



IABSE

Symposium Manchester

2024



CONSTRUCTION'S ROLE FOR A WORLD IN EMERGENCY

10-12 APRIL, 2024

The Business School,
Manchester Metropolitan University

FINAL INVITATION



Message from the President

Welcome to IABSE Symposium, Manchester 2024.

The International Association for Bridge and Structural Engineering (IABSE) was founded in 1929 and will be celebrating 95 years when we come together in Manchester for this exciting event. With its seat in Zurich, IABSE exists to promote the exchange of knowledge and advance the practice of structural engineering worldwide in the service of the profession and society.

Our members deal with all aspects of structural engineering – all types of structure, all construction materials and all aspects in the life of structures, from the early planning and design stages through to operation, maintenance and final decommissioning, demolition or re-purposing. Coming together in Manchester, with its unique industrial heritage and rich history of recent regeneration, reconstruction and economic growth, we anticipate a lively and informed debate on the key issues affecting the construction industry today. Responding to the climate emergency to address the radical changes necessary in the way society plans for our future is the most pressing issue of our time. The construction industry has a major role to play in finding the solutions to this urgent challenge, and as a result it is expected that a large number of international delegates drawn not only from IABSE's members but also more widely, will converge on Manchester in April 2024.

In addition to organizing conferences and technical meetings, IABSE also encourages and conducts continuing education programmes, and publishes highly respected reports, communications and periodicals with a wide circulation. It also identifies research and development needs, initiating and supporting research activities, and confers awards for outstanding structural engineering achievements.

This Symposium in Manchester promises to be a very successful event, following on the heels of previous highly successful IABSE conferences in the UK in London in 2011 and in Bath in 2017. I am looking forward to it with great anticipation, and hopefully to meeting you there.

Dr Tina Vejrum

President, IABSE





Message from the Organising and Scientific Committees

The climate emergency is the biggest single crisis affecting all life on this planet that has occurred for centuries. Opinions differ as to the extent and severity of the crisis, but there is no doubt that the world is going through extraordinary and traumatic climatic changes brought about largely by mankind's ill-considered actions since the industrial revolution. As we know, construction contributes a considerable part of the problem in the form of greenhouse gas emissions which lead to global warming of the planet, and as those involved and partly responsible for those contributions, we have a vital role to play in turning the situation around and finding the right solutions to prevent global catastrophe. What is clear is that just making minor adjustments to a business-as-usual approach to design and construction will be nothing like enough. Radical changes are needed across the whole spectrum of construction sector activity, and these will not be easy to implement. But such changes are certainly needed, and they are needed fast.

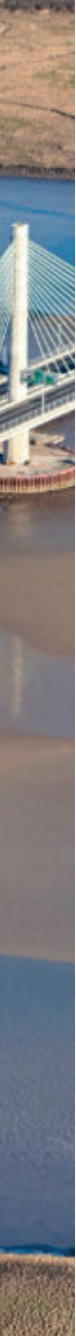
This IABSE Symposium in Manchester in April presents an important and timely opportunity for engineers, architects, contractors, researchers, clients and others to get together to exchange views and opinions, hear from international industry experts, and engage in debate and discussion to address the enormous challenges we face. Construction professionals may have been partly responsible in the past for laying the foundations of the emergency we now face, but they are also absolutely key to finding the solutions and new technologies that must be adopted now if our children are going to enjoy a better future.

We hope that as a result of attending this Symposium, delegates will be better informed and better equipped to address the enormous challenges we face in designing, constructing, operating and maintaining buildings and structures to achieve the vital low carbon outcomes that we know are essential for a sustainable future.

On behalf of IABSE we look forward to welcoming you to Manchester in April to participate in this memorable and significant Symposium.

Professor David Nethercot, **Chair of the Scientific Committee**

Ian Firth, **Chair of the Organising Committee**



Symposium Format

The Symposium is a 3-day event comprising keynote lectures, oral presentations and special sessions, bringing together students, designers, contractors, clients, experts and others from around the world to exchange knowledge, explore ideas and engage in professional networking. Keynote speakers will introduce topics relevant to the overall theme and give lectures in plenary sessions. The majority of the presentations will be delivered orally in normal sessions arranged in four parallel streams. In addition, some special sessions will take place, some of which will be in workshop/seminar style format and there will be some industry sessions led by some of our sponsors and exhibitors from the accompanying trade exhibition.

In all sessions, delegates are encouraged to contribute through the open-floor discussions that follows each presentation or group of presentations. Audience participation is strongly encouraged to generate genuine debate and discussion.

Who Should Attend?

Professional civil and structural engineers, architects, clients, contractors, academics and students, and all those engaged in the design, construction, management and maintenance of our built environment. Anyone who is concerned about construction's negative environmental impacts on the planet and keen to find lasting and wide-ranging solutions to the climate emergency should attend this symposium.

Social Programme

There will be a Welcome Reception for all delegates and accompanying persons at 18:00 on the 10th April at the symposium venue, and a Gala Dinner will be held at the famous Science and Industry Museum on 11th April, starting at 19:00. A separate programme of events for young delegates will also be arranged.

Theme and Topics

The overall theme of the Symposium is Construction's Role for a World in Emergency, and there are six sub-themes or topic headings into which the papers will be grouped and presented:

1. Designing and building for net zero
2. Regeneration, rehabilitation and adaptation of existing structures
3. Designing for longevity, resilience and extreme events
4. Reducing waste - productivity, efficiency and resource economy
5. Smart Structures - designing responsive, adaptive & progressive solutions
6. The essential value of competence, professionalism and ethics





Outline Programme

The full technical programme of presentations and seminars in plenary and parallel sessions is under preparation and will be published shortly. An outline programme is included below.

Wednesday 10 April			Thursday 11 April			Friday 12 April		
Technical Programme	Tours & Visits		Technical Programme	Tours & Visits		Technical Programme	Tours & Visits	
Registration								
Opening Ceremony 2 Keynote Lectures			Plenary discussion 2 Keynote Lectures	Technical Tours	Accompanying Persons Cultural Visit	Parallel Sessions (Presentations & Industry Sessions)	Technical Tours	Accompanying Persons Cultural Visit
Tea/coffee break		Tea/coffee break				Tea/coffee break		
Parallel Sessions (Oral presentations)		Parallel Sessions (Oral presentations)		Parallel Sessions (Presentations & Special Sessions)				
Lunch		Lunch		Lunch				
Parallel Sessions (Presentations & Special Sessions)	Technical Tours	Parallel Sessions (Presentations & Special Sessions)	Technical Tours	Parallel Sessions (Oral presentations)				
Tea/coffee break				Tea/coffee break				
Parallel Sessions (Oral presentations)		Parallel Sessions (Oral presentations)		Keynote Lecture Closing Ceremony				
Rapid Fire Presentations								
Welcome Reception		Gala Dinner						
YEP Programme		YEP Programme						

Keynote Speakers

Speaker	Topic
 <p>Will Arnold Head of Climate Action Institution of Structural Engineers</p> <p>Will is a Fellow and staff member of The Institution of Structural Engineers, responsible for bringing sustainability into all aspects of the institution's work. He is well-known for his work on embodied carbon policy in the UK, including on Part Z and the UK Net Zero Carbon Buildings Standard.</p>	<p>Engineering in an Emergency</p> <p>In 2023, the world practically hit 1.5°C temperature rise. We have lost two thirds of global wildlife and are struggling to bring global society above the poverty line. Meanwhile the damage done by construction materials is clear: 15% of global emissions, 50% of resource extraction, 30% of waste generation.</p> <p>Yet across material supply chains, 'easy wins' continue to be disproven, and a lack of emergency funding makes it unlikely that we will see meaningful change in this decade. Digital technologies, MMC and AI continue to be touted as the saviours of material reduction, yet we have had decades of such advances, and today's structures are more inefficient than ever.</p> <p>We must do better than small steps. We must go back to basics and find ways to radically reduce material use on every single project, not just the exemplars. We must report, scrutinise, and hold each other accountable for the damage we are inflicting on the climate, our ecosystems, and global societies. We must treat all living beings with equal sanctity, not as things to balance against the demands of our paying clients.</p> <p>And we must start this today.</p>

Speaker	Topic
 <p>Savina Carluccio Executive Director International Coalition for Sustainable Infrastructure</p> <p>Savina is a global advocate of the role of civil engineers in tackling our society's biggest challenges. Over the last two decades she has advised governments, infrastructure owners and operators, multi-lateral development banks and NGOs to develop and implement sustainability and resilience in infrastructure. Prior to ICSI, she worked as an infrastructure advisor at Arup and was Head of Guidance and Standards at the Resilience Shift. She also serves a member of Institution of Civil Engineers' Advisory Board on sustainable and resilient infrastructure and of the ASCE Global Sustainability Planning Committee.</p>	<p>Engineers and climate action: are we rising to the challenge?</p> <p>Despite the overwhelming evidence that we are not doing enough, there is still substantial resistance to talking about the possibility of living in a world where we temporarily overshoot 1.5°C.' Debra Roberts IPCC Co-Chair WGII AR6.</p> <p>It is crucial for engineers to consider the implications of living in such a scenario, where common sense suggests that changes in critical natural systems may become irreversible. We must grapple with an escalating number of win-lose situations, and the disadvantaged and vulnerable will face an expanding array of risks and impacts. Navigating this world demands a fresh toolbox to preserve potential options; adhering to our what we know and have always done - now more than ever - will prove inadequate.</p> <p>The lecture will discuss the role of engineers in climate action. It will frame the challenges and opportunities for our profession to drive action, presenting examples of what is being done from the global engineering community. It will also set out what will be needed from engineers in terms of innovations, changing mindsets as well as the required skills, training and capacity building. Finally, it will argue that engineers should be bolder, louder and more visible in advocating for climate action.</p>

Speaker



Martin Knight **Founder and Managing Director** **Knight Architects**

Martin is one of the leading UK architects specialising in the design of bridges and transport infrastructure. He is a Fellow of the RIBA, IABSE and the Institution of Civil Engineers and an Honorary Fellow of IStructE.

He founded international bridge designers Knight Architects in 2006 and his award-winning practice has completed more than sixty bridges in the UK and internationally, with projects under construction in Finland, Germany, Poland, New Zealand, Norway, Sweden and the UK. Their approach to design has been hailed as exemplary by bodies including the National Infrastructure Commission and the Design Council in the UK and Baukultur Bundesstiftung in Germany.

Martin frequently serves as a client and industry advisor, including as member of the Design Review Panel of the Design Commission for Wales since 2006. He was appointed a UK Design Council Ambassador in 2021 and is a judge for the BCIA Awards and the Structural Awards.

Topic

Reasonable Skill. And Care

It is striking to see competence, professionalism and ethics included in the themes for a conference on the design of bridges and structures, where the content has historically been technical. Yet this human element is the vital accompaniment to the other themes of the IABSE Symposium in Manchester and they all combine if we are to address the overarching challenges of construction's role for a world in emergency.

Movement, and the transport infrastructure which facilitates it, is at the heart of how modern societies operate. It can generate powerful social benefit – creating identity, generating opportunity and bringing equity – but it must be conceived, planned, designed, and executed in a positive way to maximise these benefits for people and address negative effects upon the environment.

This ability to consider both the design itself and the user of the design will be vital in minimising the carbon footprint of our work and maximising its benefit to society. From the perspective of an architect in the world of engineering, the speaker will discuss what motivates us as designers and what is limiting the pace of change at a time of emergency. Using outstanding international examples as well as the work of his practice, he will explore the ethical dimensions of infrastructure design and the social value it can create, while discussing creative collaboration.

Speaker



Akio Kasuga **Executive Vice President and CTO** **Sumitomo Mitsui Construction**


Dr. Akio Kasuga has been designing and building many bridges and has developed many new bridge technologies. He received fib outstanding structures in 2006 and 2018, Trophy Eugene Freyssinet 2013 and Albert Caquot Prize 2021 from AFGC. He was the President of fib from 2021 to 2022. He was awarded as the Honorary President of fib in 2023.

Topic

Low carbon technologies to be challenged in the supply chain of concrete structures

Cement used in structural concrete accounts for 60% of all cement. Thus, the amount of CO₂ emission by cement in structural concrete in a year is about 5% of the amount emitted by mankind. However, the LCA of structural concrete emits CO₂ not only at the product stage but also at the use stage after construction. Carbon neutrality will be viewed from an economic point of view. Then a rough indicator is presented to grasp the CO₂ emissions of structural concrete. Also LCA of structural concrete should consider not only the materials but also the maintenance phase. And low-carbon technologies currently in use is introduced. Then the need for multi-cycle structural concrete with a circular economy is presented. Moreover, it is estimated that CO₂ emissions due to disasters in the use stage could be enormous. The carbon neutrality of concrete is not a risk but an opportunity for us.

Keynote Speakers

Speaker	Topic
 <p>Dervilla Mitchell CBE Director and Deputy Chair Arup</p> <p>Dervilla is a Civil Engineer with an illustrious career who started out as a structural design engineer and progressed to lead major building projects. Noteworthy projects span from Portcullis House and the London 2012 Athletes Village to smaller endeavours like Saga HQ and Goodwood Paddock redevelopment. Her aviation involvement includes designing terminal buildings at T5 Heathrow and T2 Dublin. Former Executive Chair of Arup's UK, India, Middle East, and Africa Region, responsible for over 6000 people and currently Deputy Chair of Arup Group. A decade on the Prime Minister's Council for Science and Technology shaped her commitment to the Net Zero agenda, and she currently chairs the National Engineering Policy Centre's decarbonizing group. Also active in promoting diversity in construction and encouraging youth to pursue engineering careers. Recognised with a CBE in 2014, she holds honorary doctorates from University College Dublin (2016) and Imperial College London (2021).</p>	<p>In plain sight?</p> <p>Engineering is everywhere and underpins so much of what we expect and need in our daily lives, yet engineers are not generally prominent in society and are perhaps not valued for the role they play.</p> <p>The speaker will reflect on the changing role of engineers, with a particular focus on the changes she has seen during her career; whether they be the way we work, the tools we use or the diversity in our workplaces.</p> <p>She will highlight the challenges and opportunities we face and look in particular at some of the ethical dilemmas as we need to navigate in a world where climate change remains a challenge and increasing use of technology requires us to adapt and change at an ever-increasing pace.</p>

Accompanying Persons Programme

Registered Accompanying Persons may attend the Welcome Reception on Wednesday 10th April and the closing ceremony on Friday 12th April.

Accompanying Persons are also welcome to attend the Gala Dinner on Thursday 11th April, and must purchase a ticket for this at the time of registration via the online registration form.

In addition, a programme of interesting cultural visits has been arranged for Accompanying Persons on each of the three days of the Symposium, and they are also welcome to join the Post-Symposium Tour to the Mersey Gateway Bridge on Saturday 13th April if they wish. Places for these must be reserved at the time of registration via the online registration form. Numbers are limited and places will be allocated on a first-come-first-served basis.

The three cultural visits are as follows:

1. Wednesday 10th April: Media City and Imperial War Museum, Salford.
2. Thursday 11th April: Historic City of Chester
3. Friday 12th April: Royal Horticultural Society Bridgewater Gardens.

Full details of these tours are available on the event website [here](#).





Young Engineers' Programme

Delegates registered as a Young Engineer (born in or after 1990) will be eligible to attend the full technical programme of the Symposium. In addition, a series of events especially intended for younger delegates will be arranged which will include:

1. A competition to make and test a simple model structure during the Welcome Reception.
2. A social event after the Welcome Reception to meet and greet other young delegates and some IABSE Fellows.
3. An opportunity to meet with an IABSE Fellow in a short one-to-one meeting to discuss career opportunities and personal professional development.
4. A social event on the evening of the Gala Dinner.

Full details of these will be made available to registered delegates.

In addition, young author-presenters are automatically eligible for the Young Engineer Paper Award to be presented at the Closing Ceremony of the Symposium. To be considered, the young person must be the principal author of the paper and must have delivered the presentation themselves at the Symposium.

Note that evidence of date-of-birth may be requested from Young Engineer registrants upon arrival at the Symposium.

Technical Tours


A programme of Technical Tours has been arranged to run in parallel with some of the sessions in the Symposium. These are as follows, and full details are available on the event website [here](#).

- | | |
|--|----------------------------------|
| 1. Manchester bridges guided walking tour. | Wednesday 13:30 and Friday 08:30 |
| 2. Etihad Stadium (home of Manchester City FC) and Co-Op Live. | Wednesday 13:30 |
| 3. Jodrell Bank Observatory. | Thursday 08:30 |
| 4. Viadux and St Michael's Net Zero Development. | Thursday 13:30 |
| 5. Graphene Engineering Innovation Centre. | Friday 08:30 |

Places for these tours must be reserved at the time of registration using the online registration form. Numbers are limited and places will be allocated on a first-come-first-served basis.

Post-Symposium Tour

A visit to the award-winning Mersey Gateway Bridge has been arranged for Saturday 13th April. This impressive cable stayed bridge between Runcorn and Widnes received the Outstanding Structure Award from IABSE in 2019. Full details are on the website [here](#), and places must be reserved at the time of registration using the online registration form. As with the other tours, numbers are limited and places will be allocated on a first-come-first-served basis.



Future of Design Conference, 9th April, 2024

Before the main IABSE Symposium kicks off, the IABSE British Group will be holding their notable “Future of Design” conference on the 9th April 2024 at Manchester Metropolitan University.

Future of Design is a conference for early career design professionals and students to engage with leading lights in engineering. Presentations, talks and workshops during the day-long conference will provide a unique platform to engage with influential and inspiring individuals on the design challenges that we face in the future.

Future of Design is a conference for early career design professionals and students to engage with leading lights in engineering. Presentations, talks and workshops during the day-long conference will provide a unique platform to engage with influential and inspiring individuals on the design challenges that we face in the future.

Further details on speakers and ticket sales will be released shortly via the IABSE British Group website:

<https://iabse.org.uk/event/future-of-design-manchester-2024>

Registration for the Future of Design conference is handled separately and not through the Symposium registration system. Visit the website above for registration details once available.



Venue and Location

The Symposium will take place at Manchester Metropolitan University, which is in Manchester City Centre, close to all main hotels, travel facilities and other amenities. The address is as follows:

The Business School,
Manchester Metropolitan University,
All Saints,
Manchester, M15 6BH,
United Kingdom.

The building can be found [here on Google Maps](#). Entry to the Symposium is on the south side of the building; just follow the IABSE signs.

With a population of 3 million, Manchester is a UK major city and the centre of the so-called Northern Powerhouse, developing industry, commerce, science, arts and culture in the north of England. It is the birthplace of the industrial revolution, and a leading centre for research into the technologies that will drive solutions to the worldwide climate emergency. As such, it is the ideal venue for this Symposium addressing Construction's Role for a World in Emergency.

Getting to Manchester

The nearest airport, for those arriving by air, is [Manchester International Airport](#), about 20 minutes from the city centre by train.

It is also possible to arrive at London Heathrow or Gatwick airports, take the train into London, and then transfer to take a train to Manchester Piccadilly station which is about 15-20 minutes' walk from the venue. Manchester Oxford Road station is the nearest train station to the venue; just 5 minutes' walk away.

Further information regarding travel options is available [here](#) on the event website, or from the [Visit Manchester](#) website.



Registration Fees

Registration fees are in GB Pounds Sterling, excluding VAT.

Registration Type	Early Bird (until 26th February)	Standard (27th February - 29th March)
IABSE Member ⁽¹⁾	580	660
Non-Member	680	760
Non-Member Plus ⁽²⁾	705	800
Young Person ⁽³⁾	300	350
Accompanying Person	90	110
Gala Dinner	115	115

Notes

- (1) *Collective Members of IABSE are entitled to two registrations at the IABSE Member rate. Contact your Collective Member representative to obtain the discount code to use during the registration process. Other registrants from Collective Members must register at the Non-Member rate.*
- (2) *The Non-Member Plus fee is for Non-Members who would like to become an IABSE member, and this fee includes one year IABSE Membership, making it a very cost-effective option. For more information about IABSE membership, please visit the IABSE official website or contact secretariat@iabse.org.*
- (3) *All participants born in or after 1990 will benefit from a reduced registration fee and are offered free one year IABSE Membership.*

Note that registration on the day will not be possible. Registration will close on 29th March, or earlier if the capacity of the venue is reached earlier. So register early to be sure of a place.

If a registered delegate wishes to cancel, this must be actioned either through the registration platform or via communication in writing to k.found@hgluk.com no later than midnight on Friday 1st March and a full refund will be given. After this time, the full amount will be chargeable.



IABSE Spring Meetings

The Spring Meetings of IABSE will be held immediately preceding the Symposium at the nearby University of Manchester. Details will be provided by IABSE staff in Zurich to those involved in these meetings.

Accommodation

A range of hotels have been identified within easy reach of the Symposium venue, and favourable rates have been negotiated through our partners, Successful Events. The main IABSE HQ hotel will be the Hyatt Regency which is just 5 minutes' walk from the venue, but arrangements with other hotels have also been made. Details can be found on the event website [here](#), and delegates are urged to book early to avoid disappointment.

Other accommodation options are available, with a large number of properties available nearby through Airbnb, for example.

Sponsors

GOLD



FREYSSINET

SILVER

COWI



BRONZE



DYSE

TYLin

SUPPORTERS



The Institution of
StructuralEngineers



Royal Academy
of Engineering

INTERNATIONAL MEDIA SPONSOR



OFFICIAL CHARITY



**Bridges to
Prosperity**

The official charity for the Symposium is [Bridges to Prosperity](#), who build, and facilitate the building, of pedestrian bridges in remote rural communities, making connections to create opportunity for millions of people for whom isolation is a root cause of their poverty. They will have a stand at the exhibition so go and find them to learn more about the amazing life-changing work they do.



Practical Information

Time Difference: The time in Manchester in April will be British Summer Time (BST) which is one hour ahead of Greenwich Mean Time (GMT).

Electricity: The electrical power supply in the UK is 240 volts. Standard sockets are type G with three rectangular pins. Check the details online if needed.

Currency: The UK currency is the British Pound, also known as Pounds Sterling. Foreign money can be exchanged at banks on business days as well as in hotels, at the airport and in bureaux de change. All major credit cards are accepted in most hotels, restaurants and shops. Automated bank machines are available at many points throughout the city and at the airport.

Language: The official language of the symposium is English.

Certificate of Attendance: A certificate of attendance will be provided to all registered participants.

Badges: Badges will be distributed at the registration desks upon arrival. Participants without badges will not be admitted to the symposium activities.

Letter of Invitation: Upon request, a letter of invitation will be sent to any registered participants. This letter will be sent solely to assist participants in obtaining leave to travel from their institution or organisation.

