference that makes researchers from the five continents reflect on the concept of re-use of architectural, urban, industrial and cultural heritage conservation. All of this has been inserted in an interdisciplinary, scientific, and global perspective. The congress deals with methodological, technical, academic, or planning issues concerning the documentation, conservation, reuse, and recovery of architectural, urban or landscape heritage. One of the most important activities was the exhibition of international research works presented every year in Posters; in 2017, for the first time, they were exhibited as a traveling exhibition in various foreign Universities, taking off from the University of Basilicata and then moving to other universities. Also this year the University of Basilicata organized "EXCO 2025 Matera". Very often art and science gather, almost in unison, the "spirit of the times" and reinforce it. Synchrony is sometimes amazing, almost perfect. Matera hosted, for the second time, the international traveling exhibition on materials and construction technologies "EXCO Matera 2025" organized by DIUSS Dipartimento per l'Innovazione Umanistica Scientifica e Sociale, of the University of Basilicata. This is an event that has been held for more than 30 years in June, in Valencia to coincide with the 'Cevisama' exhibition, one of the most important in the world on ceramic materials, glass, fittings and finishes for indoor environments. Event coordinated by the Director "EXCO 2025" Prof. Dr. José Ramón Albiol-Ibáñez.

Prof. Antonella GUIDA; Prof. Graziella BERNARDO; Prof. Giuseppe ANDRISANI



Page 1



# FOREWORD DIRECTOR EXCO'25

The Faculty of Building Engineering of the UNIVERSITAT POLITÈCNICA DE VALÈNCIA - SPAIN, organized on February 24th to 28th, 2025, "The XXXIX Construction Technology Exhibition" EXCO'25 and the International Itinerant Exhibition "Research in Building Engineering" along year, at CEVISAMA - International Fair of Valencia - SPAIN.

Conferences are scheduled in UNIVERSITAT POLITÈCNICA DE VALÈNCIA - SPAIN, the speakers are national and international of recognized prestige from Europe, Asia and America. These conferences are aimed at professionals and students of the UPV to broaden their knowledge and experiences.

EXCO'25 promotes the entrepreneurship of the young UPV generations, participation in conferences.

The International Itinerant Research Exhibition EXCO'25 has the collaboration of 63 Universities from America, Europe, Africa, Asia and Oceania. Promoting collaboration between institutions and professors at the international level.

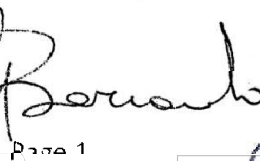
It fosters interdisciplinary collaboration of the professor staff within the UPV with 63 International Universities; It has the participation of 9 departments and 8 research institutes of the UPV in EXCO'25.

The participating entities are:

1. Universitat Politècnica de València, España.
2. Politecnico di Milano, Italia.
3. Mimar Sinan Fines Arts University, Istanbul, Turkey.
4. Nottingham Business School, England.
5. Vilnius Gediminas Technical University, Vilnius, Lithuania.
6. Universidad de Costa Rica
7. Università degli Studi di Basilicata, Matera, Italia.
8. Universidad Tecnológica de La Habana José Antonio Echeverría, Cuba.
9. Università degli Studi Firenze, Italia
10. Università di Pavia, Italia.
11. Odessa State Academy of Civil Engineering & Architecture, Odessa, Ukraine
12. Università di Salerno, Italia.
13. Silesian University of Technology, Politechnika Śląska, Gliwice, Poland.
14. University of British Columbia, Vancouver, Canada.
15. Universidad de Alcalá de Henares, Madrid, España.
16. Florida A&M University, Florida, USA.
17. Universidad Mayor de San Andrés, La Paz, Bolivia.
18. Universidad de la República (UdelaR) de Uruguay.
19. Universidad John F. Kennedy, Argentina.
20. Universidad de Castilla-La Mancha, España.

  
Page 1

21. Universidad de Granada, España.
22. Università degli Studi della Campania "Luigi Vanvitelli", Napoli.
23. Politecnico di Bari, Italia.
24. Università degli Studi di Roma "Tor Vergata", Italia.
25. Hanze University of Applied Sciences, Groningen. Nederland.
26. Jade Hochschule Wilhelmshaven/Oldenburg, Germany.
27. New York University, Tandon School of Engineering. USA.
28. McGill University, Canada
29. Nanyang Technological University, Singapore.
30. University of New South Wales, Sydney, Australia.
31. Università di Pisa, Italia.
32. Universidad de Ibagué, Colombia.
33. Beijing Yong Shan Media Co., Ltd. Pekin
34. Università degli Studi dell'Aquila, Italia.
35. Universitat Jaume I, Castellón, España.
36. University of Applied Sciences and Arts of Southern Switzerland
37. Institut für Bau- und Infrastrukturmanagement /ETH Zürich
38. University North, Varaždin, Croacia
39. South Ukrainian National Pedagogical University, Odessa, Ukraine.
40. Kharkiv National University of Civil Engineering and Architecture, Ukraine.
41. Universitat de València, Spain.
42. Perm National Research Polytechnic University, Perm, Russia
43. University of Cape Town, South Africa.
44. National University of Singapore.
45. TU Delft, The Netherlands.
46. Politecnico di Torino, Italy.
47. Wuhan University, Wuhan, China.
48. University of Oregon, USA.
49. City-University of Hong Kong.
50. Shenzhen University School of Architecture, Shenzhen, China.
51. Hokkaido University, Sapporo, Japan
52. Universidad de la Salle, Bogotá, Colombia.
53. Universidad de los Andes, Bogotá, Colombia.
54. Universidad Católica de Valencia. España.
55. Universidad UTE. Quito. Ecuador.
56. Universidad de Napoles Federico II, Napoles, Italy.
57. Telematic University Pegaso, Italy.
58. University of Guanajuato, México.
59. University of La Salle Bajío, México
60. Universidad Jesuita de Guadalajara, ITESO, México



Page 1



61. Tecnológico de Monterrey. México.
62. MIT Massachusetts Institute of Technology. USA.
63. Gdańsk University of Technology, Poland.

Thank you all for making EXCO possible.

All the best for EXCO'26!

Best Regards

Dr. José R. Albiol-Ibáñez

Vice Dean Digital Transformation, Business Cathedra &

Entrepreneurship Director EXCO'25

ETS Building Engineers - Building 1B

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Page 1



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## CHAPTER 1: ECONOMY

### 1.1-BUILDING MANAGEMENT SYSTEMS (BMS), A FURTHER ADVANCE IN BUILDINGS EFFICIENCY.

J. Fuentes-del-Burgo / E. Navarro-Astor

### 1.2-SUSTAINABLE COMMUNITY DEVELOPMENT: ANALYZING THE IMPACT OF AI AND REVIT ON GREEN MATERIALS CONSTRUCTION.

Fabiola Colmenero Fonseca / Alejandro Guzmán Ramírez  
/ Andrés Salas Montoya / Javier Cárcel Carrasco / Rut  
Benavente Martínez

### 1.3-LAST PLANNER SYSTEM IMPLEMENTATION IN A CONSTRUCTION COMPANY IN KAZAKHSTAN: A SWOT ANALYSIS.

D. Sadvokassova / N. Valverde-Gascueña / J. Fuentes-del-  
Burgo / E. Navarro-Astor

### 1.4-RELATIONSHIP BETWEEN MAINTENANCE ENGINEERING AND KNOWLEDGE MANAGEMENT.

Javier Cárcel-Carrasco / Fabiola Colmenero Fonseca / Ramiro  
Rodríguez Pérez / José Ramón Albiol Ibañez

### 1.5-MAINTENANCE KNOWLEDGE MANAGEMENT MODEL BASED ON RELIABILITY, MAINTAINABILITY AND ENERGY EFFICIENCY.

Javier Cárcel-Carrasco / Andrés Salas Montoya / Adolfo  
Priecido Quiroz / Alejandro Guzmán Ramírez

### 1.6-OPERATIONAL RELIABILITY, MAINTENANCE AND ENERGY EFFICIENCY, RELATIONSHIPS AND IMPROVEMENT WITH THE USE OF KM TECHNIQUES.

Javier Cárcel-Carrasco / Fidel Salas Vicente / José Ramón  
Albiol Ibañez / José Antonio Cárcel Carrasco

### 1.7-CUSTOMER PROFILE OF THE REAL ESTATE AGENT AS THE INDUSTRY GOES DIGITAL. p.41

Juan Carlos Asensio-Soto / Elena Navarro-Astor

### 1.8-SYSTEMATIC LITERATURE REVIEW USING ARTIFICIAL INTELLIGENCE: REAL ESTATE MANAGEMENT WITH AI.

Maita Morales-Prieto / Alicia Llorca-Ponce / Gregorio Rius-  
Sorolla

### 1.9-AFFORDABILITY AND SUSTAINABILITY OF SOCIAL HOUSING IN EUROPE.

María Oliver-Sanz / Alicia Llorca-Ponce

### 1.10-ENERGY OPTIMIZATION OF BUILDINGS THROUGH RELIABLE MODELS. RESOURCE ECONOMIZATION.

A. Esteller Agustí / A. Martínez-Ibernón / C. Aparicio-  
Fernández / R. Royo Pastor

### 1.11- VALENCIA NEW MULTI STOREY RESIDENTIAL BUILDING DEMAND ANALYSIS.

Fernando Cos-Gayón López / Ángel Martín Furonos / Igor  
Fernández Plazaola / Kaliane Bauzá Reynaldo

### 1.12-OFFER ANALYSIS OF NEW CONSTRUCTION SINGLE- FAMILY HOUSES IN THE CITY OF VALENCIA, THE METROPOLITAN AREA, SELECTED MUNICIPALITIES OF THE CAMP DE TURIA AND THE MUNICIPALITY OF SAGUNTO.

Fernando Cos-Gayón López / Ángel Martín Furonos / Igor  
Fernández Plazaola / Kaliane Bauzá Reynaldo

## CHAPTER 2: SUSTAINABILITY

### 2.1- COASTAL URBAN ECOSYSTEMS SUSTAINABLE INFRASTRUCTURE THROUGH INTERDUNARY LAGOONS AND THEIR IMPACT ON SOCIAL WELL-BEING.

Fabiola Colmenero Fonseca / Maria del Carmen Ixtepan  
Turrent / Javier Cárcel Carrasco / Juan Francisco Palomino  
Bernal / Ramiro Rodríguez Perez

### 2.2-SOLAR CELL AS A BRIDGE BETWEEN SUSTAINABLE DEVELOPMENT AND ENERGY JUSTICE: INNOVATION FOR COMMUNITIES WITH HIGH SOLAR RADIATION.

Bruno Guadarrama Rincón / Fabiola Colmenero Fonseca /  
Lauren Yolanda Gómez Zamorano / Amparo Borrell

### 2.3-THE FUTURE OF WATER TREATMENT: INNOVATIVE ADVANCES IN CERAMIC MEMBRANE TECHNOLOGY.

Fabiola Colmenero Fonseca / Bruno Guadarrama Rincón  
/ Amparo Borrell / Rut Benavente Martínez / María Dolores  
Salvador Moya

### 2.4-ENERGY DIAGNOSIS OF A HISTORIC EDUCATIONAL BUILDING.

María Eugenia Torner Feltre / Mar Cañada Soriano /  
Carolina Aparicio Fernández / José Luis Vivancos Bono

### 2.5-APPLIED TECHNOLOGIES CONSTRUCTION MATERIALS FOR HOUSES: A SOLUTION TO ENERGY EFFICIENCY.

Juan Francisco Palomino Bernal / Javier Cárcel-Carrasco /  
Fabiola Colmenero Fonseca / Alejandro Guzmán Rodríguez /  
Kevin Alexander Echeverry Bucurú

### 2.6-RESOURCE MAPPING AND SMART GEOLOCATION: HARVEST MAP TECHNOLOGIES FOR SUSTAINABILITY, ESG GOVERNANCE AND CIRCULAR ECONOMY.

Ramiro Rodríguez Pérez / Javier Cárcel Carrasco / Fabiola  
Colmenero Fonseca / Juana Mercedes Perlaza Rodriguez /  
Kevin A. Echeverry Bucurú

**2.7-EVALUATION OF THE INTERACTION BETWEEN DAYLIGHT AND OUTDOOR VIEW IN UNIVERSITY BUILDINGS: A CASE STUDY.**

Giacomo Caccia / Matteo Cavaglià / Alberto Speroni / Luis Palmero Iglesias / Tiziana Poli / Andrea Giovanni Mainini

**2.8-THE ACOUSTICS OF THE SYDNEY OPERA HOUSE.**  
Quiteria Angulo-Ibáñez / Aitana Puig-Rocher**2.9-PERCEPTION OF PUBLIC SPACE THROUGH OUTDOOR ADVERTISING. THE CASE OF MADRID.**  
Quiteria Angulo-Ibáñez / Miriam Hernández-García**2.10-REGULATORY DEVELOPMENTS ON THE ENERGY EFFICIENCY OF BUILDINGS.**  
Quiteria Angulo-Ibáñez / Mercedes Almenar-Muñoz**2.11-RENEWABLE ENERGY TO DIFFERENT ACCESSIBILITY CONDITIONS, THROUGH THE WEATHER CONDITIONS.**  
Javier Cárcel-Carrasco / Fabiola Colmenero Fonseca / Kevin Echeverry / Juan Francisco Palomino**2.12-THERMAL MONITORING AND HEATWAVE INCIDENCE OF TEMPORAL DECARBONIZATION MEASURES AND NATURE BASED SOLUTIONS IN EL GRAO NEIGHBORHOOD, CASTELLON. DIVAIRCITY PROJECT.**  
Amparo León Vinet / Elisa Peñalvo López / Vicente León Martínez / Iván Valencia Salazar**2.13-GREEN ROOF ENERGY IMPACT ANALYSIS ON A CLASSROOM BUILDING AT THE TECHNOLOGICAL INSTITUTE OF BOCA DEL RIO.**  
José-Juan Huesca-Lopez / Iván Valencia-Salazar / Elisa Peñalvo-López / Juan-David Garay-Marin / Fabiola Lango-Reynoso**2.14-RESCUING EQUITY: A COMPREHENSIVE APPROACH TO ASSESSING SOCIAL SUSTAINABILITY IN URBAN ENVIRONMENTS.**  
María Oliver-Sanz / Alicia Llorca-Ponce**2.15-EVALUATION OF ENERGY EFFICIENCY PROPOSALS IN BUILDING M OF THE TECNOLÓGICO NACIONAL DE MÉXICO BOCA DEL RÍO CAMPUS, IN BOCA DEL RÍO, VERACRUZ.**  
Ignacio Z. Carmona-Uscanga / Iván Valencia-Salazar / E. Peñalvo-López / J. David Garay-Marin / Fabiola Lango-Reynoso**2.16-IMPACT OF ARCHITECTURAL DESIGN ON THE WELLBEING OF INHABITANTS: A STUDY OF CORRELATIONS IN KEY HOUSING ELEMENTS.**  
María Luisa Nolé / Robi Barranco / María Pérez / J. Luis Higuera-Trujillo / Carmen Llinares**2.17-CORRELATION BETWEEN LEED CERTIFICATION AND LOW-CO<sub>2</sub>E BUILDINGS: TOWARDS A NEAR ZERO CARBON (NZC) DESIGN.**  
Ida Severino / Giacomo Di Ruocco**2.18-CARBON NEUTRAL ARCHITECTURE: LCA METHOD "FROM THE CRADLE TO THE CRADLE" FOR THE "ZERO EMISSIONS" DESIGN OF TIMBER BUILDINGS.**  
Ludovica Amorelli / Giacomo Di Ruocco**2.19- BREATHE BRICKS. CO<sub>2</sub> ABSORBING BRICKS.**

Palmero Sánchez P. / Aurora Martínez Corral A. / Molines Cano J. / Hidalgo Mora J. / Romero Miquel J.

**2.20-HIGH TECHNOLOGY TO INTERVENE ON THE SUN. SOLAR CONTROL GLASS.**

Palmero Sánchez P. / García Izquierdo, A.

**2.21-LIGHT AS PRINCIPAL CONCEPT IN BENEDICTINE MONASTERY CHURCH. MODERN ARCHITECTURE IN CHILE.**  
Suzanne Segeur / Luis Palmero / Graziella Bernardo / Natalia Caicedo**2.22-THE REVALUATION OF THE CONTEMPORARY ART IN THE LANDSCAPE THAT HOSTS THEM: THE FIUMARA D'ARTE CASE IN THE NEBRODI NATURAL PARK.**  
Giuseppe Angileri / Marina Arena / Luis Palmero Iglesias**2.23-GREEN FACADES AS A RESOURCE FOR ENERGY SAVING AND EFFICIENCY.**  
Luis Manuel Palmero Iglesias / María Isabel Giner García**2.24-SUSTAINABLE AND DIGITAL TRANSFORMATION OF OFFICE BUILDINGS: FIELDS OF ACTION IN EXISTING AND NEW BUILDINGS.**  
Anja Henrike Kleinke**2.25-THE DISUSED PRECIOUS STONE ELEMENTS ARE NOT CDWASTE. A DIGITAL MANAGEMENT CHAIN TO SAVE THEM NOTTAL MANAGEMENT CHAIN TO SAVE THEM.**  
Raffaella Lione / Ornella Fiandaca / Fabio Minutoli / Alessandra Cernaro / Luis Manuel Palmero Iglesias

## CHAPTER 3: NEURAL ENGINEERING

**3.1-GAMIFIED ARCHITECTURAL DESIGN: ADVANCING EDUCATION WITH EXTENDED REALITY AND AI INSIGHTS.**  
Juana Mercedes Perlaza Rodríguez / Fabiola Colmenero Fonseca / Ángela María Díaz-Márquez**3.2-EVALUATION OF PHYSIOLOGICAL RESPONSES IN REAL AND SIMULATED HOUSING ENVIRONMENTS.**  
M. Pérez-Martínez / M.L. Nolé / R. Barranco-Merino / J.L. Higuera-Trujillo / C. Llinares**3.3-NEUROARCHITECTURE: DESIGN GUIDED BY PHYSIOLOGICAL SIGNAL DATA.**  
M. Pérez-Martínez / J.L. Higuera-Trujillo / C. Llinares**3.4-ILLUMINATING REALITIES: EXPLORING THE EFFECT OF LIGHTING IN HOUSING IN REAL AND VIRTUAL ENVIRONMENTS.**  
Nuria Castilla / Juan-Luis Higuera-Trujillo / Carmen Llinares

**3.5-EXPLORING PATTERNS IN PRESENCE QUESTIONNAIRES:  
A COMPARATIVE STUDY.**

Robi Barranco-Merino / Juan Luis Higuera-Trujillo / Carmen Linares Millán

**3.6-FOUNDATIONS AND FACTORS IN PRESENCE  
QUESTIONNAIRES FOR VIRTUAL ENVIRONMENTS.**

Robi Barranco-Merino / María Luisa Nolé Fajardo / María Pérez Martínez / Juan Luis Higuera-Trujillo / Carmen Linares Millán

**3.7-MULTIDIMENSIONAL APPROACH OF THE RELATIONSHIP  
BETWEEN PSYCHOPHYSIOLOGICAL, ECONOMIC, AND  
HEALTH DIMENSIONS IN BUILDING MATERIAL SELECTION.**

C. Linares / M. Bravo

**4.8-THE ENHANCEMENT OF THE SITE AND THE HERMITAGE  
OF PINTARRAFES CARLET.**

Pablo Ariel Escudero / Luis Cortés Meseguer / Jorge García Valdecabres / Concepción López González

**4.9-TEMPLATE ARCHITECTURE AND GAUGED BRICKWORK  
IN THE DOME OF ESCUELAS PÍAS OF VALENCIA.**

Luis Cortés Meseguer / Jorge Luis García Valdecabres / Concepción López González / Yrma Daniela Villalba Linares

**4.10-GRAPHICAL EVOLUTION AND SURVEYINGS OF  
VALENCIA'S CATHEDRAL.**

Luis Cortés Meseguer / Jorge García Valdecabres / Concepción López González / Pablo Ariel Escudero

**4.11-REINTERPRETING THE HERITAGE OF THE VALENCIAN  
MODERN MOVEMENT: CREATION OF A BIM DATABASE FOR  
THE BUILDING AT GRAN VÍA MARQUÉS DEL TURIA 29.**

Pablo A. Escudero / Jorge L. García Valdecabres / M. C. López González / Luis Cortés Meseguer

**4.12-MATERIAL APPROXIMATION OF THE EAST SIDE OF THE  
MAIN CLOISTER, FORMER CONVENT OF SANTO DOMINGO  
(VALENCIA, SPAIN).**

S. Kröner / E. Arias-Valera / L. Osete Cortina / X. Mas-Barberà

**4.13-FORMAL AND COMPOSITIONAL ASPECTS OF THE  
GOTHIC TRACERY OF THE MAIN CLOISTER IN THE FORMER  
CONVENT OF SANTO DOMINGO OF VALENCIA.**

E. Arias-Valera1 S. Kröner / L. Osete Cortina / X. Mas-Barberà

**4.14-HERITAGE AND PATHOLOGICAL ANALYSIS OF THE  
ANTONIO BALLESTER GALLERY.**

Luis Cortés Meseguer / Pablo Rodríguez Navarro / María Teresa Gil Piqueras / Andrea Ruggieri

**4.15-PROJECTED WORKS IN THE CHURCH OF SAINT JOHN  
THE APOSTLE AND EVANGELIST OF MASSAMAGRELL IN THE  
20TH CENTURY.**

Valentina Ciaffoni / Jorge García Valdecabres / Luis Cortés Meseguer / María Concepción López González

**4.16-REHABILITATION OF THE DOME OF THE CHURCH OF  
SAN JUAN APÓSTOL AND EVANGELISTA IN  
MASSAMAGRELL.**

Valentina Ciaffoni / Jorge García Valdecabres / Luis Cortés Meseguer / María Concepción López González

**4.17-FEASIBILITY OF INDUSTRIALIZED FACADES IN BUILDING  
REHABILITATION.**

M. Iborra-Lucas / John J. Zambrano-Alcivar

**4.18-DIGITAL RECONSTRUCTION OF THE NABATAEAN ARCH  
IN PETRA WORLD HERITAGE SITE, JORDAN.**

Wang Yang / María José Viñals Blasco / Jorge García Valdecabres

**4.19-THE CONSTRUCTION SYSTEM OF RECONQUEST  
CHURCHES THE CASE OF THE CHURCH OF LOS SANTOS  
JUANES IN VALENCIA.**

José Miguel Molines Cano / Jaime Linares Millán / Ana Almerich Chulia / Pablo Palmero Sánchez

## CHAPTER 4: HERITAGE

**4.1-PRESERVATION STRATEGIES OF THE BRITISH CEMETERY  
IN MADRID A TOURIST TOUR THROUGH THE CEMETER.**

Ana Girbés Baroja / Marta Girbés Baroja / Jorge Girbés Pérez

**4.2-DESIGN AND ANNI ALBERS: GEOMETRY AND COLOUR IN  
HER WORKS.**

Liqun Li / Luis Cortés Meseguer / Jorge García Valdecabres

**4.3- SUSTAINABLE FACTORS IN THE STUDY AND ANALYSIS  
OF TRADITIONAL CONSTRUCTION TYPOLOGIES FOR THEIR  
CONSERVATION IN THE GOLDEN TRIANGLE OF COLOMBIA.**

Echeverry Bucurú Kevin Alexander / Cárcel Carrasco Francisco Javier / Colmenero Fonseca Fabiola / Guzman Ramírez Alejandro /Salas Montoya Andrés

**4.4-ANALYSIS AND VALIDATION OF AN INDEX FOR THE  
ARCHITECTURE OF THE CHURCHES OF THE FRANCISCAN  
ROUTE IN JALISCO, MEXICO.**

Fabiola Colmenero Fonseca / Javier Cárcel Carrasco / Adolfo Preciado Quiroz / Andrés Salas Montoya / Ramiro Rodríguez Pérez

**4.5-INNOVATION AND SUSTAINABILITY: THE FUTURE OF  
CONSTRUCTION WITH LOCAL MATERIALS AND THE  
INTEGRATION OF ARTIFICIAL INTELLIGENCE.**

Fabiola Colmenero Fonseca / Javier Cárcel Carrasco / Juana Mercedes Perlaza Rodríguez / Kevin A. Echeverry Bucurú / Ramiro Rodríguez Perez

**4.6-SEISMIC VULNERABILITY ASSESSMENT OF THE  
"ALQUERÍA DE LLEONART" (VALENCIA, SPAIN).**

Arianna Guardiola Villora /Luisa Basset Salom / Isabel Álvarez de Valcárcel

**4.7-ARTIFICIAL INTELLIGENCE FOR ARCHAEOLOGICAL  
GARDEN RECONSTRUCTION.**

Quiteria Angulo-Ibáñez / José David Gordo-Martínez

**4.20-INNOVATIVE SUSTAINABLE ROOFING STRATEGIES FOR MITIGATING URBAN HEAT ISLANDS IN MATER.**

Juana Mercedes Perlaza Rodríguez / Fabiola Colmenero Fonseca / Carmen Fattore

**4.21-THE EVOLUTION OF THE TRANSFIGURATION CATHEDRAL AS A UNITY OF THE PAST, PRESENT AND FUTURE.**

Yuliya Poteychuck / Nadiia Yeksarova

**4.22-FACADES ANOMALIES: METHODOLOGY FOR CATALOGING. CASE OF VALENCIA.**

E. Barelles-Vicente / J. Llinares-Millán

**4.23-DETERIORATION OF THE ENVELOPE: DEVELOPMENT OF CARDS FOR IDENTIFICATION AND DIAGNOSIS.**

E. Barelles-Vicente / J. Llinares-Millán

**4.24-TABAKALERA DONOSTIA. HERITAGE APPROACHED AS RESTORATION OR TRANSGRESSION.**

Palmero Sánchez P. / García Izquierdo, A.

**4.25-SOCIAL HOUSING AS MODERN HERITAGE: THE CASE OF THE "ANTONIO RUEDA" GROUP.**

Bernardo, G.4; Palmero Iglesias, L. / García Valdecabres, J.

**4.26-LIGHT AS A NATURAL RESOURCE IN THE RELIGIOUS SPHERE. SAN PEDRO MÁRTIR DE FISAC COMPLEX, M.**

Bernardo, G. / Palmero Iglesias, L. / Segeur Suzanne. / Caicero, N

**4.27-PRELIMINARY STUDIES FOR THE MUSEALIZATION OF THE KASBAH OF TAOURIRT IN OUARZAZATE, MOROCCO.**

Teresa Gil Piqueras / Pablo Rodríguez Navarro

**4.28-CATALOGUING AND DOCUMENTATION OF BELL TOWERS WITH SPIRES IN CERAMIC WEDGE-SHAPED BRICKS IN SICILY.**

Gloria Russo / Mariateresa Galizia / Michele Mangiameli / Pablo Rodríguez Navarro / Teresa Gil Piqueras

**4.29-DIGITAL TECHNOLOGY FOR THE KNOWLEDGE AND VALUATION OF ARCHITECTURAL HERITAGE.**

Giuseppe Angileri / Ornella Fiandaca / Marina Arena / Alessandra Cernaro / Luis Palmero Iglesias

**4.30-MILITARY ARCHITECTURE IN THE VICEROYALTY OF PERU: DESIGN, CONSTRUCTION, AND CURRENT STATE OF MILITARY AND FORTIFIED MONUMENTS.**

Diego Celis-Estrada / Teresa Gil-Piqueras / Pablo Rodríguez-Navarro

**4.31-DEGRADATION OF THE STONE MATERIALS OF THE PILAR CHURCH IN VALENCIA (SPAIN): MAPPING AND ANALYSIS USING PHOTOGRAMMETRIC TECHNIQUES.**

Giovanni Brodu / Ana Pérez Vila / Pablo Rodríguez Navarro / Teresa Gil Piqueras

**4.32-LIGHT AS PRINCIPAL CONCEPT IN BENEDICTINE MONASTERY CHURCH. MODERN ARCHITECTURE IN CHILE.**

Suzanne Siguer / Luis Manuel Palmero Iglesias / Graziella Bernardo / Natalia Caicedo

**4.33-LIGHT AS A NATURAL RESOURCE IN THE RELIGIOUS SPHERE. SAN PEDRO MÁRTIR DE FISAC COMPLEX, M.**

Graziella Bernardo / Luis Manuel Palmero Iglesias / Suzanne Siguer / Natalia Caicedo

## CHAPTER 5: TECHNOLOGY

**5.1-DURABILITY PERFORMANCE OF CONCRETE MADE WITH DEMOLITION WASTE.**

J.R. Lliso-Ferrando / L. Mata-Rodríguez / A. Martínez-Ibernón / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.2-CURING CONDITIONS INFLUENCE ON THE DURABILITY OF REINFORCED CONCRETE. PART 1. CONCRETE CHARACTERISATION.**

J.R. Lliso-Ferrando / A. Martínez-Ibernón / P. Monzón-Bello / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.3-CURING CONDITIONS INFLUENCE ON THE DURABILITY OF REINFORCED CONCRETE. PART 2. CORROSION MONITORING.**

J.R. Lliso-Ferrando / T. Yáñez Albán / J.E. Ramón-Zamora / A. Martínez-Ibernón / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.4-SURFACE-APPLIED CORROSION INHIBITOR EVALUATION ON REINFORCED CONCRETE STRUCTURES. PART 1. APPLICATION AT THE BEGINNING OF THE SERVICE LIFE.**

J.R. Lliso-Ferrando / V. Nzang Ondo / A. Martínez-Ibernón / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.5-SURFACE-APPLIED CORROSION INHIBITOR EVALUATION ON REINFORCED CONCRETE STRUCTURES. PART 2. APPLICATION DURING THE SERVICE LIFE.**

J.R. Lliso-Ferrando / V. Nzang Ondo / A. Martínez-Ibernón / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.6-CORROSION IN REINFORCED CONCRETE CONSTRUCTIONS LOCATED IN VALENCIA. CASE STUDY.**

Josep Ramon Lliso-Ferrando / Ana Martínez-Ibernón / I. Gasch-Molina / J. M. Gandía-Romero / Manuel Valcuende Payá / J. Soto Camino

**5.7-CORROSION RISK IN REINFORCED CONCRETE STRUCTURES LOCATED IN THE MARINE ENVIRONMENT USING ELECTRICAL RESISTANCE MEASUREMENT.**

J.R. Lliso-Ferrando / A. Martínez-Ibernón / R. Vengut-Tro / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.8-GRADING STUDY OF QUARRY AGGREGATES AND RECYCLED AGGREGATES FROM DEMOLITION WASTE.**

J.R. Lliso-Ferrando / A. Arenós-Barrachina / A. Martínez-Ibernón / I. Gasch Molina / J.M. Gandía-Romero / M. Valcuende Payá

**5.9-METHODOLOGY FOR REPAIR OF CORROSION AFFECTED REINFORCED CONCRETE STRUCTURES.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá

**5.10-CORROSION PERFORMANCE OF CONCRETES MANUFACTURED WITH DIFFERENT CEMENTS.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá / J. Soto Camino

**5.11-PROBLEMS IN REPAIRS OF REINFORCED CONCRETE STRUCTURES AFFECTED BY CORROSION.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá / J. Soto Camino

**5.12-CONCRETE RESISTIVITY ANALYSIS UNDER LABORATORY CONDITIONS ON SPECIMENS OF DIFFERENT SIZES.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá

**5.13-QUICK ESTIMATION OF CHLORIDE DIFFUSION COEFFICIENT FROM NON-STEADY-STATE EXPERIMENTS IN CONCRETE.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá / J. Soto Camino

**5.14-SIGNIFICANCE OF MACROCELL CURRENTS IN REINFORCED CONCRETE STRUCTURES LOCATED IN THE MARINE ENVIRONMENT.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá

**5.15-ASSESSMENT OF THE EFFECTIVENESS OF PATCH REPAIRS IN REINFORCED CONCRETE STRUCTURES. PART 1: MORTAR USED.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá

**5.16-ASSESSMENT OF THE EFFECTIVENESS OF PATCH REPAIRS IN REINFORCED CONCRETE STRUCTURES. PART 2: PASSIVATING MORTAR.**

J.R. Lliso-Ferrando / I. Gasch Molina / A. Martínez-Ibernón / J.M. Gandía-Romero / M. Valcuende Payá

**5.17-ENERGY DEMAND REDUCTION IN REINFORCEMENT CONCRETE STRUCTURES MONITORING SYSTEMS. 2 vs. 3 ELECTRODES.**

A. Martínez-Ibernón / I. Gasch Molina / J.R. Lliso-Ferrando / R. Vengut-Tro / J.M. Gandía-Romero / M. Valcuende Payá

**5.18-HUMIDITY VARIATION ESTIMATION IN HARDENED CONCRETE MATRIX BY MEANS OF SENSOR SYSTEM.**

A. Martínez-Ibernón / I. Gasch Molina / J.R. Lliso-Ferrando / P. Monzón Bello / J.M. Gandía-Romero / M. Valcuende Payá

**5.19-ESTIMATION OF OXYGEN AVAILABILITY IN CONCRETE USING A SENSOR SYSTEM.**

Martínez-Ibernón / I. Gasch Molina / J.R. Lliso-Ferrando / P. Monzón Bello / R. Vengut-Tro / J.M. Gandía-Romero / M. Valcuende Payá

**5.20-PCA MODEL FOR HARDENED CONCRETE pH DETERMINATION. VOLTAMMETRIC SENSOR.**

A. Martínez-Ibernón / I. Gasch Molina / J.R. Lliso-Ferrando / J.M. Gandía-Romero / M. Valcuende Payá

**5.21-TECHNOLOGICAL RESEARCH DEVELOPMENT FOR CIRCULAR CONSTRUCTION.**

Benito, F.J / Fernández, A.B. / Miñano, I.B / Parra, C.J /Rodríguez, C / Carrion, E / Mateo, J.M

**5.22-PATHOLOGIES IN POLYETHYLENE WATER SUPPLY NETWORKS. DESIGN PRINCIPLES.**

A.M. Romero Sedó / P. Arrué Burillo / J.F. Romero i Miquel

**5.23-VARIATION IN CORROSION RATE AFTER THE APPLICATION OF CYCLIC LOADS IN REINFORCED CONCRETE.**

P. Monzón-Bello / A. Martínez-Ibernón / J.R. Lliso-Ferrando / R. Vengut-Tro

**5.24-STUDY OF CORROSION IN ELECTRICAL PROTECTION EARTH NETWORKS WITH CONTACT CONNECTION.**

Javier Cárcel-Carrasco / Juan Manuel Sánchez-Rodríguez / Fabiola Colmenero Fonseca / María del Carmen Ixtepan

**5.25-MODELING AND THERMAL STUDY IN TRNSYS OF A GREEN WALL IN A GOVERNMENTAL BUILDING IN THE MUNICIPALITY OF VERACRUZ.**

V. Ortiz-García / C.A. Sosa-Villalobos /G. Domínguez-Sánchez / A. Rodríguez-Andrade / E. Peñalvo-López / I. Valencia-Salazar

**5.26-DESIGN OF A COMPUTATIONAL MODEL TO OPTIMIZE THE PERFORMANCE OF DIFFERENT VENTILATED WALL SOLUTIONS: SIMULATIONS AND COMPARISONS.**

Francesco Paolo R. Marino / Luis Manuel Palmero Iglesias

**5.27-DESIGN OF A COMPUTATIONAL MODEL TO OPTIMIZE THE PERFORMANCE OF DIFFERENT VENTILATED WALL SOLUTIONS: ALGORITHM STRUCTURING.**

Francesco Paolo R. Marino

**5.28-DEVELOPMENT OF BIO-BASED MATERIALS FOR BUILDING APPLICATIONS WITH THERMO-ACOUSTIC CHARACTERISTICS.**

Suzanne Segeur / Paula Nuñez /Alan Huircaman / Luis Palmero

**5.29-APPLICATION OF DRONES AND 3D PHOTOGRAMMETRY FOR SURVEYING HARD-TO-REACH SITES.**

Pablo Rodríguez-Navarro / Teresa Gil-Piqueras / Ana Pérez Vila / Andrea Ruggieri

**5.30-BIOCONSTRUCTION AND BIOMATERIALS. MYCELIUM FUNGUS, THE BIOARCHITURE SUSTAINABLE BIOMATERIAL OF THE FUTUR.**

K. Essamhi-Saidi / C. José. Parra-Costa / I. De La Paz. Miñano-Belmonte / J. M. Mateo / F.J. Benito

**5.31-A LUMINESCENT PERMEABLE 3D-PRINTED CONCRETE LANDSCAPE CHAIR AND ITS CONSTRUCTION METHOD.**

Ye Yinlin / Du Xu / Sun Xiaoyan / Wang Hailong

**5.32-COCONUT FIBRE IN MORTAR MATRIX.**

Gina San Andrés Zevallos / Javier Chonillo Portés / Joseph Cedeño Palacios / Melina Villacreses López

**5.33.-MONITORING SYSTEMS, THE WAY TO SUSTAINABLE DEVELOPMENT. A FIRST REFLECTION.**

Ana Martínez-Ibernón / Isabel Gasch Molina / Josep Ramon Lliso-Ferrando / Pablo Monzón Bello / José Manuel Gandía-Romero / Manuel Valcuende Payá

**5.34-ESTIMATION OF ELECTRICAL RESISTIVITY USING SENSOR SYSTEMS IN REINFORCED CONCRETE STRUCTURES.**

Ana Martínez-Ibernón / Isabel Gasch Molina / Josep Ramon Lliso-Ferrando / Rocío Expósito Hernandez / José Manuel Gandía-Romero / Manuel Valcuende Payá

## CHAPTER 6: TOWN PLANNING

**6.1-GET OUT OF HERE: URBAN DESIGN AGAINST PEOPLE.**

Arianna Guardiola Villora / Elena Navarro Astor

**6.2-EFFICIENCY IN PUMPING PRESSURE GROUPS OF URBAN WATER SUPPLY NETWORKS.**

P. Arrué Burillo / A.M. Romero Sedó / J.F. Romero i Miquel

**6.3-STANDARDS IN THE DESIGN OF RAILWAY STATION SPACES.**

Juan B. Font Torres / Jorge L. García Valldecabres, / Luis Cortés Meseguer

**6.4-AIR AS TOOL OF ARCHITECTURALFORMATION. FEATURES OF SUPPORT-FREE AEROSTATIC COATING.**

Nadiia Yeksarova / Volodymyr Yeksarov

**6.5-TURIA RIVER VIRTUAL TOUR: INTEGRATION OF SPHERICAL PANORAMAS IN CULTURAL LANDSCAPE HERITAGE.**

Mónica Val Fiel / Marina Puyuelo Cazorla / Lola Merino Sanjuan

**6.6-ANALYSIS OF PATHOLOGIES IN BUILDINGS AND RISING WATER TABLE IN BÉTERA (VALENCIA). PROPOSAL FOR A PIEZOMETRIC PROTOCOL FOR PUBLIC WARNING.**

Javier Rodrigo Ilarri / Aurora Martínez-Corral / Claudia-Patricia Romero-Hernández / Lucía Belenguier Espinosa / M<sup>a</sup> Elena Rodrigo-Clavero

**6.7-THE TURIA GARDEN: ORGANIZATION AND CONSTRUCTION OF SPACES IN A LINEAR PARK.**

Lola Merino Sanjuán / Mónica Val Fiel / Marina Puyuelo Cazorla

**6.8-URBAN EVOLUTION OF THE OLD JEWISH QUARTER OF VALENCIA.**

Concepción López González / Pablo Ariel Escudero / Luis Cortés Meseguer / Jorge García Valldecabres

**6.9-OPEN SPACE AND URBAN SUSTAINABILITY: THE CASE OF THE CITY OF VALENCIA 'NEW CHALLENGES AND OPPORTUNITIES'.**

M<sup>a</sup> Emilia Casar Furió / M<sup>a</sup> Jesús Romero Aloy

**6.10-RESILIENT ARCHITECTURE: PROTECTING BUILDINGS AGAINST FLOODS. SPECIAL REFERENCE TO THE EFFECTS PRODUCED BY THE DANA OF OCTOBER 2024.**

M<sup>a</sup> Jesús Romero Aloy / M<sup>a</sup> Emilia Casar Furió / Ángel Trinidad Tornel

**6.11-THE IMPORTANCE OF URBAN AND TERRITORIAL PLANNING CONCERNING FLOOD RISK MANAGEMENT REFLECTIONS AFTER THE DANA IN VALENCIA.**

Calabuig Montesinos, V. / De-Juan-Ripoll, C. / Martínez Roldán, E. / Palmero Iglesias, L. / Rodrigo Catalán, P. / Tordera Llisterrí, L.

**6.12-THE NEED FOR PREVENTIVE ACTIONS IN BUILDING: REFLECTIONS AFTER THE DANA IN VALENCIA: REFLECTIONS AFTER THE DANA IN VALENCIA.**

Martínez Beltrán, E. / Calabuig Montesinos, V. / De-Juan-Ripoll, C. / Palmero Iglesias, L. / Rodrigo Catalán, P. / Tordera Llisterrí, L.

**6.13-RETHINKING EDUCATIONAL SPACES AFTER A NATURAL DISASTER, THE ISOLATED HIGH-ALTITUDE DEPRESSION.**

Rodrigo Catalán, P. / Calabuig Montesinos, V. / De-Juan-Ripoll, C. / Martínez Roldán, E. / Palmero Iglesias, L. / Tordera Llisterrí, L.

**6.14-THE GENESIS OF THE TURIA GARDEN I. RICARDO BOFILL.**

Graziella Bernardo / Luis Manuel Palmero Iglesias / Giuseppe Angileri

**6.15-THE GENESIS OF THE TURIA GARDEN II. RICARDO BOFILL.**

Graziella Bernardo / Luis Manuel Palmero Iglesias / Giuseppe Angileri

**6.16-THE CITY OF ARTS AND SCIENCES I. SANTIAGO CALATRAVA.**

Graziella Bernardo / Luis Manuel Palmero Iglesias / Giuseppe Angileri

**6.17-CITY OF ARTS AND SCIENCES II. SANTIAGO CALATRAVA.**

Graziella Bernardo / Luis Manuel Palmero Iglesias / Giuseppe Angileri

**6.18-GIS ANALYSIS OF URBAN DEVELOPMENT: VALENCIA FROM THE TURIA RIVER TO THE TURIA GARDEN.**

Giuseppe Angileri / Marina Arena / Luis Palmero Iglesias

**6.19-THE EVOLUTION OF TECHNICAL AND URBAN PLANNING REGULATIONS THAT HAVE ALLOWED THE PHENOMENON OF VERTICAL GROWTH IN THE CITY OF MESSINA.**

Graziano Tomasell

## CHAPTER 7: HUMAN RESOURCES

### 7.1-SUSTAINABLE BUILDING OF THE FUTURE: IMPACT OF COLD SINTERING ON MATERIAL DESIGN IN IBERO-AMERICAN UNIVERSITIES.

Fabiola Colmenero Fonseca / Amparo Borrell / Rut Benavente Martínez / Andrés Salas Montoya / Ramiro Rodríguez Pérez

### 7.2-ACADEMIC TRANSFORMATION IN THE UNIVERSITIES OF THE FUTURE: SOLID-STATE ELECTROLYTES AND COLD3E IN MATERIALS CHEMISTRY.

Fabiola Colmenero Fonseca / Amparo Borrell / Rut Benavente Martín / Alejandro Guzmán Ramírez / Laurent Yolanda Gómez Zamorano

### 7.3-PRIORITIES IN HOME BUYING: THE IMPACT OF ACTIVE BUYERS' INVOLVEMENT ON THE PERCEPTION AND EVALUATION OF HOMES.

María Luisa Nolé / Carla de Juan / Antoni Montañana / Carmen Llinares

### 7.4-INTEGRATION OUTDOOR SHELTERS IN THE CITY FOR HOMELESS PEOPLE. BUILDING HUMAN PROTECTION, COEXISTENCE AND LANDSCAPE.

Marina Puyuelo Cazorra / Lola Merino Sanjuan / Mónica Val Fiel

### 7.5-ENHANCEMENT OF LOCAL SUPPLY CHAINS FOR SUSTAINABLE DEVELOPMENT: WATAMU, KENYA.

Stefania De Gregorio

### 7.6-TRAUMA-INFORMED ARCHITECTURAL DESIGN POST-CATASTROPHE: REFLECTIONS AFTER THE DANA IN VALENCIA.

De-Juan-Ripoll, C. / Calabuig Montesinos, V. / Martínez Beltrán, E. / Palmero Iglesias, L. / Rodrigo Catalán, P. / Tordera Llisterri, L.

### 7.7-DANA OCTOBER 2024. TRIBUTE TO COLLECTIVE RESILIENCE AND SOLIDARITY IN THE FACE OF POLITICAL INCOMPETENCE.

Palmero Iglesias, L. / Calabuig Montesinos, V. / De-Juan-Ripoll, C. / Martínez Beltrán, E. / Rodrigo Catalán, P. / Tordera Llisterri, L.

### 7.8-THE AUTHOR'S SOCIAL HOUSING FROM THE STUDY OF THE ORIGINAL DESIGN TO THE ENERGY REQUALIFICATION.

Giuseppe Angileri / Graziella Bernardo / Giuseppina Currò / Giovanni Francesco Russo / Luis Palmero Iglesias