

# EXHIBITION CATALOG

## INTERNATIONAL ITINERANT EXHIBITION "RESEARCH IN BUILDING ENGINEERING EXCO'22"

INTERNATIONAL ITINERANT EXHIBITION EXCO 2022  
**ETS DE INGENIERÍA DE EDIFICACIÓN**  
UNIVERSITAT POLITÈCNICA DE VALÈNCIA  
Camino de Vera S/N, 46022 Valencia – Spain

**Location:**

**ESCUELA DE ARQUITECTURA, ARTE Y DISEÑO  
TECNOLÓGICO DE MONTERREY  
GUADALAJARA – MEXICO**

*From 26<sup>th</sup> September to 6<sup>th</sup> October, 2022*

**Av. Gral Ramón Corona No 2514, Colonia Nuevo México, 45201 Zapopan,  
Jalisco, MÉXICO**

**Curators of Exhibition:**

Dr. M. Arq. Raúl JUÁREZ PEREZLETE  
Dra. Fabiola COLMENERO FONSECA  
Dr. José Ramón ALBIOL IBÁÑEZ

**Exhibition**

XXXVI INTERNATIONAL SHOWROOM OF CONSTRUCTION TECHNOLOGIES - EXCO 2022 ©

INTERNATIONAL ITINERANT EXHIBITION "Research in Building Engineering - EXCO'22"



## INDEX

CURATORS	1
PROLOGUE	3
INTERNATIONAL SCIENTIFIC COMMITTEE	6
INTERNATIONAL ORGANIZATION COMMITTEE	10
CHAPTER INDEX – Research Communications	13



EXCO

## PROLOGUE DIRECTOR EXCO'22

*The Faculty of Building Engineering of the UNIVERSITAT POLITÈCNICA DE VALÈNCIA - SPAIN, organized on June 13th to 17th, 2022, "The XXXVI Construction Technology Exhibition" EXCO'22 and the International Itinerant Exhibition "Research in Building Engineering" along year.*

*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'22 promotes the entrepreneurship of the young UPV generations, participation in conferences.*

*The International Itinerant Research Exhibition EXCO'22 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'22.*

*The participating entities are:*

### **Universities:**

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.*
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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.*
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.*
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*Thank you all for making EXCO possible.  
Best Regards*

**Dr. José R. Albiol-Ibáñez**

**Vice Dean International Relations, Employment, Business Cathedra & Entrepreneurship**

**Director EXCO'22**

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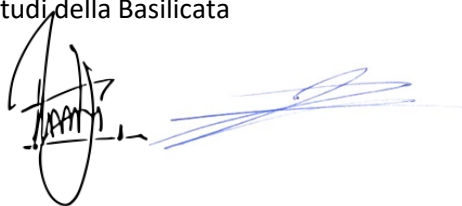
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## **CHAPTER 1 ECONOMY**

### **1.1.- ACCESS TO HOUSING. A COMPARISON BETWEEN OWNERSHIP AND COHOUSING**

*Alejandro Campillo Almajano / Alicia Llorca-Ponce / Andrés José Cózar Lizandra*

### **1.2.- CADASTRAL VALUATION OF REAL ESTATE IN SPAIN**

*Pedro Gerardo Salinas Martínez*

### **1.3.- METHODOLOGY FOR DESIGNING AN ENERGY COMMUNITY AND CHECKING ITS TECHNICAL AND ECONOMIC VIABILITY. APPLICATION IN THE MUNICIPALITY OF VINALES**

*Laura Molina Cañamero / Elisa Peñalvo-López / Vicente León-Martínez / Joaquín Montañana-Romeu*

### **1.4.- THE RECOVERY, TRANSFORMATION AND RESILIENCE PLAN AND ITS INFLUENCE ON BUILDINGS**

*M<sup>a</sup> Emilia Casar Furió*

### **1.5.- BULLWHIP EFFECT ON CONSTRUCTION MATERIAL WEIGHS DOWN EXPECTED PROFITS**

*Alicia Llorca-Ponce / Adrian González Jiménez / Gregorio Rius-Sorolla*

### **1.6.- USER PERCEPTION OF INDUSTRIALIZATION IN CONSTRUCTION. CASE STUDY: AREQUIPA - PERU**

*Mayte Maldonado Alvarez / Igor Fernández Plazaola / Antoni Montañana i Aviñó*

### **1.7.- THE CIRCULAR ECONOMY OF MATERIALS AND WASTE IN THE CONSTRUCTION OF NEW-USE BUILDINGS**

*Fabiola Colmenero Fonseca / Francisco Javier Cárcel Carrasco / Graziella Bernardo / Luis Manuel Palmero Iglesias / Jorge Arturo Gutiérrez Camarena*

## **CHAPTER 2 SUSTAINABILITY**

### **2.1.- HYGROTHERMAL ANALYSIS OF GREEN ROOF IN SERVICE**

*Júlia G. Borràs / Angeles Mas Tomás / Carlos Lerma Elvira / Enrique Gil Benso / Jose Vercher Sanchis*

### **2.2.- DATA DRIVEN DECISION SUPPORT SYSTEM FOR SELECTING BUILDING RETROFIT STRATEGY**

*Ania Khodabakhshian / Luca Rampini / Fulvio Re Cecconi*



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**2.3.- REGENERATION AND DECARBONISATION OF THE BUILDING HERITAGE. A COMPROMISE BETWEEN FUNCTIONALITY, AESTHETICS AND SUSTAINABILITY**

*Roberta Melella / Giacomo Di Ruocco*

**2.4.- DESIGN STRATEGIES FOR RETHINKING SCHOOL ENVIRONMENTS IN A POST-COVID PERSPECTIVE**

*Enrico Sicignano / Pier Francesco Fiore / Emanuela D'Andria / Rossella Marmo / Carmelo Falce / Ilaria Perrotta*

**2.5.- WHAT RENEWABLE ENERGY TECHNOLOGIES (TERs) ARE APPLICABLE TO EXISTING UNIVERSITY BUILDINGS?**

*Joaquín Fuentes-del-Burgo / Elena Navarro-Astor*

**2.6.- STATE OF THE ART: USES OF RENEWABLE ENERGIES IN CONJUNCTION WITH THE PRIMARY AGRI-FOOD SECTOR**

*Amparo León-Vinet / Elisa Peñalvo-López / Vicente León-Martínez / Joaquín Montañana-Romeu*

**2.7.- METHODOLOGY FOR THE REDUCTION OF ENERGY CONSUMPTION THROUGH THE DISCRETISATION OF ELECTRICITY LOADS IN THE RESIDENTIAL SECTOR**

*Clara Andrada-Monrós / Elisa Peñalvo-López / Javier Cárcel-Carrasco / Vicente León-Martínez*

**2.8.- ENERGY DECARBONISATION IN SMEs. INITIAL RESULTS IN SMEMPOWER PROJECT**

*Elisa Peñalvo-López / Javier Cárcel-Carrasco / Vicente León-Martínez / Iván Valencia Salazar*

**2.9.- ORGANIZATION OF INFORMATION FOR INDUSTRIAL BUILDINGS' EVALUATION. RecoverIND**

*C. Rivero-Camach / A. Martínez-Rocamora / M.D. Alba-Rodríguez / J. Solís-Gumán<sup>1,2,3</sup>, M. Marrero*

**2.10.- RENEWABLE ENERGY TECHNOLOGIES IN UNIVERSITY BUILDINGS IN THE IBERIAN PENÍNSULA: A STUDY OF ARCHITECTURAL AND URBAN PLANNING BARRIERS**

*Joaquín Fuentes-del-Burgo / Elena Navarro-Astor*

**2.11.- ORGANIZATION OF INFORMATION FOR INDUSTRIAL BUILDINGS' EVALUATION. RECOVERIND**

*Cristina Rivero-Camacho / Alejandro Martínez-Rocamora / María Desiré Alba-Rodríguez / Jaime Solís-Guzmán / Madelyn Marrero*

**2.12.- MONITORING THE EYE DYNAMIC REPOSE TO LIGHTING CONDITIONS WHILE PERFORMING BUILDING DESIGN ACTIVITIES**

*Paolo Colombo / Juan Diego Blanco Cadena / Tiziana Poli*

**2.13.- LARGE SUSTAINABLE INDUSTRIAL PLANTS. CASE STUDY OF THEIR DESIGN AND CONSTRUCTION**

*Javier Cárcel-Carrasco / Aurora Martínez-Corral / M<sup>a</sup> Carmen Carnero / José Ramón Albiol-Ibáñez*

**2.14.- ANALYSIS OF SUSTAINABLE URBANISM AND INTRODUCTION TO THE RELATIONSHIP BETWEEN THE MOBILITY OF COMBUSTION VEHICLES AND AIR POLLUTION**

*Javier Cárcel-Carrasco / Aurora Martínez-Corral / Carolina Aparicio-Fernández / Luis Palmero-Iglesias*

**2.15.- STUDY AND IMPROVEMENT OF THE ENERGY EFFICIENCY OF THE COOLING SYSTEM BY REGULATING THE CAPACITY OF THE COMPRESSORS**

*Javier Cárcel-Carrasco / Aurora Martínez-Corral / Jaime Langa-Sanchis / José Antonio Cárcel-Carrasco*





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**2.16.- ITALY AND THE PRELIMINARY ANALYSIS OF CONSTRUCTION AND DEMOLITION WASTE. THE CHALLENGES AND OPPORTUNITIES**

*Javier Cárcel-Carrasco / Aurora Martínez-Corral / Fabiola Colmenero Fonseca / Consuelo Gómez-Gómez*

**2.17.- GREEN ROOFS, VERTICAL GARDENS AND SMALL GARDENS IN THE CONSTRUCTION OF SUSTAINABLE HABITAT**

*Marina Puyuelo Cazorla / Lola Merino Sanjuán / Mónica Val Fiel*

**2.18.- DEVELOPMENT OF CONSTRUCTIVE SOLUTIONS AIMED AT IMPROVING THE ENERGY EFFICIENCY OF BUILDINGS AND CITIES**

*Sergio Navarro García / Arsenio Navarro Muedra*

**2.19.- SPEEDING UP THE URBAN ENERGY TRANSITION. CHALLENGES AND SOLUTIONS FOR THE DUTCH HOUSING STOCK**

*Henk Visscher*

## **CHAPTER 3 *NEURAL ENGINEERING***

**3.1.- INTEGRATION OF BIM AND EXTENDED REALITY (XR) APPLICATIONS FOR ARCHITECTURE, ENGINEERING AND CONSTRUCTION (AEC) INDUSTRY**

*Mónica Val Fiel / Marina Puyuelo Cazorla / Lola Merino Sanjuán*

**3.2.- DOES THE STUDENTS' MEMORY IMPROVE IF THE LIGHTING LEVEL IS INCREASED?**

*Nuria Castilla Cabanes / Juan Luis Higuera-Trujillo / Carmen Llinares Millán*

**3.3.- OPTIMISING COGNITIVE SUPPORT FOR DESIGN USING ARTIFICIAL INTELLIGENCE**

*Adrián Colomer Granero / Juan Luis Higuera-Trujillo / Valeriana Naranjo Ornedo / Carmen Llinares Millán*

**3.4.- THE IMPACT OF THE DESIGN OF LEARNING SPACES ON ATTENTION AND MEMORY FROM A NEURO-ARCHITECTURAL APPROACH: A SYSTEMATIC REVIEW**

*Mar Llorens-Gómez / Juan Luis Higuera-Trujillo / Carla Sentieri / Carmen Llinares Millán*

**3.5.- OPTIMIZATION OF THE PLEASANT PERCEPTION OF THE CLASSROOM, MEMORY AND ATTENTION OF UNIVERSITY STUDENTS BASED ON DIFFERENT DESIGN ELEMENTS**

*María Luisa Nolé Fajardo / David Soler Fernández / Juan Luis Higuera-Trujillo / Carmen Llinares Millán*

**3.6.- EFFECTS OF CLASSROOM INTELLIGIBILITY AND ILLUMINATION ON STUDENTS' WORKING MEMORY**

*Ana Pérez Fuster / José María Bravo Plana-Sala / Carmen Llinares Millán / Juan Luis Higuera-Trujillo*

**3.7.- TOWARDS A NEUROPHYSIOLOGICAL INDEX TO MEASURE COGNITIVE SUPPORT FOR CLASSROOM DESIGN**

*Juan Luis Higuera-Trujillo / Adrián Colomer Granero / Valeriana Naranjo Ornedo / Carmen Llinares Millán*





## **CHAPTER 4 HERITAGE**

### **4.1.- "PATRIMONIO Y ARQUITECTURA VERNÁCULAR" UCHISAR, CAPADOCIA – EXCAVEBITION**

*Antonella Guida / Antonio Conte / Giuseppe Andrisani / Priscilla Dastoli / Lidia De Pinto / Paolo Dizenzo / Giulio Grimaldi / Roselena Sulla*

### **4.2.- BUILDING MUSEUMS – SEVILLE. "REAL FABRICA DE ARTILLERIA": CRISOL (Part 2)**

*Antonella Guida / Antonio Conte / Giuseppe Andrisani / Priscilla Dastoli / Lidia De Pinto / Paolo Dizenzo / Giulio Grimaldi / Roselena Sulla*

### **4.3.- A RECOVERY PROJECT FOR THE REAL HOSPITAL SAN ANDRÉS IN LIMA (Part 1)**

*Antonella Guida / Antonio Conte / Giuseppe Andrisani / Vito Porcari / Luca Manca*

### **4.4.- A RECOVERY PROJECT FOR THE REAL HOSPITAL SAN ANDRÉS IN LIMA (Part 2)**

*Antonella Guida / Antonio Conte / Giuseppe Andrisani / Vito Porcari / Luca Manca*

### **4.5.- MASSERIA CASINO DEL DUCA, RESTAURATION AND VALORIZATION OF THE RURAL ARCHITECTURAL HERITAGE (Part 1)**

*Antonella Guida / Graziella Bernardo / Giuseppe Andrisani / Vito Domenico Porcari / Rossana Latorrata*

### **4.6.- BUILDING MUSEUMS – SEVILLE. "REAL FABRICA DE ARTILLERIA": CRISOL (Part 1)**

*Antonella Guida / Antonio Conte / Giuseppe Andrisani / Priscilla Dastoli / Lidia De Pinto / Paolo Dizenzo / Giulio Grimaldi / Roselena Sulla*

### **4.7.- ELECTRICITY TRANSFORMER TOWERS IN THE PROVINCE OF VALENCIA. AN HERITAGE IN THE OBLIVION**

*Guardiola-Villora, Arianna / Basset-Salom, Luisa*

### **4.8.- CORTINA ARCHITECT AND THE HOUSE OF THE MILL. RECOVERING THE NOLLA TILE**

*Jorge Gírbés Pérez / Ana Estellés Álvarez*

### **4.9.- THE CORTINA ARCHITECT AND THE CITY OF CEUTA**

*Jorge Gírbés Pérez*

### **4.10.- CORTINA ARCHITECT AND THE ERMITA DE LA MISERICORDIA FROM MELIANA. RECOVERING THE NOLLA TILE**

*Jorge Gírbés Pérez / Namibia Cervera Goiti*

### **4.11.- EXCAVATION WORKS OF THE MOSAICS IN ZEYTINBURNU-İSTANBUL, RESTORATION IMPLEMENTATIONS AND PROCESS OF MUSEUM ESTABLISHMENT**

*Sibel Onat Hattap / Olcay Aydemir*

### **4.12.- RAILWAY HOUSING IN VALENCIA. NOTES ON THE REGULATORY CONTEXT AND CASE STUDIES (1941-1989)**

*Aurora Martínez-Corral / Javier Cárcel-Carrasco / M<sup>ra</sup> Carmen Carnero Moya / Luis Palmero Iglesias*

### **4.13.- REPRESENTATIVE IDENTIFICATION OF THE REAL COLLEGE SEMINAR OF CORPUS CHRISTI IN ITS PUBLIC VISIT**

*Concepción López González / M<sup>ra</sup> José Viñals Blasco / Jorge Luis García Valdecabres / Luis Cortés Mesequer*

### **4.14.- MASSERIA CASINO DEL DUCA, RESTAURATION AND VALORIZATION OF THE RURAL ARCHITECTURAL HERITAGE (Part 2)**

*Antonella Guida / Graziella Bernardo / Giuseppe Andrisani / Vito Domenico Porcari / Rossana Latorrata*





**4.15.- PROPOSALS FOR THE CONSERVATION OF ARCHITECTURAL ELEMENTS  
PRESENT IN THE FACADES OF THE CABANYAL**

*Quiteria Angulo Ibáñez / Paula Carabal Maestro*

**4.16.- THE CORTINA ARCHITECT AND HIS MISSING WORK**

*Jorge Girbés Pérez*

**4.17.- BUILDING REHABILITATION PROJECT**

*Anatoly Yeksarev / Kateryna Sirenko*

**4.18.- THE CONSERVATION OF THE ARCHITECTURAL HERITAGE THROUGH HBIM**

*Jorge Luis García Valdecabres / Concepción López González / Luis Cortés Meseguer / Antonio Galiano Garrigós*

**4.19.- NEW MODELS FOR PUBLIC VISITS TO HERITAGE BUILDINGS. THE AVATAR  
TOURIST VISIT**

*María José Viñals/ Anna Sanasaryan / Elena Salvador García / Luis Cortés Meseguer*

**4.20.- HERITAGE VALUES OF VALENCIA'S CATHEDRAL FOR ITS CULTURAL VISIT**

*Luis Cortés Meseguer / Concepción López González / Jorge Luis García Valdecabres / M<sup>ra</sup> José Viñals Blasco*

**4.21.- PLANIMETRIC INTERPRETATION OF VALENCIA'S CATHEDRAL FOR  
ARCHITECTURAL READING IN HBIM METHODOLOGY**

*Luis Cortés Meseguer / Concepción López González / Jorge Luis García Valdecabres*

**4.22.- DATA COLLECTION OF THE CULLERA ANTI-AERIAL BATTERY FOR ITS  
RESTORATION AND VALUE**

*Pablo Rodríguez-Navarro / Teresa Gil-Piqueras / Marina Sender Contel / Ricardo Perelló Rosso /  
Manuel Giménez Ribera*

**4.23.- TYPOLOGICAL ANALYSIS OF THE HOUSE SITUATED IN THE FERKLA'S  
PALMERAL, MOROCCO**

*Pablo Rodríguez-Navarro / Teresa Gil-Piqueras / Anna Pérez Vila*

**4.24.- DIGITAL GRAPHIC SURVEY FOR THE RESTORATION PROJECT OF THE  
CHURCH OF THE VIRGEN DE SALES, SUECA, VALENCIA (SPAIN)**

*Pablo Rodríguez-Navarro / Teresa Gil-Piqueras / Luis Cortés Meseguer / Anna Pérez Vila*

**4.25.- THE ALABASTER ALTARPIECE OF THE HOLY CHALICE OF VALENCIA  
CATHEDRAL. CONSIDERATIONS AND CLEANING STRATEGY**

*S. Martínez-Hurtado / S. Kröner / X. Mas-Barberà*

**4.26.- WHEN THE ENGINEERING LISTENS TO THE NATURE. TSŪJUN BRIDGE IN  
JAPAN**

*Olimpia Niglio / Tsuneaki Fukui*

**4.27.- THE CORTINA ARCHITECT AND HIS MISSING WORK**

*Jorge Girbés Pérez*

**4.28.- CERAMICS IN THE NORTH STATION OF VALENCIA. THE NECESSARY  
MATERIAL-CONSTRUCTIVE REGISTRATION**

*Aurora Martínez-Corral / Javier Cárcel-Carrasco / M<sup>ra</sup> Carmen Carnero Moya / Luis Palmero Iglesias*







CATALOG INTERNATIONAL ITINERANT EXHIBITION "RESEARCH IN BUILDING ENGINEERING EXCO'22"  
**4.29.- THE RESTORATION OF BURGOS CATHEDRAL. THE HIGH CLOISTER**  
*Javier Garabito López*

## **CHAPTER 5** *TECHNOLOGY*

**5.1.- LATERAL BUCKLING OF STEEL BEAMS. COMPARED ANALYSIS OF CTE DB SE-A, EAE AND EC3 CODES**

*Arianna Guardiola-Villora / Agustín Perez-García*

**5.2.- DIGITAL TECHNOLOGIES APPLIED TO THE ACCESSIBLE MANAGEMENT OF ARCHITECTURAL AND MUSEUM HERITAGE. MUSEO DI ARTE ORIENTALE IN TURIN: WORK IN PROGRESS**

*Francesca Ronco*

**5.3.- THE TOLEDO STATION OF THE UNDERGROUND METRO STATION OF NAPLES, ITALY: ARCHITECTURE, CONSTRUCTION, MATERIALS**

*Enrico Sicignano / Pierfrancesco Fiore / Rossella Marmo / Emanuela D'Andria/ Carmelo Falce / Ilaria Perrotta*

**5.4.- ANALYSIS AND COMPARISON OF TWO HYPAR SHELLS**

*Quiteria Angulo Ibáñez / Luis Almenar Fernández*

**5.5.- ANALYSIS OF THE BEHAVIOR OF THE HYBRID TRUSSES OF THE MILSTEIN HALL OF OMA VS. OTHER POSSIBLE SOLUTIONS**

*Quiteria Angulo Ibáñez / George-Nikolas Caicedo-Pratt*

**5.6.- BIM & RAPID PROTOTYPING FOR ARCHITECTURAL ARCHIVE HERITAGE**

*Giulia Bertola*

**5.7.- OPTIMISATION METHODOLOGY TO MAXIMISE THE ECONOMIC BENEFITS OF THE AGGREGATOR ON ITS CUSTOMER BASE**

*Jorge Cano Martínez / Elisa Peñalvo-López / Vicente León Martínez / Iván Valencia Salazar*

**5.8.- APPLICATION OF SPATIAL LOCATION TECHNIQUES IN THE DIAGNOSIS OF BUILDING STRUCTURES USING A DRONE**

*Jarosław Domin / Roman Czyba / Marcin Górski / Paweł Piórkowski / Jacek Grzybowski / Michał Nerwiński / Dawid Rudy / Radosław Rosiek / Kamil Niziołek*

**5.9.- LEAN TOOLS APPLICATION TO THE 2D'S INDUSTRIALIZATION PROCESS IN BUILDINGS**

*Milagro Iborra Lucas / Lisseth Sáenz Lama*

**5.10.- EFFECT OF FIRE ON GFRP REINFORCED CONCRETE BEAMS**

*Isel del Carmen Díaz Pérez / Rafael Larrúa Quevedo / Hugo Wainshtok Rivas*

**5.11.- CRACKS DETECTION THROUGH ANALYSIS PCA IN HIGH PERFORMANCE CONCRETES**

*Ana Martínez-Ibernón /Josep Ramon Lliso-Ferrando / Isabel Gasch Molina / José Manuel Gandía-Romero / Manuel Valcuende Payá / Juan Soto Camino / Paola Antonici / Giovanni Anglani / Jean-Marc Tullani*

**5.12.- LIMITATIONS IN REINFORCEMENT CONCRETE STRUCTURES CORROSION POTENTIALS MEASUREMENT TO THE CORROSION DETECTION**

*Ana Martínez-Ibernón /Josep Ramon Lliso-Ferrando / Isabel Gasch Molina / José Manuel Gandía-Romero / Manuel Valcuende Payá / Juan Soto Camino*





CATALOG INTERNATIONAL ITINERANT EXHIBITION "RESEARCH IN BUILDING ENGINEERING EXCO'22"

**5.13.- THERMOGRAPHIC ANALYSIS OF CERAMIC TILE VENTILATED FACADE PROTOTYPE. WEAKNESSES AND ADVANTAGES IDENTIFICATION**

*Ana Martínez-Ibernón / Julia Casares Real / Josep Ramon Lliso-Ferrando / Isabel Gasch Molina / José Manuel Gandía-Romero / Manuel Valcuende Payá / Juan Soto Camino*

**5.14.- CORROSION MONITORING ON REINFORCED CONCRETE SLABS. Part 1**

*Josep Ramon Lliso-Ferrando / Erika Juliana Pacheco-García / Isabel Gasch Molina / Ana Martínez-Ibernón / José Manuel Gandía-Romero / Manuel Valcuende Payá / Juan Soto Camino*

**5.15.- CORROSION MONITORING ON REINFORCED CONCRETE SLABS. Part 2**

*Josep Ramon Lliso-Ferrando / Erika Juliana Pacheco-García / Isabel Gasch Molina / Ana Martínez-Ibernón / José Manuel Gandía-Romero / Manuel Valcuende Payá / Juan Soto Camino*

**5.16.- EFFICIENT MANAGEMENT OF THE PUBLIC USE OF ARCHITECTURAL HERITAGE THROUGH AN HBIM PROTOCOL**

*Elena Salvador-García / M<sup>ra</sup> José Viñals-Blasco / Jorge Luis García-Valldecabres / Concepción López-González*

**5.17.- SOUND BARRIERS BASED ON SONIC CRYSTALS. SCATTERER DESIGN FOR LOW/MEDIUM FREQUENCY BAND ATTENUATION**

*Irene Martínez Muñoz / Sergio Castiñeira Ibáñez / José María Bravo Plana-Sala / Marcelino Ferri García / Juan Vicente Sánchez Pérez / María Pilar Peiró-Torres*

**5.18.- IDENTIFYING THE NEEDS FOR PLANNING CULTURAL ITINERARIES. AN APPROACH TO THE DESIGN OF A HBIM+GIS PROTOCOL**

*Ángel Marqués-Mateu / Elena Salvador-García / María Dolores Teruel-Serrano*

**5.19.- COMPARISON OF THE MECHANICAL BEHAVIOR OF CONCRETE CONTAINING RECYCLED CFRP FIBERS AND POLYPROPYLENE FIBERS**

*María Isabel Prieto-Barrio / María de las Nieves González García / Alfonso Cobo Escamilla / David Alonso Redondo*

**5.20.- PRESENTATION OF SERMAP-PRFV SYSTEM, AN ECOLOGICAL ALTERNATIVE TO BUILD BUILDINGS**

*Gabriel Martínez Licea / Hugo Rafael Wainshtok Rivas*

**5.21.- THE FUTURE OF CONSTRUCTION IN THE BUILDING SECTOR**

*Sandra Moyano Sanz / Mercedes Valiente López / Miguel Fernández Álvarez*

**5.22.- ULTRA HIGH DURABILITY CONCRETES (UHDC) RESHEALIENCE PROJECT**

*José Manuel Gandía-Romero / Isabel Gasch Molina / Ana Martínez-Ibernón / Josep Ramon Lliso-Ferrando / Manuel Valcuende Payá / Juan Soto Camino*

**5.23.- ACOUSTIC BEHAVIOR OF THE FIRST 3D PRINTED BUILDING IN SPAIN**

*Andrea Salandín / Ignacio Guillen / Alberto Quintana / Vicente Gómez*

**5.24.- LIME CONCRETES WITH AD HOC PERFORMANCES**

*Joan Ramon Rosell i Amigó / Montserrat Bosch González*





## CHAPTER 6 *TOWN PLANNING*

### 6.1.- ARCHITECTURAL EVOLUTION OF THE JAPANESE HOUSE

*Quiteria Angulo Ibáñez / Francisco Oña Tudela*

### 6.2.- PORTO-FRANKO CUSTOMS LINES AS A RESERVE FOR CREATING AN "ARC OF MERCY" IN ODESSA (second half of the 19th century)

*Nadia Yeksarova / Vladimir Yekсарov / Andriy Yekсарov*

### 6.3.- RAILWAY HOUSING IN VALENCIA. NOTES ON THE REGULATORY CONTEXT AND CASE STUDIES (1941-1989)

*Aurora Martínez-Corral / Domingo Cuéllar Villar*

### 6.4.- TO RENEW OR TO DIE: EXPLORING THE DIGITALISATION OF THE REAL ESTATE BROKERAGE AGENCY IN VALENCIA

*Elena Navarro-Astor / Juan Carlos Asensio-Soto / Carolina Mollá*

### 6.5.- VALENCIA NEW MULTY STOREY RESIDENTIAL BUILDING DEMAND ANALYSIS

*Fernando Cos-Gayón López / Ángel Martín Furones / Igor Fernández Plazaola / Mayte Maldonado Álvarez*

### 6.6.- OFFER ANALYSIS OF NEW CONSTRUCTION SINGLE-FAMILY HOUSES IN THE METROPOLITAN AREA OF VALENCIA

*Fernando Cos-Gayón López / Ángel Martín Furones / Igor Fernández Plazaola / Kalliane Bauzá Reynaldo*

### 6.7.- PREFAB HOUSES: TOWARDS AN ARCHETYPE A REVIEW OF CONTEMPORARY SOLUTIONS

*Federico Cavalieri / Marianna Rotilio / Pierluigi De Berardinis / Luis Palmero Iglesias*

### 6.8.- FROM HOMO FABER TO HOMO LUDENS. A NEW WAY TO IMAGINE AND BUILD THE FUTURE

*Luis Manuel Palmero Iglesias / Graziella Bernardo*

### 6.9.- THE EDUCATIONAL AND SOCIAL ARCHITECTURE OF GIANCARLO MAZZANTI (Part 1)

*Luis Manuel Palmero Iglesias / Graziella Bernardo*

### 6.10.- THE EDUCATIONAL AND SOCIAL ARCHITECTURE OF GIANCARLO MAZZANTI (Part 2)

*Luis Manuel Palmero Iglesias / Graziella Bernardo*

### 6.11.- THE GARDEN OF SOULS: CONTEMPORARY REINTERPRETATION OF FUNERAL SPACES, THE CAMPELLO, ALICANTE, SPAIN

*Carolina Fernanda Urruty Blaya / Antonio Gómez Gil / Jorge Girbés Pérez*

### 6.12.- THE LANDSCAPE VISION OF CEMETERIES IN ARCHITECTURAL MODERNITY BY: ASPLUND, ROSSI AND PORTELA

*Carolina Fernanda Urruty Blaya / Antonio Gómez Gil / Jorge Girbés Pérez*

### 6.13.- KOWLOON EAST INCLUSIVE INNOVATION AND GROWTH: INCLUSIVE INNOVATION – AN EQUITABLE URBAN DESIGN IN HIGH DENSE CITIES

*Sunnie S.Y. Lau / Brent D. Ryan*

### 6.14.- NEXT DESIGN IN THE IOT ERA. THE TRANSFORMATION OF ARCHITECTURAL DESIGN PARADIGM

*Stephen Siu-Yu LAU / Yiqi TAO / Yi QI / Hongzhan LAI*





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EDIFICACIÓN



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**6.15.- TURIA'S GARDEN. UNIQUE ASPECTS OF A LINEAR GARDEN CONSTRUCTION**  
*Lola Merino Sanjuán / Mónica Val Fiel / Marina Puyuelo Cazorla*

## **CHAPTER 7**     *HUMAN RESOURCES*

### **7.1.- KNOWLEDGE MANAGEMENT APPLICATION IN MAINTENANCE ENGINEERING, ITS ANALYSIS AND PERCEPTION FROM MAINTENANCE TECHNICIANS**

*Javier Cárcel-Carrasco / Aurora Martínez-Corral / M<sup>a</sup> Carmen Carnero / José Ramón Albiol-Ibáñez*

### **7.2.- REALITY AND PROBLEMS IN INFORMAL SETTLEMENTS IN LATIN AMERICA**

*Mirian Guillén Vivas / Fernando Cos-Gayón López*



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