

Norman Foster Foundation

Shelters

Norman Foster Foundation Workshop 2022
Supported by Holcim



Shelters

Shelters Workshop | Introduction

Eighty million people were displaced in 2021 due to conflict and natural disasters and, in just over two months, the Ukraine crisis has forced another 12.5 million people to flee within the country or to neighbouring ones. The average duration of displacement is twenty-six years, so, while we tend to think of displacement as something temporary, most often, it is not.

The climate crisis will escalate forced displacement even further, with figures estimating 200 million to one billion people being displaced by 2050. The numbers are incomprehensible; however, behind every digit, is a person being forced out of their safe space, their home and their everyday life. As an international community and humanitarian actors, we must do everything in our power to save lives, alleviate suffering and mitigate the effects of displacement. We must take action to reverse the course of the climate emergency, and the needs posed by ongoing crises must be met now.

Shelter provision is one of the most central humanitarian interventions. Architects, NGOs, governments, the private sector and local societies must work together with affected families to meet growing needs. Providing temporary, safe and dignified shelter saves lives, but it can also be a pathway to recovery.

Humanitarian shelter is highly fluid and complex. In contrast to commercial design and architecture, the user is seldom involved in the design process. Instead, it is often done by NGOs, donors and political stakeholders with different interests and agendas. Add to this the challenging practical reality in the field: quickly changing needs, highly stressed populations, extreme environments, security challenges and extensive funding shortages.

Our approach is to provide design that can be quickly deployed, locally upgraded and upcycled to kickstart recovery efforts. Shelter construction should reinforce local capacity, not replace it. We encourage designers to consider them not as static objects, but as the starting point. Shelters must offer safety and dignity from day one and—equally important—enable continuous improvement and change over time.

Johan Karlsson
Workshop Mentor
Norman Foster Foundation

Holcim builds progress for people and the planet. As a global leader in innovative and sustainable building solutions, Holcim is enabling greener cities, smarter infrastructure and improving living standards around the world. With sustainability at the core of its strategy, Holcim is becoming a net zero company, with its people and communities at the heart of its success. The company is driving circular construction as a world leader in recycling to build more with less. Holcim is the company behind some of the world's most trusted brands in the building sector including ACC, Aggregate Industries, Ambuja Cement, Disensa, Firestone Building Products, Geocycle, Holcim, Lafarge and Malarkey Roofing Products. Holcim is made up of 70,000 people around the world who are passionate about building progress for people and the planet through four business segments: cement, ready-mix concrete, aggregates and solutions and products.

<https://www.holcim.com>



The Norman Foster Foundation promotes interdisciplinary thinking and research to help new generations anticipate the future.

The first mission of the Norman Foster Foundation is to promote the importance of architecture, infrastructure and urbanism for the betterment of society. To this end, the second mission is to encourage new thinking and research across traditional boundaries to help younger generations anticipate the challenges of future change. In particular, it addresses those professionals who are concerned with the environment—architects, engineers, designers, urbanists, civic leaders, planners and artists. This is at the heart of a holistic approach to design and is ever more relevant as populations shift to cities. With the implications of climate change, robotics and artificial intelligence, sustainable design is not about fashion but about survival.

The Foundation holds the Norman Foster Archive and Library, which provide a window into the larger narrative and history of our built environment through the work of Norman Foster. This is complemented and supported by drawings and models from other significant architects such as Claude-Nicolas Ledoux, Le Corbusier, Mies van der Rohe, Charles and Ray Eames, Buckminster Fuller, Richard Rogers, Zaha Hadid, and Tadao Ando.

Through its research initiatives and programmes, the Norman Foster Foundation encourages the transfer of advanced knowledge in a wide range of design fields. The Foundation's educational initiatives are structured around research and workshops, fellowships and forums around the Foundation's core objectives.

Norman Foster Foundation



Academic Body

	Norman Foster , President, Norman Foster Foundation
Workshop Mentor	Johan Karlsson , Managing Director, Better Shelter, Stockholm, Sweden
Mentor Assistant	David Karpathakis Thalén , Head of Product Development, Better Shelter, Stockholm, Sweden
Members	Shigeru Ban , Principal Architect, Shigeru Ban Architects, Tokyo, Japan
	Teddy Cruz , Professor of Public Culture and Urbanism, University of California, San Diego (UCSD), San Diego, CA, United States
	Fonna Forman , Founding Director, Center on Global Justice, University of California, San Diego (UCSD), San Diego, CA, United States
	Elena Giral , Project Manager, European Emergency Shelter and Emergency Transport & Logistics, European Commission, Brussels, Belgium
	Christophe Levy , Scientific Director and Director of Concrete and Aggregates Research and Development (R&D), Holcim Innovation Center, Lyon, France
	John Orr , University Lecturer in Concrete Structures, University of Cambridge, Cambridge, United Kingdom

Scholars

	Chiara Centoducati , Politecnico di Milano, Milan, Italy
	Yasmine Chacour , Advanced Architecture, Institute of Advanced Architecture of Catalonia (IAAC), Barcelona, Spain
	Cristina Davila , Graduate School of Design (GSD), Harvard University, Cambridge, MA, United States
	Pablo Jaramillo , Barlett School of Architecture, University College London (UCL), London, United Kingdom
	Angel Langumas , Cornell University, Ithaca, NY, United States
	Nikola Nikolic , Eidgenössische Technische Hochschule (ETH Zürich), Zürich, Switzerland
	Carmen Povedano , Universidad Politécnica de Madrid, Madrid, Spain
	Pongpol Punjawaytegul , Advanced Ecological Buildings and Biocities, Institute of Advanced Architecture of Catalonia (IAAC), Barcelona, Spain
	Romain Russe , Advanced Ecological Buildings and Biocities, Institute of Advanced Architecture of Catalonia (IAAC), Barcelona, Spain
	Ciyang Wang , Barlett School of Architecture, University College London (UCL), London, United Kingdom

Academic Body



Shigeru Ban

Born in Tokyo in 1957 and graduated from the Cooper Union, Shigeru Ban began working for Arata Isozaki & Associates in 1982 before founding Shigeru Ban Architects in 1985. In 1995, he became a consultant to the United Nations High Commissioner for Refugees (UNHCR), and he established the Voluntary Architects' Network (VAN), an NGO to support disaster relief, in the same year. Selected works include the Centre Pompidou-Metz, Oita Prefecture Art Museum, Mount Fuji World Heritage Centre, Shizuoka, Musical Complex of La Seine Musicale and Swatch Omega Headquarters. Ban is the recipient of awards such as the 2009 Grand Prize from the Architectural Institute of Japan (AIJ), the 2011 Auguste Perret Prize, the 2012 Art Prize from the Japanese Agency for Cultural Affairs, the 2014 Pritzker Architecture Prize, a Japanese Medal of Honor with a Purple Ribbon (2017) and the Mother Teresa Social Justice Award (2017). Ban became an ambassador for the New European Bauhaus High-level Roundtable in 2021 and is currently a professor at Keio University.



Estudio Teddy Cruz + FONNA FORMAN

Teddy Cruz and FONNA FORMAN are principals of Estudio Teddy Cruz + FONNA FORMAN, a research-based political and architectural practice in San Diego. Their work merges architecture, urbanism, political theory, urban policy, visual arts and public culture. They lead urban research agendas and civic / public interventions in the San Diego-Tijuana border region and beyond. From 2012-14, they served as special advisors to the City of San Diego and led its Civic Innovation Lab. Their work has been exhibited widely in venues across the world, including the Museum of Modern Art (MoMA), the Yerba Buena Center for the Arts, the Cooper Hewitt National Design Museum, Das Haus der Kulturen der Welt, M+, the 2016 Shenzhen Biennial of Urbanism and Architecture and the 2018 Venice Architectural Biennale. They have three forthcoming monographs: *Spatializing Justice* and *Socializing Architecture*—copublished by the MIT Press and Hatje Cantz Berlin—and *Unwalling Citizenship* (Verso).



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Norman Foster

Norman Foster is the founder and executive chairman of Foster + Partners, a global studio for architecture, urbanism and design rooted in sustainability. He has an interest in the future of cities and the green agenda, leading urban masterplans and infrastructural projects, such as Masdar City, a pioneering carbon-neutral development in the UAE. He championed sustainability in the 1970s and has established an innovative approach to green buildings with projects such as Commerzbank, Frankfurt (the world's first ecological high-rise), the Reichstag in Berlin and Bloomberg headquarters in London. He is president of the Norman Foster Foundation, which promotes interdisciplinary thinking to help new generations of architects, designers, engineers and urbanists to anticipate the future. He received the Pritzker Architecture Prize in 1999, was appointed to the Order of Merit in 1997 and was granted a Life Peerage in 1999.



Elena Giral

Elena Giral is a Spanish architect and urban planner specialised in shelter, emergency settlements and participatory community projects. She currently works in the European Civil Protection and Humanitarian Aid Department of the European Commission (ECHO), where she coordinates the first European emergency shelter capacity under the rescEU programme. Previously, she worked on selection, funding and monitoring of humanitarian and emergency projects for various regions. Giral has also worked as an architect on projects in France and Spain, and collaborated with the social NGO TECHO in Chile, as well as with the King Baudouin Foundation in Belgium. Giral holds a master's degree in architecture from the University of Valladolid, a post-graduate master's in european studies (policy Advisor and project consultant) from the Université catholique de Louvain / CCItaBel and an advanced master's degree in human settlements from Katholieke Universiteit Leuven.



Johan Karlsson

Johan Karlsson is the managing director of Better Shelter, a social enterprise founded by the IKEA Foundation that provides innovative housing solutions for people displaced by armed conflicts and natural disasters. In partnership with UNHCR and other humanitarian agencies, Better Shelter has developed a sustainable shelter prototype which, today, houses families, clinics and classrooms across the world. Prior to his product development role at Better Shelter, Karlsson founded and directed the design firm Chen Karlsson, whose innovative designs continue to be sold worldwide. Better Shelter has received various accolades in the field of design for its prototype shelter concepts that are durable, easy to install and cost-effective. Karlsson has an executive MBA from the Stockholm School of Economics and a master's degree in industrial design from Konstfack, the University College of Arts, Crafts and Design in Stockholm.



David Karpathakis Thalén

David Karpathakis Thalén is head of product development at Better Shelter, a social-impact company founded by the IKEA Foundation and a partner of the United Nations High Commissioner for Refugees (UNHCR), where he leads product development and management. Together with designers, architects, engineers and humanitarian partners, Better Shelter's products and services are taken onwards to fit the complex needs of the humanitarian shelter sector. Additionally, Karpathakis maintains technical partnerships with UN agencies, INGOs, NGOs, academia and private sector donors. Support to implementing partners is a crucial part of understanding the shelter process, and Karpathakis has helped several partners implement thousands of shelters in different crises around the world. In 2007, Karpathakis graduated from the Royal Institute of Technology with a Master's of Science in design and product realisation.



Christoph Levy

Christophe Levy earned a bachelor's degree in Civil Engineering in 1984 before working for four years as a new-materials engineer on landmark construction sites in the Central African Republic, Algeria and France with Bouygues Construction. In 1988, he joined Lafarge—today, Holcim—where he has held different positions in cementitious building materials, including research and development (R&D), sustainable construction and marketing, throughout France, India and the United States. Holding eighty granted patents, he is passionate about developing sustainable and pragmatic solutions based on innovative materials, such as new cements, new concretes, new admixtures and new concrete-based building systems. As the scientific and quality director of Holcim Innovation Center, today, he expands Holcim's academic network to develop scientific partnerships in different countries. Levy is also chairman of the International Congress on the Chemistry of Cement.



John Orr

John Orr is a university assistant professor in engineering at the University of Cambridge. Orr's teaching and research are closely linked to sustainable construction and improving construction sector productivity. He works primarily in concrete structures, creating new methods for analysis, optimisation and automation in construction. Orr has a funded research portfolio of 11 million pounds, and has built a team around his vision for the design optimisation and lightweighting of existing and future infrastructure by learning from real performance. Orr led a key part of the Engineering and Physical Sciences Research Council (EPSRC)-funded project, 'Healthy Housing for the Displaced', which had the fundamental aim of creating a new science of shelter design for the one billion displaced people on the planet.

Scholars



Chiara Centoducati

Chiara Centoducati is a postgraduate student in architecture and urban design at Politecnico di Milano, with urban design—interpreted as the network of social entities and their relations—being the focal point in the transformation of built environment. In her academic experiences, she investigates the structural backbone role of the domestic realm, from the design experience of bringing to surface the psychology of living to industrial heritage and shaping new realities for futuristic scenarios, such as spaces of socialisation on Mars. Centoducati is passionate about architecture, art, illustration and graphics.



Cristina Davila

Born and raised in Venezuela, Cristina Davila is a Master in Urban Planning candidate at the Harvard Graduate School of Design (GSD). Prior to her studies at the GSD, she conducted research on displacement and the scope of participatory design and planning in sociospatial, environmental integration across cities in Latin America, Europe and South Africa, mostly from the nonprofit sector. An architect from the Universidad Simón Bolívar, Davila is interested in the themes of cross-border governance, urban resilience and the future of placemaking for refugee and migrant communities worldwide. At Harvard, she has also participated in different initiatives related to humanitarian responses, from designing primary outreach strategies and Venezuelan refugees in South America to rethinking the role of the diaspora and host communities in integration processes in the region.



Yasmine Chacour

Yasmine Chacour holds a Bachelor of Architecture from the Lebanese American University in Beirut and is currently completing her master's degree in advanced architecture at the Institute for Advanced Architecture of Catalonia (IAAC). She aspires to be a researcher at the intersection of art, science and technology, with the role of the architect being an interdisciplinary coordinator of the increasingly complex built environment. Chacour was born and raised in Beirut, Lebanon, a post-conflict city susceptible to geopolitical events and instability. Inspired by the 2019 Lebanese uprising, she has researched urban and social phenomenon in Beirut and, immediately after the blast in 2020, asserted herself as an activist by volunteering on the reconstruction of the city. She studies how to transform constraints into opportunities through advanced urbanism and is increasingly interested in the use of digital technologies to create performative landscapes and empower communities.



Pablo Jaramillo

Pablo Jaramillo studied architecture in Ecuador and in the United Kingdom, where he graduated with a MArch Architectural Design at the Bartlett School of Architecture, University College London (UCL). His group thesis project has been published in *ArchDaily* as a research paper on Augmented Reality (AR) and construction, and he has worked as an introductory workshop tutor at the Bartlett. Jaramillo is currently studying a master's degree in advanced computation at the Institute for Advanced Architecture of Catalonia (IAAC) with a research scope in Artificial Intelligence (AI). His research is on AR for informal construction, and he is currently pursuing an open-source platform for informal settlements to be built more efficiently and safely. He is cofounder of MP Atelier EC, an architecture studio that profiles research into design and introduces digital fabrication for furniture elements and other small architectural interventions.



Angel Langumas

Angel Langumas is approaching his fifth year studying architecture at Cornell University as the Hunter R Rawlings III Presidential Research Scholar. The first in his family to attend university, Langumas has a passion for enhancing opportunities and spaces that are equitable for underrepresented people. His education and work experience has helped him be open to learning from others in order to have impactful design. This has added to his volunteering experience, which he considers to have enabled him to be more agile in establishing communal relationships within his university and community back in Queens, New York.



Nikola Nikolic

Nikola Nikolic is an architecture student currently finishing his bachelor's degree at the Swiss Federal Institute of Technology (ETH Zürich), engaging in the fields of constructional and urban design and planning. His academic work reflects his inclination towards issues of environmental and social sustainability through the means of design, pivoting around questions concerning private and public agency, policy and identity. Nikola worked for the Swiss Institute for Architecture for Disabled Individuals, which conducts research, advises architects and raises awareness towards the issue of accessibility. He serves as a member of the Students Association at the Department of Architecture at ETH Zürich, is responsible for academic policy and is active as a volunteer for the Architecture Biennale 2022 in Basel, which dedicates itself to the themes of globalisation, digitalisation, migration and climate change.



Carmen Povedano

Carmen Povedano is a fifth-year architecture student at the Universidad Politécnica de Madrid, where she is also a teaching assistant with the Architectural Projects Department. There, she is focused on developing high-quality and innovative work that can also make a valuable impact in her community. Povedano has received several awards, including second prize at the International Competition for the 'Rehabilitation of the Royal Academy of Spain in Rome' (2022), a special mention in Europan16 (2021) and the Félix Candela Award.



Pongpol Punjawaytegul

Originally from Thailand, Pongpol Punjawaytegul graduated from the International Program in Design and Architecture (INDA) at Chulalongkorn University. During his four years of study there, Punjawaytegul attended courses and workshops that promoted the idea of ecological and environmental designs. Following his graduation in 2018, Punjawaytegul worked with a Thai architectural design-based firm, called Stu/D/O Architects, for three years, giving him experience in various types of projects, including housing, office, commercial and high-rise buildings. Currently, Punjawaytegul applies digital fabrication tools towards sustainable and ecological design while studying the Master in Advanced Ecological Buildings and Biocities at the Institute for Advanced Architecture of Catalonia (IAAC).

Programme



Romain Russe

Romain Russe is a Belgian architect and urban planner whose interest in architecture began early in childhood watching his father draw plans in his office. In 2015, he began to study architecture in the Faculty of Architecture and Urbanism at the University of Mons in Belgium. Upon graduating in 2021, he went on to explore computational design and digital manufacturing—a new world of possibilities, which Russe had the opportunity to study in more depth during his final thesis. In parallel to this, his concern for the climate emergency grew. Wanting to design a more sustainable architecture with the new technologies available, he joined the Master of Advanced Ecological Buildings and Biocities at the Institute for Advanced Architecture of Catalonia in 2022.



Ciyang Wang

Ciyang Wang is a third-year student of engineering and architectural design at the Bartlett School of Architecture, University College London (UCL). Born and brought up in Shanghai, Wang decided to come to the United Kingdom and study architecture at the age of seventeen. Trained as both an architect and an engineer, she bridges multiple disciplines. Wang has had various volunteering experiences at charities targeting homelessness and climate change, which have shaped her belief that architects and engineers must make a difference in terms of the welfare of people and the sustainability of the built environment. Due to her Science, Technology, Engineering, and Mathematics (STEM) background, Wang is able coordinate different aspects of design, bring ideas to real life and enhance sustainability performances.

Shelters Workshop

6 - 10 June 2022

Norman Foster Foundation Headquarters
Madrid, Spain

Programme: Index

Workshop Schedule

6 - 10 June 2022

Day 1	Seminars Opening lecture by Nollaig Forrest and Edelio Bermejo Workshop introduction by David Karpathakis Thalén 'Providing a Home? The Benefits of Innovative and Sustainable Concrete in Emergency Shelters' by Christophe Levy
Day 2	Seminars 'From Hospitality to Inclusion: Santuario Frontera' by Estudio Teddy Cruz + Fonna Forman 'Shelter as a People-centered Process rather than Design' by Elena Giral 'Healthy Housing for the Displaced' by John Orr
Day 3	Seminars 'Works and Humanitarian Activities' by Shigeru Ban Public Debates Introduction by Christophe Levy Keynotes by Elena Giral and Johan Karlsson Conversation between Elena Giral and Johan Karlsson Conversation between Norman Foster and Shigeru Ban
Day 4	Seminars 'Humanitarian Design: When Visions Collide with Practice and What to Do About It' by Johan Karlsson Working Session Mid-week review with Johan Karlsson
Day 5	Scholar Presentations Presentation and discussion panel Arts and Cultural Visit Reina Sofia Museum's highlights and collections

Programme: Contents

Day 1

Monday, 6 June 2022

9:00 a.m.	Gathering and welcome coffee Norman Foster Foundation, Monte Esquinza 48
9:30 a.m.	Guided tour of the Norman Foster Foundation's Archive Galleries and Collections Hosted by the Education and Research Unit team
12:00 noon	Welcome by Norman Foster Library, Norman Foster Foundation
12:15 p.m.	Opening lecture by Edelio Bermejo and Nollaig Forrest Library, Norman Foster Foundation
1:00 p.m.	Workshop introduction by David Karpathakis Thalén Library, Norman Foster Foundation
1:15 p.m.	Scholars' presentations Library, Norman Foster Foundation
2:00 p.m.	Working lunch
3:00 p.m.	Working session Research Unit, Norman Foster Foundation
5:30 p.m.	'Providing a Home? The Benefits of Innovative and Sustainable Concrete in Emergency Shelters' by Christophe Levy Library, Norman Foster Foundation
6:15 p.m.	Open discussion Library, Norman Foster Foundation
6:30 p.m.	Coffee break
7:00 p.m.	Working session Research Unit, Norman Foster Foundation
8:30 p.m.	Welcome dinner Luzi Bombón, Paseo de la Castellana 35

Programme: Contents

Day 2

Tuesday, 7 June 2022

8:45 a.m.	Gathering Library, Norman Foster Foundation
9:00 a.m.	'From Hospitality to Inclusion: Santuario Frontera' by Estudio Teddy Cruz + Fonna Forman Library, Norman Foster Foundation
9:45 a.m.	Open discussion Library, Norman Foster Foundation
10:00 a.m.	Coffee break
10:30 a.m.	'Shelter as a People-centered Process rather than Design' by Elena Giral Library, Norman Foster Foundation
11:15 a.m.	Open discussion Library, Norman Foster Foundation
11:30 a.m.	Working session Research Unit, Norman Foster Foundation
2:00 p.m.	Working lunch
2:30 p.m.	Working session Research Unit, Norman Foster Foundation
5:00 p.m.	'Healthy Housing for the Displaced' by John Orr Library, Norman Foster Foundation
5:45 p.m.	Open discussion Library, Norman Foster Foundation
6:00 p.m.	Coffee Break
7:00 p.m.	Working session Research Unit, Norman Foster Foundation
8:30 p.m.	Light dinner and working session Working spaces will remain open until midnight

Programme: Contents

Day 3

Wednesday, 8 June 2022

8:45 a.m.	Gathering Library, Norman Foster Foundation
9:00 a.m.	Working session Research Unit, Norman Foster Foundation
11:30 a.m.	Coffee break
1:30 p.m.	Working lunch
2:30 p.m.	Working session Research Unit, Norman Foster Foundation
5:00 p.m.	'Works and Humanitarian Activities' by Shigeru Ban Library, Norman Foster Foundation
6:00 p.m.	Open discussion Library, Norman Foster Foundation
6:15 p.m.	Coffee break
6:30 p.m.	Transfer to Public Debates Paseo del General Martínez Campos 14
	Shelters Public Debates
6:35 p.m.	Registration and accreditation
7:00 p.m.	Welcome by Christophe Levy
7:05 p.m.	Keynotes by Elena Giral and Johan Karlsson
7:15 p.m.	Conversation between Elena Giral and Johan Karlsson
7:25 p.m.	Question-and-answers session
7:30 p.m.	Conversation between Shigeru Ban and Norman Foster
7:50 p.m.	Question-and-answers session

Programme: Contents

Day 4

Thursday, 9 June 2022

8:00 p.m. **Transfer to Norman Foster Foundation**

8:30 p.m. **Light dinner and working session**
The Foundation's working spaces will remain
open until midnight

8:45 a.m. **Gathering**
Library, Norman Foster Foundation

9:00 a.m. **'Humanitarian Design: When Visions Collide with
Practice and What to Do About It' by Johan Karlsson**
Library, Norman Foster Foundation

9:45 a.m. **Open discussion**

10:00 a.m. **Coffee break**

10:30 a.m. **Mid-week review and working session with Mentor**
Research Unit, Norman Foster Foundation

2:00 p.m. **Working lunch**

2:30 p.m. **Working session**
Research Unit, Norman Foster Foundation

4:30 p.m. **Coffee break**

8:30 p.m. **Light dinner and working session**
The Foundation's working spaces will remain
open until midnight

Programme: Contents

Day 5

Friday, 10 June 2022

8:45 a.m.	Gathering Research Unit, Norman Foster Foundation
9:00 a.m.	Scholars' presentations rehearsal Research Unit, Norman Foster Foundation
10:30 a.m.	Presentations and open discussion with the Mentor and Academic Body Research Unit, Norman Foster Foundation
12:30 noon	Brunch and feedback interviews Kitchen, Norman Foster Foundation
6:00 p.m.	Transfer to culture and arts visit
6:30 p.m.	Culture and arts visit Reina Sofia Museum's highlights and collections

Seminars

Monday
6 June, 12:15 p.m.

Opening Lecture
Nollaig Forrest and Edelio Bermejo

We must demonstrate innovative approaches to sustainable development. The Holcim Foundation for Sustainable Construction is here to generate innovation and transferability on all facets of sustainability, striving to amplify the momentum of sharing and collaborating for positive global change.

Holcim, the sponsor company of the Foundation, understands the limits of the current linear take-make-dispose economy. We need solutions to lead the transformation towards a circular economy that optimises management of materials and resource flows, and change our modes of production and consumption. Holcim and its Foundation want to accelerate the law of diffusion of innovation across projects and services, and speed up the positive changes we need.

Monday
6 June, 5:30 p.m.

Providing a Home? The Benefits of Innovative and Sustainable Concrete in Emergency Shelters
Christophe Levy

According to the United Nations High Commissioner for Refugees (UNHCR), the number of displaced people globally surpassed 84 million in mid-2021—more than the population of Germany. This doesn't include the millions who fled their homes in the current tragedy unfolding in Ukraine. Beyond crises caused by war, weather-related events have also caused many displacements, and a worsening climate crisis could make numbers worse.

This brief introduction serves to highlight the global need for emergency shelter. The challenge is to generate new solutions that are affordable and quick-to-assemble, and capable of disassembly, reuse and recycling. While these are important points, we must not forget that solutions will be homes to real people who may have seen and experienced unimaginable trauma. The right to shelter should be framed by concepts of dignity, respect, comfort, wellbeing, security and, perhaps, even the starting point for healing.

Concrete may not immediately spring to mind when it comes to constructing emergency shelters. It does, however, bring valuable properties to the discussion. It is locally available around the world, durable, versatile and resilient—important qualities when shelter that protects against and provides comfort in increasingly extreme climates is needed. Concrete also continuously reinvents itself. Today, low-carbon solutions include lightweight, easy-to-assemble prestressed concrete elements, sprayed concrete domes, fibered concrete insulation, textile-concretes, cement-based soil stabilisation and much more.

With smart design and technologies like 3D printing, it can be used only where needed, building more with less. That's not to say that integrating concrete into emergency shelter solutions is an easy task; however, the value gained by doing so could be significant and, perhaps, the difference between providing shelter and offering a home.

Tuesday
7 June, 9:00 a.m.

From Hospitality to Inclusion: Santuario Frontera
Estudio Teddy Cruz + Fonna Forman

Fonna Forman and Teddy Cruz will discuss their research-based political and architectural practice at the San Diego–Tijuana border, and explore Santuario Frontera, a migrant sanctuary project currently under construction which moves 'beyond hospitality to inclusion' by embedding refugee housing in an infrastructure of social, economic and cultural support.

Tuesday
7 June, 10:30 p.m.

**Shelter as a People-centered Process rather than Design:
Things I Wish I'd Been Taught in Architecture School**
Elena Giral

A recurrent problem when we think about shelter is that we think about 'what'. Instead, we should be thinking about 'who' and then 'how'. In this seminar, Elena Giral will argue that providing shelter is a process full of complexities in which design should not be at the centre of the discussion; people should be. Through her mixed experience as an architect and as a humanitarian and shelter project manager, she will share some practical experiences to show that shelter is much more than 'just a roof', while also highlighting some of the greatest risks of shelter done wrong.

Emergency shelter involves a wide range of stakeholders, most of which have no design knowledge. Giral will introduce the rescEU emergency shelter project and the job of the European Civil Protection and Humanitarian Aid Department of the European Commission (EC) to illustrate how emergency project management works.

This session will try to reconcile the enormous complexity of the world of emergencies with that of design and architecture. Giral will argue that both worlds still need to learn a lot from each other, and that, above materials, design or logistics considerations, it is people that should be at the centre of our response.

Tuesday
7 June, 5:00 p.m.

Healthy Housing for the Displaced
John Orr

Given the diversity of potentially available building materials, climates and cultures, there is no single shelter solution, but rather a need for a systematic process of design that is cognisant of the climate, landscape, culture and length of time accommodation might be needed, that has flexibility as family size changes and that is portable. In this lecture, a design process developed during the Engineering and Physical Sciences Research Council (EPSRC)-funded project, 'Healthy Housing for the Displaced' will be discussed. The project aimed to create a new science of shelter design through engagement with aid agency staff in four countries with diverse weather, cultural conditions and political sensitivities. This involved wide-scale social and indoor environment surveys, the construction of a series of potential designs in the United Kingdom and the production of a multilanguage, extreme climate-building, physics-based and culturally sensitive shelter design tool for agency field staff. This lecture will also consider how embodied and operational carbon considerations can be built into the design process.

Wednesday
8 June, 5:00 p.m.

Works and Humanitarian Activities
Shigeru Ban

In this lecture, Shigeru Ban will explore the process of finding balance between the activities of creating projects and making social contributions as an architect.

Thursday
9 June, 9:00 a.m.

Humanitarian Design: When Visions Collide with Practice and What to Do About It
Johan Karlsson

Humanitarian design and architecture classes have become a standard component of design schools across the world. From an academic viewpoint, the challenge is attractive. It requires that we reconceptualise the essence of our practice. What makes a home? From a social perspective, is there a common denominator across cultures or shall we merely focus on the task—provision of a shelter? Add to this the many practical design challenges, including easy installation, rapid deployment, creative use of materials, et cetera, and we have a five-week course module—and perhaps even CSR project—for the socially-conscious architecture firm. For humanitarian shelter practitioners, the perspective is most often different.

Prefabricated shelters are typically expensive, do not contribute to local labour and employment and are seldom culturally appropriate or functional. Even worse, prefabricated designs often spell 'c-a-m-p-s'... the temporary containment of families without any political incentive to become sustainable settlements or cities. Local reconstruction is the preferred and proven method; yet, in many of the major displacement situations of today, the palette of options is limited. Local supply chains are not functional and populations on the move are large.

The average duration of displacement is twenty-six years, yet the planning horizon is often twelve months or less. Through the lens of a humanitarian design practitioner, this lecture will highlight the many well-intended, but often incorrect assumptions that designers and architects have, as well as the limitations of standard shelter programming. Finally, the discussion will turn to how, as designers, we may navigate the complex field to create solutions that are relevant throughout the duration of displacement.

Lectures and Visits

Friday
10 June, 6:30 p.m.

Reina Sofía Museum

Guided tour of museum's highlights and collections

The Museo Nacional Centro de Arte Reina Sofía is Spain's national museum for twentieth-century art. The museum was officially inaugurated on 10 September 1992 and is named after Queen Sofía of Spain. It is located near the Atocha train and tube stations at the southern end of the so-called 'golden triangle of art'.

The museum is mainly dedicated to Spanish art. Highlights of the museum include excellent collections of Spain's two greatest twentieth-century masters: Pablo Picasso and Salvador Dalí. The Reina Sofía Museum also hosts a free-access library specialising in art, with a collection of over 100,000 books, over 3,500 sound recordings and almost 1,000 videos.

The central building of the museum was once an eighteenth-century hospital. Extensive modern renovations and additions to the old building were made at the beginning of the 1980s. In 1988, portions of the new museum were opened to the public mostly in temporary configurations. That same year, it was declared a national museum by the Ministry of Culture. In 1989, Ian Ritchie radically changed its architectural identity with the addition of three glass circulation towers. An extension and renovation of the existing museum, including two temporary exhibition spaces, a five-hundred-seat auditorium, a bookshop, a cafeteria, a restaurant and administrative offices, designed by French architect Jean Nouvel, opened in October 2005.

During the guided tour, scholars will visit some of the museum's highlights such as Pablo Picasso's masterpiece, *Guernica*, to get an insight of Spanish art and culture from the last century.

Reading List

Books

Shigeru Ban and Riichi Miyake, *Paper in Architecture*, (New York: Rizzoli, 2009)

Shigeru Ban and Álvaro Siza, *Great Spaces Small Houses*, (Links International, 2005)

Teddy Cruz and Fonna Forman, *Spatializing Justice: Building Blocks* (Cambridge: MIT Press / Berlin: Hatje Cantz, forthcoming)

Teddy Cruz and Fonna Forman, *Socializing Architecture: Top-Down / Bottom-Up* (Cambridge: MIT Press / Berlin: Hatje Cantz, forthcoming)

Jun'ichiro Tanizaki, *In Praise Of Shadows* (London: Vintage Classics, 2001)

Papers

William P. Boshoff, Tim Ibell, Amila Jayasinghe and John Orr, Minimising Embodied Carbon in Reinforced Concrete Beams, *Elsevier: Engineering Structures*, Vol. 242, September 2021

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Teddy Cruz and Fonna Forman, 'Access all Areas: the Porosity of a Hostile Border', *Architectural Review*, pp. 18-23, May 2019

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Watching List

Teddy Cruz and Fonna Forman, 'Nation against Nature: From the Global Border to the Cross-Border Commons', *Architectural Design*, 90, 114–19, January 2020
Fonna Forman, 'Unwalling Citizenship', in *Democratic Multiplicities: Perceiving, Enacting and Integrating Democratic Diversity* (Cambridge: Cambridge University Press, 2022)

Elena Giral Alonso, 'Architecture for the People: the Role of Education and Participation on Preserving Architecture and Heritage', *International Journal of Science*, June 2017

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Alastair Gordon, 'A Sanctuary Takes Shape, Framed Around Migrants', *New York Times*, September 2021

'Prouvé in Tijuana: Architect Teddy Cruz and Political Theorist Fonna Forman, with Cultural Historian Robert M. Rubin and Critic Alastair Gordon', *Gagosian Quarterly*, 2020

Märta Terne, Christian Gustafsson and Johan Karlsson, 'The Diversity of Data Needed to Drive Design', *Forced Migration Review*, Vol. 55, June 2017

Shigeru Ban, 'Emergency Shelters Made from Paper', TED, August 2013

Shigeru Ban, 'Paper Architecture', World Economic Forum, March 2015

Teddy Cruz, 'How Architectural Innovations Migrate Across Borders', TED, February 2014

Teddy Cruz and Fonna Forman, 'Teddy Cruz and Fonna Forman', Columbia GSAPP, February, 2021

Fonna Forman, 'Climate Solutions Collective 2020 Summit', The Qualcomm Institute, March 2020

Fonna Forman, 'Fonna Forman on the Ongoing Migration Crisis on the US-Mexico Border', Norman Foster Foundation, April 2021

Johan Karlsson, 'Innovative Design – A Winding Path', TEDx Talks, December 2017

John Orr, 'Sustainability in the Built Environment – Panel Discussion', The Institution of Structural Engineers, December 2021

John Orr, 'Technical Lecture Series: Minimising Energy in Construction', The Institution of Structural Engineers, December 2018

'Structure by Better Shelter: Up and Down in an Hour', Better Shelter, October 2021

'Ukraine: The Humanitarian Catastrophe', Harvard T.H. Chan School of Public Health, March 2022

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Museo Nacional Centro de Arte Reina Sofía, Madrid, Spain

Politecnico di Milano, Milano, Italy

Universidad Politécnica de Madrid, Madrid, Spain

University College London (UCL), London, United Kingdom

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