

# 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 DI SALERNO***

**Dipartimento di Ingegneria Civile- UNISA**

From 1<sup>st</sup> to 16<sup>th</sup> December, 2025

Via Giovanni Paolo II, 132 - 84084 Fisciano (SA), Italia

**Curators of Exhibition:**

Dr. Giacomo DI RUOCCO (Local Curator)

Dr. José Ramón ALBIOL IBÁÑEZ (International Curator)

**Exhibition**

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

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



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**PROLOGO – EXCO UNISA 2025**

È stato motivo di grande soddisfazione organizzare l'EXCO'25 International Exhibition, presso l'Università degli Studi di Salerno. L'evento ha fatto tappa presso la nostra università nel periodo 01-16 Dicembre 2025, mediante esposizione dei pannelli in modalità virtuale. Curatore dell'iniziativa: Prof. Giacomo Di Ruocco.

EXCO International Exhibition è ormai diventato un evento periodico per la nostra università, quale opportunità per ricercatori, docenti, dottorandi e studenti di conoscere ed apprezzare un interessante, ampio ed innovativo panorama di ricerca nel campo dell'industria delle costruzioni. Ciò è il risultato dei proficui rapporti accademici e di ricerca che da alcuni anni l'Università degli Studi di Salerno intrattiene con la UPV di Valencia. In primis corre l'obbligo di ringraziare il Direttore di EXCO, prof. dr. José Ramón Albiol-Ibáñez, personalità di eccezionale professionalità ed efficienza, il quale ci ha offerto l'opportunità di prendere visione dello stato dell'arte della ricerca condotta da colleghi di varie università, leader internazionali nel campo dell'ingegneria edile, nonché di presentare alcuni prodotti della ricerca del personale accademico (ricercatori, docenti, dottorandi) del Dipartimento di Ingegneria Civile dell'Università di Salerno.

Prof. Giacomo Di Ruocco

**PROLOGUE - EXCO UNISA 2025**

It was a great satisfaction to organize the EXCO'25 International Exhibition, at the University of Salerno. The event passed at our university in the period 01-16 December 2025, through exposure of the panels in virtual mode. Curators of the initiative Prof. Giacomo Di Ruocco.

EXCO International Exhibition has become a regular event for our university, as an opportunity for researchers, professors, PhD students and students to know and appreciate an interesting, wide and innovative research panorama in the field of construction industry. This is the result of the profitable academic and research relationships that the University of Salerno has had with the UPV of Valencia for several years. First of all, we must thank the Director of EXCO, Prof. Dr. José Ramón Albiol-Ibáñez, a personality of exceptional professionalism and efficiency, who offered us the opportunity to view the state of the art of research conducted by colleagues from various universities, international leaders in the field of construction engineering, as well as to present some research products of the academic staff (researchers, teachers, PhD students) of the Department of Civil Engineering of the University of Salerno.

Prof. Giacomo Di Ruocco

# 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.

21. Universidad de Granada, España.
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24. Università degli Studi di Roma "Tor Vergata", Italia.
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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.
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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
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56. Universidad de Napoles Federico II, Napoles, Italy.
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58. University of Guanajuato, México.
59. University of La Salle Bajío, México
60. Universidad Jesuita de Guadalajara, ITESO, México

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

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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

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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

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María Oliver-Sanz / Alicia Llorca-Ponce

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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

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

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

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

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

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

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Quiteria Angulo-Ibáñez / Aitana Puig-Rocher

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Quiteria Angulo-Ibáñez / Mercedes Almenar-Muñoz

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