

THE BIG BUILD II

Sustainability and Resilience

*Seminar-Workshop,
Lecture & Round Table*

October, 23-24-25
Madrid 2023

Organizers





EVENT OVERVIEW

The Spanish Group of IABSE (*International Association for Bridge and Structural Engineering*), the Escuela de Ingenieros de Caminos, Canales y Puertos of the Technical University of Madrid (UPM), the Escuela de Arquitectura of the University of Alcalá (UAH), and the Professional Association of Civil Engineers in Madrid organize the Seminar – Workshop, Lecture and Round Table: ***The Big Build II. Sustainability and Resilience.***

As population growth continues and demands on our cities increase, new ideas are constantly needed to address urban planning, architecture, and engineering through creative use of materials, construction techniques, and building operations.

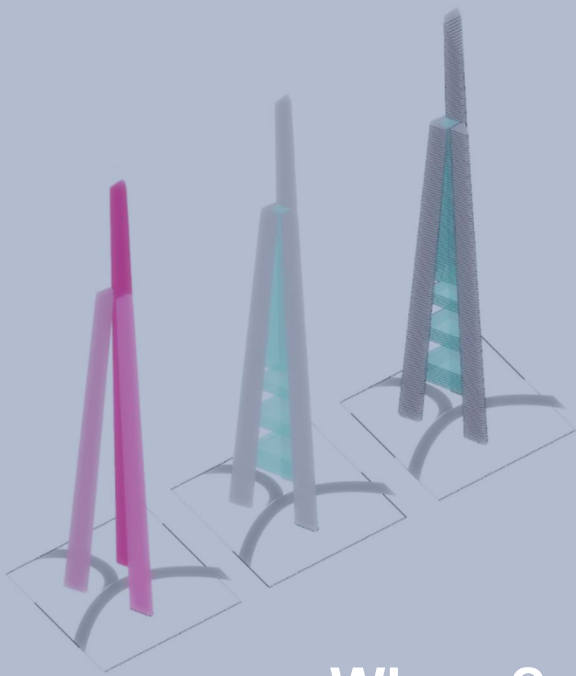
Inspirations from natural growth and human behavior are key to developing ideas that adapt to changing climate and depletion of resources. Awareness is key to solving complex issues and the collaboration between academic study, research, and practice is critical.

Organizing
Committee

M. Dolores G. Pulido, Rosa Cervera Sardá,
and Jorge Bernabéu Larena

SEMINAR – WORKSHOP PROGRAM

When?



Where?

Seminar will promote a dialogue in tall building design where Architecture meets Structure and Academics meet Practice. The *workshop* will give students an approach to high-rise construction with quick exercises to develop innovative vertical structures. The objective will be to achieve the most effective and interesting model with the minimum CO₂ emission. The work will be carried out in teams based on materials provided by the organizers.

Monday 23 & Tuesday 24 October, 2023.

Monday 23 October 2023

09:00

Presentation

09:15

The Big Build II –
Imaging tall buildings
through structures

10:15

How structures melt with and help
architecture. The future Chamartín
railway station, skyscrapers and other
recent singular projects

11:15

Break

MARK SARKISIAN
Partner SOM

MIGUEL BAÑARES DORADO
ESTEYCO

11:45

Types of height, past and
present.
*Mohamed VI tower in Rabat,
experiences of construction*

JORGE BERNABÉU LARENA
ALEJANDRO BERNABÉU LARENA
UPM & BERNABÉU Ingenieros

13:15

Break

15:00 - 16:00

Challenge of tall buildings and
carbon production. What can a
structural engineer do?

RICHARD B. GARLOCK
Partner LERA Consulting Structural Engineers

16:00 - 20:00

**THE BIG BUILD II WORKSHOP. Part I: Digital
design, model making**

Escuela de Ingenieros de Caminos,
Canales y Puertos - UPM
Calle del Profesor Aranguren, 3,
28040 Madrid, Room Torres Quevedo

SEMINAR – WORKSHOP PROGRAM

Tuesday 24 October 2023

09:00

**Creative Approaches to
Sustainability and Resilience
for Tall Building Structures**

MARK SARKISIAN
Partner SOM

10:00

**From Nature to
Architecture**

ROSA CERVERA SARDÁ
Alcala University & Cervera
Arquitectos

11:00

Break

11:30 – 14:00

**THE BIG BUIL II
WORKSHOP. *Part I: Digital
design, model making***

14:00

Break

15:30 – 20:00

**THE BIG BUIL II
WORKSHOP. *Part II: Final
presentation and critique***

Where?

Escuela de Ingenieros de
Camino, Canales y Puertos,
UPM, Calle del Profesor
Aranguren, 3, 28040 Madrid
Room Torres Quevedo



SEMINAR – WORKSHOP SPEAKERS



Mark P. Sarkisian

PE, SE, NAE, LEED BD+C, Partner of Seismic and Structural Engineering in the San Francisco office of Skidmore, Owings & Merrill LLP, has developed innovative engineering solutions for over 100 major building projects around the world including some of the tallest and most complex. Mark holds ten U.S. Patents and five International Patents for high-performance seismic structural mechanisms designed to protect buildings in areas of high seismicity and for seismic and environmentally responsible structural systems. He is the author of “Designing Tall Buildings – Structure as Architecture,” and teaches at UC Berkeley, California College of the Arts, Stanford University, Cal Poly, Northeastern University, NC State University, the Pratt Institute, Technical University of Madrid, and Alcala University. He has a BS-CE Degree from the University of Connecticut and is a Fellow of the Academy of Distinguished Engineers, an MS-SE Degree from Lehigh University, an Honorary Doctorate Degree from Clarkson University, and an Honorary Master’s Degree from the Politecnico di Milano.



Rosa Cervera

Ph D. Architect, Professor and former Dean of the School of Architecture of the University of Alcalá. Current director of the Master's Degree in Advanced Architecture and City Projects. She is the author of writings and books on architecture, among which we highlight: "Bionics, Biomimetics and Architecture" (2019); "Space and Time in Architectural Composition" (2018); Recycling Mumbai. Re-imagining the slum" (2012). "Madrid, Recycled City" (2011), "Iron in 19th century Madrid architecture" (2006). A regular speaker in professional and academic circles, she has given lectures in Spain, China, India, USA, Bolivia, Peru, El Salvador, Venezuela, Romania, Italy, etc. As an architect, Rosa Cervera has received several awards -the "Antonio Maura" award, the COAM award, the "Transfer of Knowledge" award- and has won several international architecture competitions, including the following: Embassy Complex of the People's Republic of China in Spain; Feng Cheng Administrative Center, Shanghai, China; National Water Museum in Hangzhou; Tai Da Square in Chengdu; Bridge over the Hai He in Tianjin. Rosa Cervera is a pioneer in research into Bionics, Biomimetics and the application of biological structures to innovative and efficient architecture and urban design. A direct result of these studies is the Self-Sustainable Vertical Garden City, Bionic Tower. She is a founding member and current president of Cátedra China.

SEMINAR – WORKSHOP SPEAKERS



Richard B. Garlock

Richard B. Garlock, P.E. is a Partner at LERA Consulting Structural Engineers. With nearly 30 years of experience designing efficient structural solutions to realize complex architectural visions, his expertise ranges from academic and research buildings to high-rise office and residential towers, high-end retail and complex civic structures. He has experience in the structural design of buildings of all heights, including mid-rise, high-rise, supertall and mega-tall projects. Rich is currently serving as the Partner-in-Charge/Project Director for a new residential building at Columbia University, and a number of high-profile developments in New York City, Philadelphia, Miami and Virginia, with programs ranging from luxury residential towers to office and laboratory space. He is also leading LERA's team that was recently commissioned for the structural design of a major addition and renovation to the Rock 'N' Roll Hall of Fame & Museum in Cleveland, OH. Rich previously served as the Project Director for multiple mixed-use towers in Malaysia, and for the design of 4 World Trade Center, which was the first building to open on the original WTC site in 2013. He was also a member of the WTC Recovery Team following the September 11th attacks, and participated in the investigation of the baseline performance of the WTC towers conducted by the National Institute of Standards and Technology. Since 2005, Rich has been a Visiting Lecturer for Princeton University's Department of Civil and Environmental Engineering, and has a long and successful working relationship with the university encompassing many campus buildings, including the School of Architecture Renovation, Friend Center for Engineering, Butler College Residences and Lewis Center for the Arts. He is also a Structures Specialist for the State of New Jersey Office of Emergency Management Urban Search. Rich was an invited presenter at the 2019 CTBUH World Congress in Chicago, IL, where he spoke about major trends in structural design innovations for tall buildings in the past, present and future. He was also an invited presenter at the 2017 NASCC: The Steel Conference, where he presented on the complex structural design of 4 World Trade Center, in honor of the project winning the Presidential Award of Excellence in Engineering from the American Institute of Steel Construction.

SEMINAR – WORKSHOP SPEAKERS



Jorge Bernabéu Larena

Ph.D. Civil Engineer, Associate Professor at the School for Civil Engineering of the Technical University of Madrid (UPM) in the subjects of landscape, construction history, and creative design. He is recognized with the UPM Educational Innovation Award. He works in two lines of research: design and innovation in structural engineering; public works heritage, landscape and construction history. He has 25 years of professional experience in projects of singular structures and bridges during which he has been awarded in 7 international competitions with a jury. He is partner of Bernabéu Ingenieros.



Alejandro Bernabéu Larena

Ph. Civil Engineer, he is an expert in structures of singular buildings with more than twenty years of experience, CEO of Bernabeu Ingenieros, founded in 2014. He has developed projects worldwide working in collaboration with well-known architects such as Herzog & de Meuron, David Chipperfield, Dominique Perreault, Nieto Sobejano, Rafael de la Hoz or Burgos & Garrido. He is Professor at the School of Architecture, Technical University of Madrid, and has lectured in different other Universities. He has been awarded with the IABSE prize, and with the prize for outstanding young engineers, by the Spanish Civil Engineers Association in Madrid.

ROUND TABLE PANELISTS



José Antonio Martín-Caro

Over his nearly 30 years of experience, José A. Martín-Caro has combined teaching and research activities with an unrivalled track record on engineering projects. Based in a global approach, he has performed his professional activity in structures, geotechnics, including monitoring, rehabilitation, repair and new construction projects. His strong research background in infrastructure maintenance and cultural heritage puts him in the best position to lead innovation in these fields and play an active role in national and international technological projects. In the building field, the projects for shopping malls, hospital, offices, sports complexes and buildings and skyscraper stand out, highlighting among the current projects, the Santiago Bernabeu stadium, the new BBVA Headquarters, the Caleido tower. In the area of civil engineering, he has designed numerous road and railway bridges as well as footbridges. He is associate professor at UPM and CEO of INES consultant.

Juan Carlos Arroyo Portero

MSc Civil Engineer, PhD in Architecture. Dean of the Politechnical School at the Nebrija University. Partner and founder of CALTER Ingeniería (Structural consultancy firm), INGENIO.XYZ (online platform to learn structures), INWIND (contractor of wind in situ concrete towers), and CINTER (publishing house). More relevant publications: EHE-98 (co-author); Jiménez Montoya. Hormigón armado (reinforced concrete), eds 15 and 16. Arroyo, Messeguer, Morán; *Números gordos en el proyecto de estructuras* (Rough numbers in structural design) 50.000 books sold. More relevant designs: Nuevas Torres Colón, Mobil footbridge Bilbao (Calter-SBP), Arch footbridge Chamartín (Calter-SBP), Extension of T4 Airport Madrid-Barajas; and Comercial center 60000 m² structure without expansion joints.



SEMINAR – WORKSHOP REGISTRATION



Registration for the ***seminar-workshop*** is free for all students (undergraduate, master and doctorate) belonging to the School of Civil Engineering of the Technical University of Madrid, UPM, and to the School of Architecture of the University of Alcalá, UAH.

For all other participants, the fee is 50 €.

To register, send an e-mail to the IABSE Spanish Group (***geiabse@gmail.com***), specifying participant's given name and surnames, affiliation, and e-mail address.

The email must include a copy of the bank transfer receipt (if applicable), to be sent by October 23, 2023, indicating in the concept of the transfer the full name of the participant.

Bank:	CaixaBank
Bank address:	c/ Ríos Rosas, 44, 28003 Madrid
Account Number:	ES49 2100 3226 0213 0011 2627
Swift code:	CAIXESBBXXX
Beneficiary:	Grupo Español de IABSE

Nuevas Torres Colón, Madrid
LVA + architects – CALTER Ingeniería
Picture by Paco Gómez

LECTURES



When?

Where?

Registration

Inventive Architecture – A Sum of the Parts

By Mark Sarkisian, Partner SOM

13:00 h

Caleido: Tower and Plint. Designing a vertical campus in the heart of Madrid

By José A. Martín-Caro, INES Consultant Engineers

13:45 h

Wednesday 25 October 2023, 13:00 h – 15:00 h

School of Architecture, Alcala University, UAH

c/ Santa Úrsula, 8

28801 Alcalá de Henares, Madrid

Free admission. To register, send an e-mail to the IABSE Spanish Group (geiabse@gmail.com) indicating the attendee's given name and surnames, affiliation, and e-mail address.

ROUND TABLE

**Presentation
Moderator
Panelists**

**When?
Where?**

Registration

Strategies for Sustainable Future Urban Developments. Challenges of High-Rise Construction

M. Dolores Esteban Pérez – Dean of Colegio ICCP in Madrid

M. Dolores G. Pulido – Chair of the Spanish Group of IABSE

Mark Sarkisian – SOM

Richard B. Garlock – LERA Consulting Structural Engineers

Rosa M. Cervera Sardá - University of Alcalá

Juan Carlos Arroyo Portero – Calter

Miguel Bañares Dorado – Esteyco

Jorge Bernabéu Larena - UPM & Bernabéu Ingenieros

José A. Martín-Caro - INES Consultant Engineers & UPM

Wednesday 25 October 2023, 18:00 h - 20:30 h

Colegio de Ingenieros de Caminos, Canales y Puertos,
Room Auditorio, c/ Almagro, 42, 28010 Madrid

Free admission. To register, send an e-mail to the IABSE Spanish Group (geiabse@gmail.com) indicating the attendee's given name and surnames, affiliation, and e-mail address.

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