



Annual Review

2022



Image –

Structural Awards joint Supreme Award Winner HYLO

© Sophie Lawrence

Welcome



It is a pleasure to introduce our 2022 Annual Review.

I joined the Institution as Chief Executive in April 2023 and have seen first-hand how the Institution develops and supports structural engineers worldwide to

create a safe and sustainable built environment. All our activities are underpinned by the core values of competence, accessibility, diversity, and community that flow from our Royal Charter.

The focus on safety led us to issue extensive guidance for our members to understand the Building Safety Act and meet the new regulations. CROSS, our confidential reporting system on structural safety, continued to expand and now encompasses fire safety as well as structural safety. The number of freely accessible safety reports published continues to increase over the years.

Sustainability is redefining many professions including structural engineering. We continue to advocate for climate action, providing the expert guidance and having the necessary debates to bring about change. Our Climate Emergency Task Group's energy and focus is commendable as can be seen in their [year-end report](#).



We revised the judging criteria for our flagship Structural Awards to better reflect the incredible work that structural engineers around the world are delivering in response to emerging issues in construction. We also embedded changes to place the climate emergency at the heart of the curriculum for our future engineers.

Throughout the year, we have supported our members at different stages of their careers by providing cutting-edge courses and a number of resources. This includes the insightful articles in *The Structural Engineer* on topics from embodied carbon to seismic design.

I would like to finish by thanking my predecessor, Martin Powell, who was the Institution's Chief Executive for fourteen years and played a pivotal role in its achievements to date.

I feel proud and privileged to be part of this Institution and I look to the future with great optimism and enthusiasm. I hope you enjoy reading this overview of an excellent 2022.

Yasmin Becker

Chief Executive

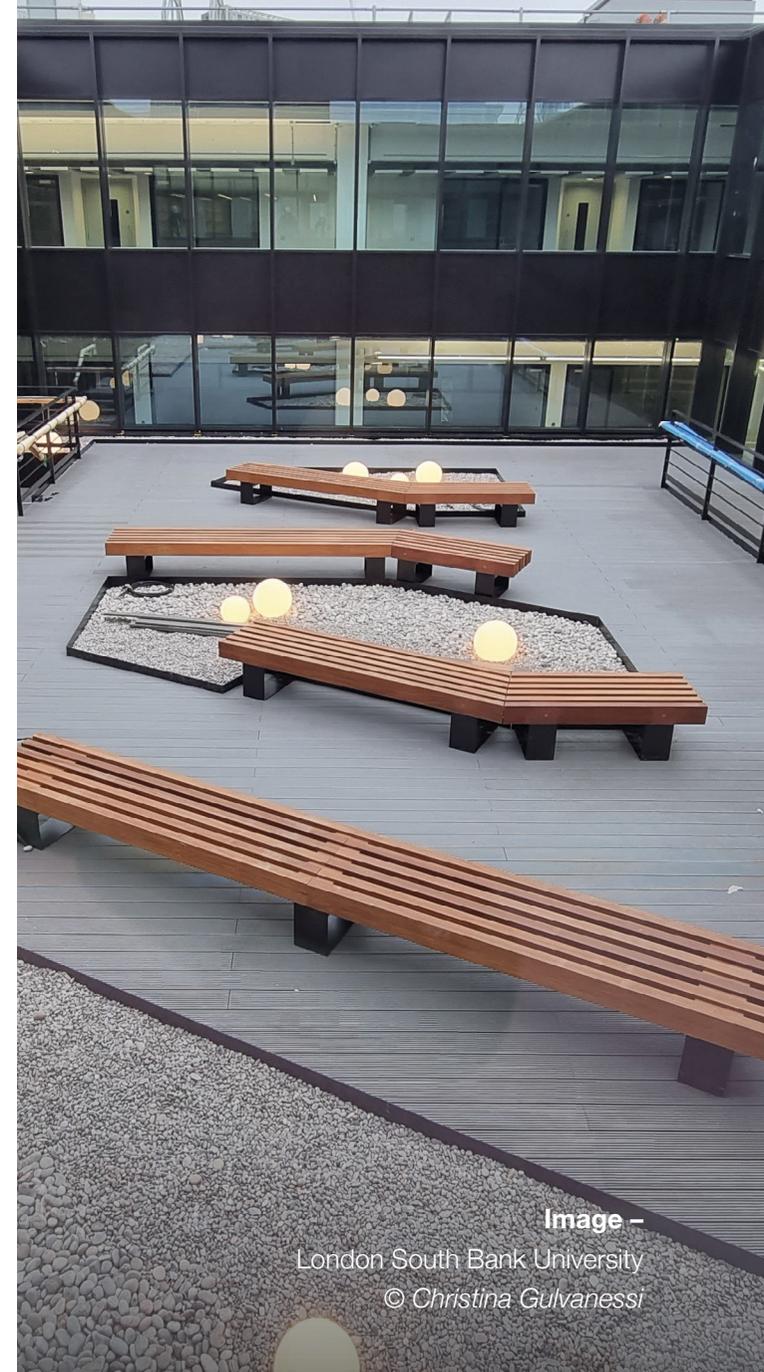


Image –
London South Bank University
© Christina Gulvanessi

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About us

The Institution is the world's largest international membership organisation dedicated to structural engineering. We are a charity established by Royal Charter, accountable to our Board of Trustees and advised by an elected Council. We are proud of our heritage but have our sights firmly set on the future as we support structural engineers across the world.

Professional membership is a leading global benchmark of competence and technical excellence. Members undergo rigorous technical assessment. We support them in this through career-long development and learning.

We provide a voice for our members, promoting their contribution to society as innovative, creative problem solvers and the guardians of public safety. Structural engineers also have a crucial role to play in responding to the climate emergency.

We recognise both the breadth and depth of the needs of our members. We help engineers come together and share knowledge and ideas in a variety of ways, including face to face events, digital platforms and social media.

We are inclusive. No one with the aspirations and ability for a career in structural engineering should encounter any barriers. We constantly review our routes to membership to provide flexibility in the application and examinations process, offering more choice for all our candidates.

Our principles

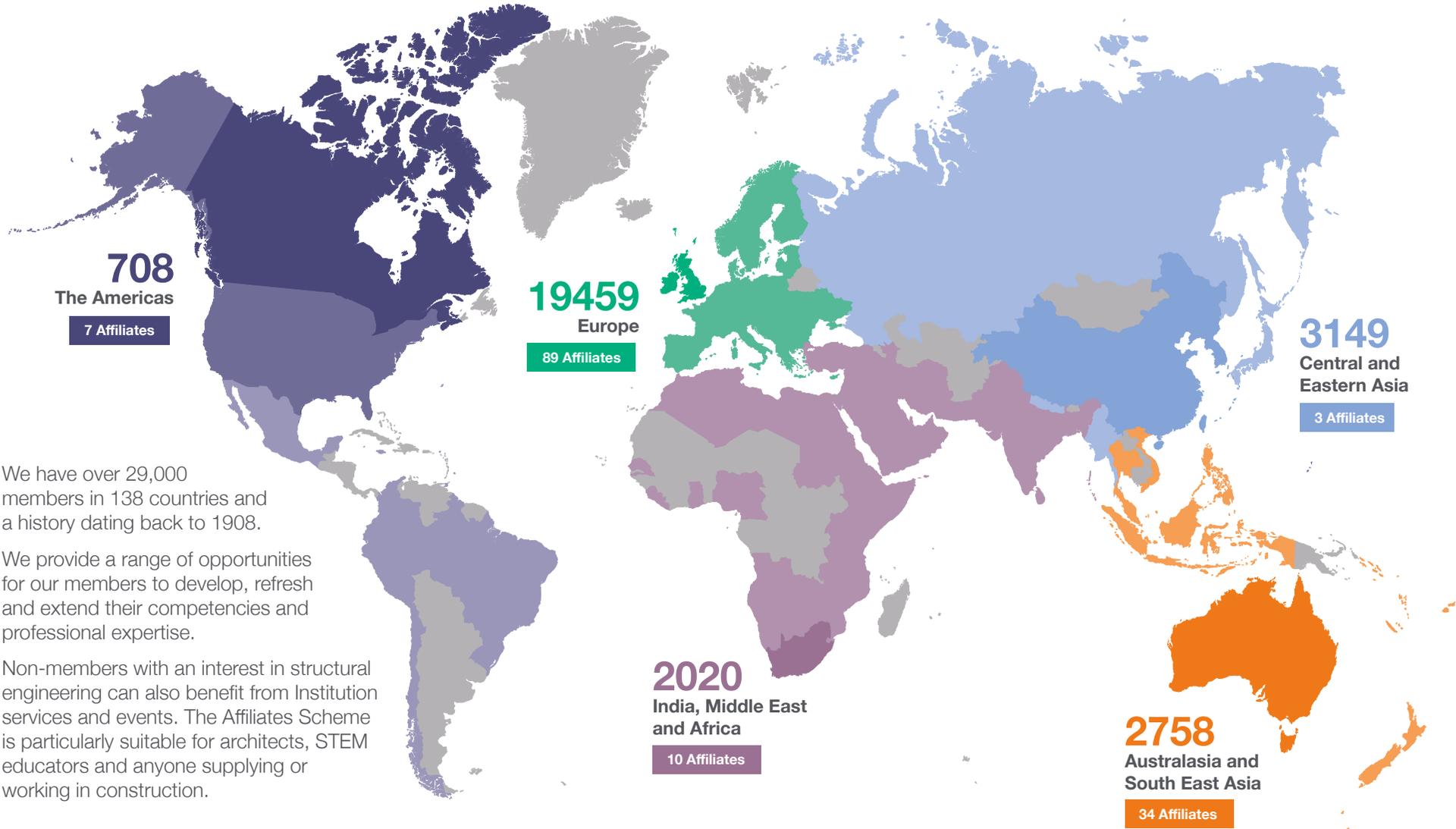
- We are committed to exemplary **professional standards**
- We **respect** our members
- We **champion** the profession
- We are passionate about a **sustainable** built environment for all
- We are **inclusive**
- We **recognise** and **celebrate** the most talented structural engineers
- We are **collaborative**
- We are truly **international**



Image –
United Nations new office building
© Fadi Asmar

Worldwide membership

Countries where the Institution has most members are represented on this map in the darkest shades.



We have over 29,000 members in 138 countries and a history dating back to 1908.

We provide a range of opportunities for our members to develop, refresh and extend their competencies and professional expertise.

Non-members with an interest in structural engineering can also benefit from Institution services and events. The Affiliates Scheme is particularly suitable for architects, STEM educators and anyone supplying or working in construction.



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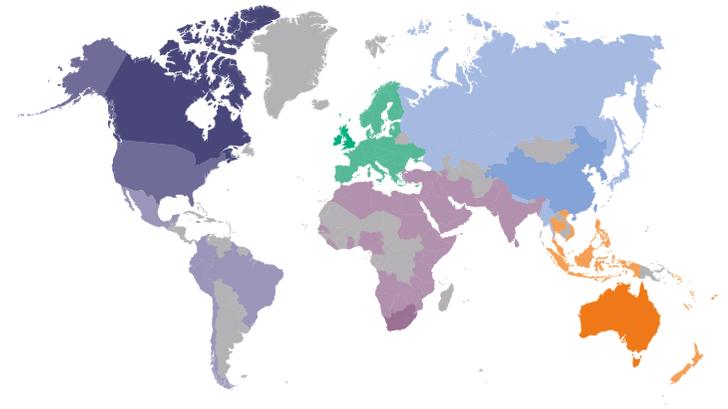
total members and affiliates



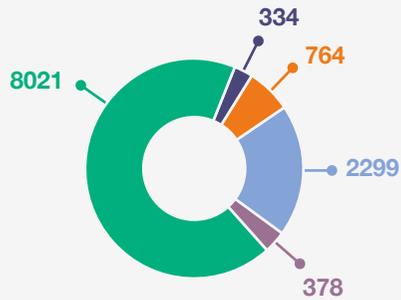
23747
male members



4364
female members
(14.89% of membership)



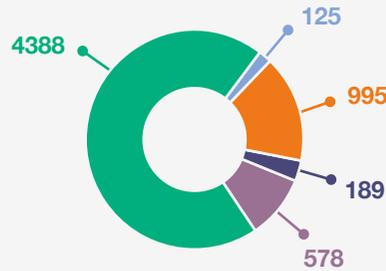
Member grade by region



12107

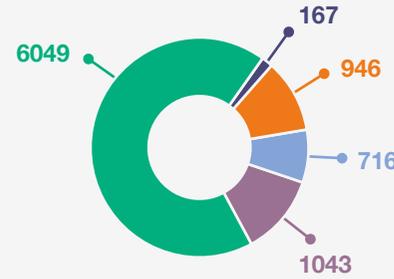
chartered members

(Fellows, Members and Associates)



6888

student members



9296

graduate members

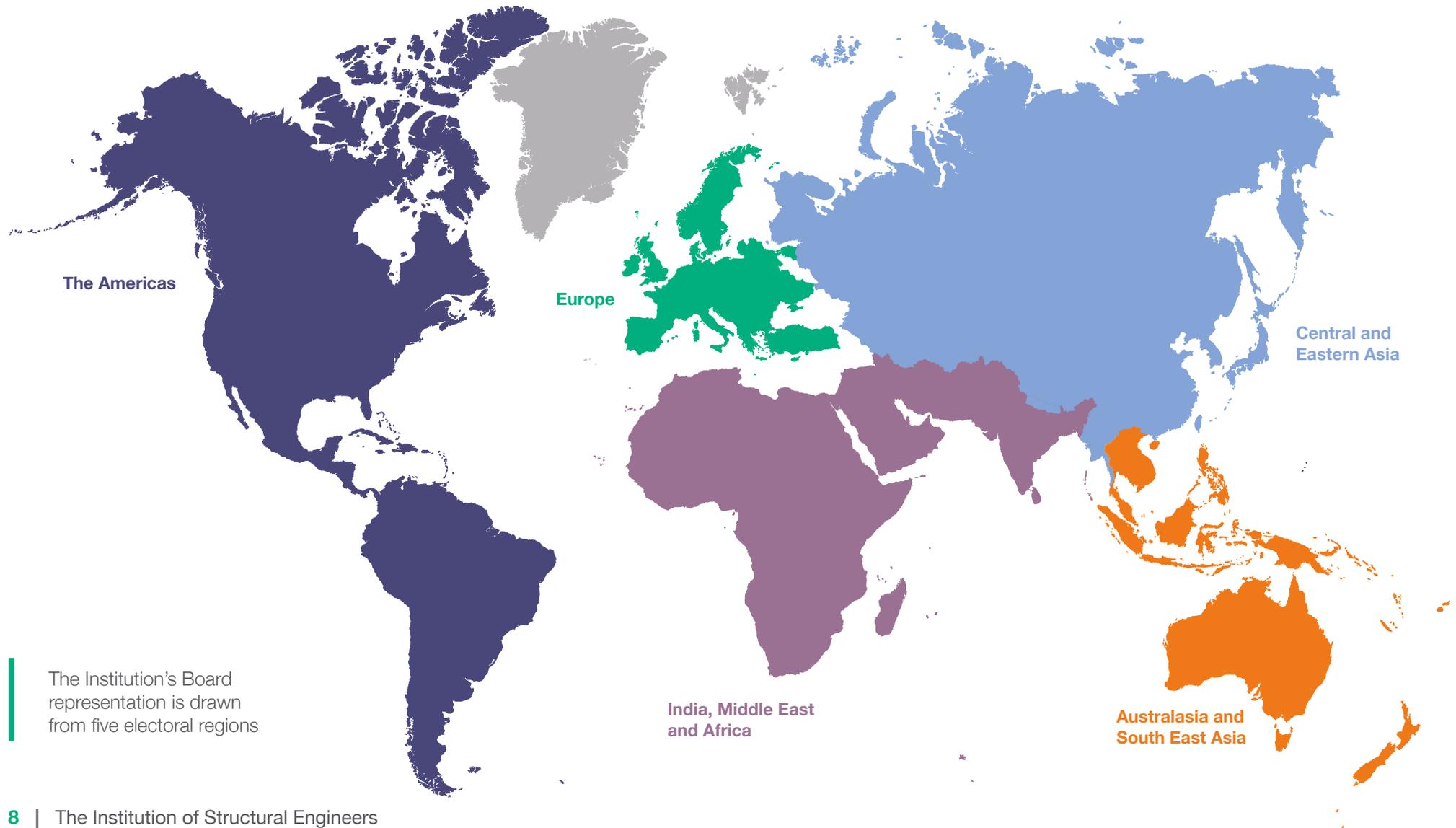


1176

other members
and affiliates

This report counts active memberships as of 1st January 2023. It counts all Grades, including Affiliates.

An international Institution



The Institution's Board representation is drawn from five electoral regions

Trustee Board Members 2022

Europe

Peter Terrell 

Keith Williams 

Don McQuillan 

Matt Byatt 

Ed Clark 

Toby Robinson 

Jane Entwistle 

Kate Leighton 

Australasia | SE Asia

Brian Uy 

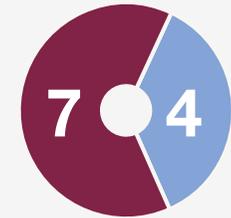
The Americas

Tanya de Hoog 

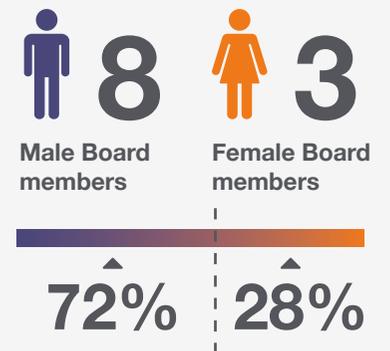
India | Middle East | Africa

Mohamad Al-Dah 

IStructE Board statistics



- Board members based in the UK
- Board members based outside the UK



Competence and excellence

The Institution's strategy is founded on competence, community and inclusivity – principles that are at the core of everything we do.

The Institution has a long tradition of setting the highest standards in terms of educational, training and professional assessment requirements. We review and update these standards on a regular basis to ensure that our Professional Review Interview and examinations remain challenging and relevant to the profession. In 2021 we agreed changes to our Professional Review requirements to reflect changes within the profession and the increased focus on sustainability. These changes will be introduced in 2023.

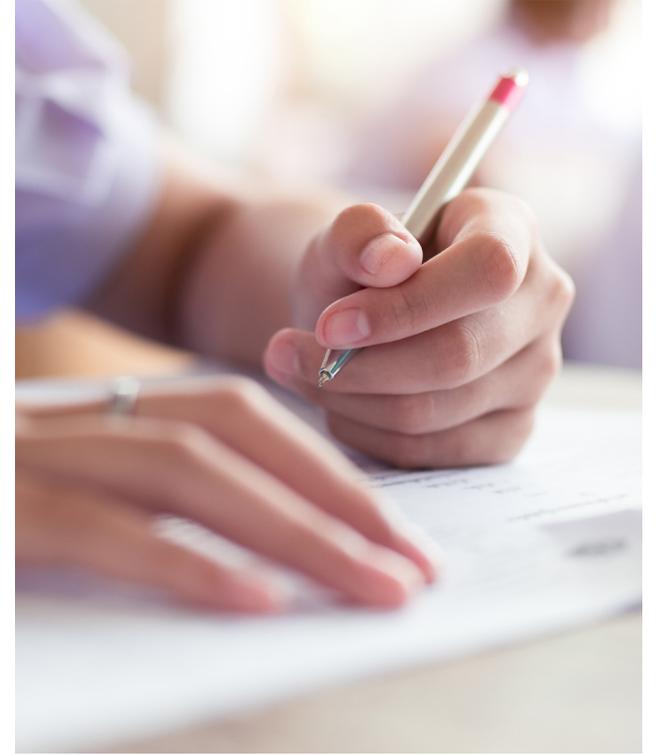
We also reviewed inclusivity in our routes to membership, along with the need to recognise competence when it has been gained. The introduction of the GIStructE designation was the first step in this process. This designation is awarded to Graduates who have passed the Certificate in Structural Behaviour – a two-hour online examination which assesses an engineer's understanding of fundamental structural theory. The Certificate is an internationally recognised mark of competence, which gives access to the GIStructE designation, improves employability and contributes to the professional qualification journey.

We also approved a route for Graduate members who have satisfied the Chartered academic base and Professional Review Interview to become Associates (AIStructE) of the Institution. Associates will be able to register with the Engineering Council as a Chartered Engineer (CEng). This is an opportunity for experienced, competent, Graduates to become professionally qualified before progressing to the Chartered Membership Examination and the Member (MIStructE) grade. The route recognises the competence of people that have passed the Chartered Professional Review Interview. It also increases accessibility and provides a grade for people working in parts of the profession that are not included in the Examination.

Providing Initial Professional Development - for those working towards professional qualifications - and Continuing Professional Development - for those who have reached this milestone - is an essential part of our Learned Society activities. By providing resources in areas such as structural safety, climate change, digital and fire engineering, we can help our members develop, refresh and extend technical and professional competencies.

We lead in best practice and industry standards and collaborate with other industry experts and national/international organisations to share the latest developments in the profession. In 2022, the Institution was heavily involved in the development of guidance around the UK Building Safety Act. This guidance will play an important part in raising standards both in the UK and throughout the world.





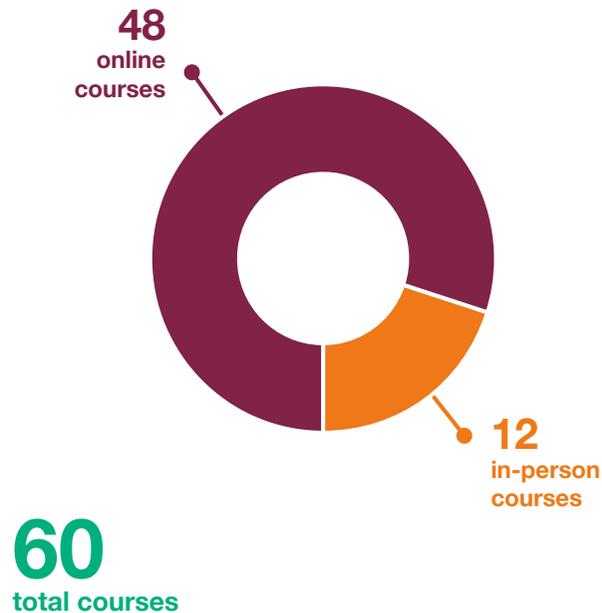
Convenient flexible learning choices

Keeping abreast of technical and professional developments is essential for any professional. The Institution offers many resources to benefit both members and non-members. These are useful to structural engineers but also to other professionals working in the construction sector, teachers looking to inspire future generations, researchers, or those that are new to the industry.



Courses

Our CPD course programme offers a range of training to support practitioners at every stage of their professional career. In 2022, we ran 60 courses, most of which were delivered online, although many were delivered directly to organisations in-house. New additions to the programme in 2022 offered practical training on the key topics of net-zero structural design, rapid calculations and resilience.



Events

Members have access to a broad programme of events, including research, practice, education, and technical lectures. Regional Groups also have programmes tailored to local audiences and their needs. We also support events run by affiliates, providing insight from across the built environment. In 2022 our Events team planned and delivered 31 events with a total of more than 5000 attendees. The Institution as a whole ran 313 events.

31
HQ managed events



5000
attendees



282
Regional Group Events



Library

The Institution's Library houses one of the UK's finest printed structural engineering literature collections. Following the Covid closure, the Library re-opened to visitors in February 2022. The Library staff responded to 992 literature-based enquiries, with books, standards and reports available to loan in-person or by post, with 79 new books and standards purchased for the collection.

E-library

The Library continues to focus on providing members with access to digital material. 66 new e-books were purchased, taking the total to 521 by the end of the year. The E-library received just under 21,000 access requests - down on 2020 and 2021 (when for a large part of the time only the E-library service was available) - but up 9% on 2019, the last full pre-pandemic year.

E-library



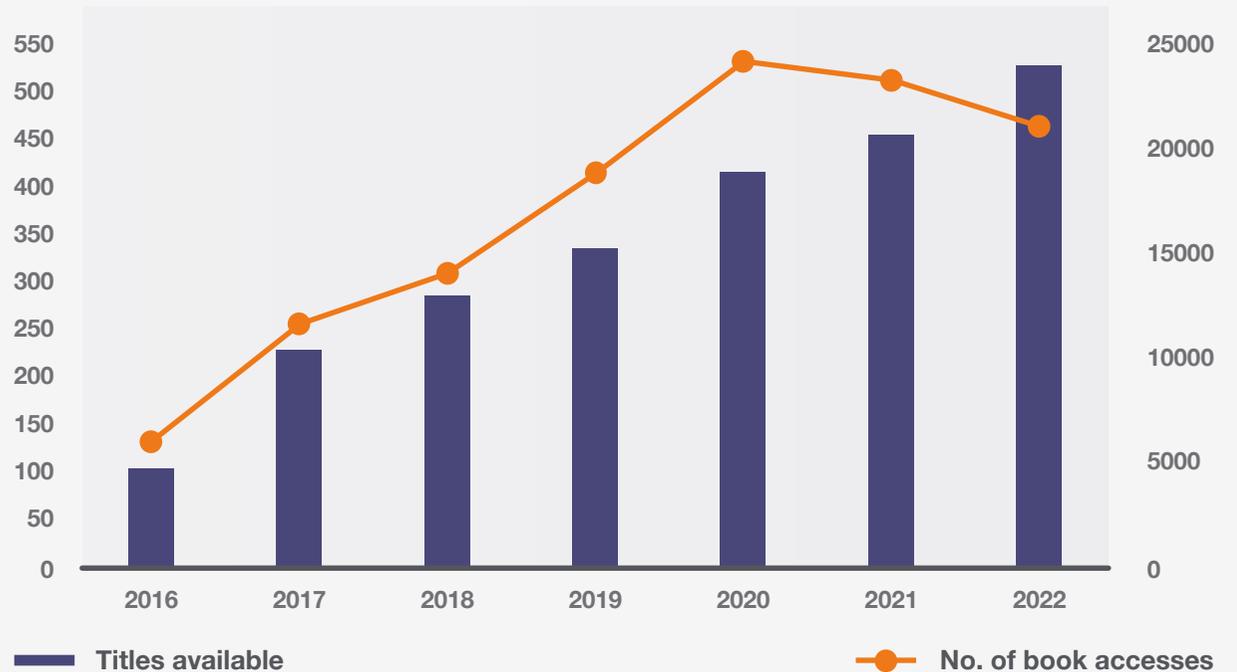
521

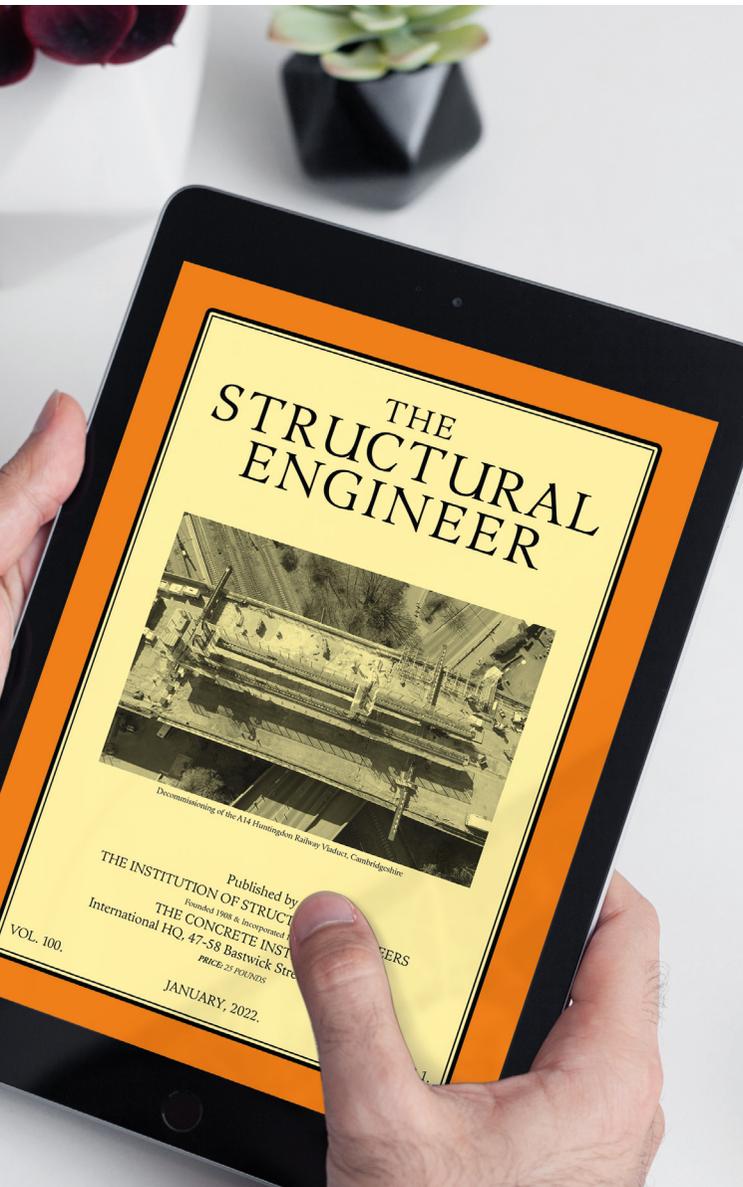
titles available in 2022



20823

book accesses in 2022



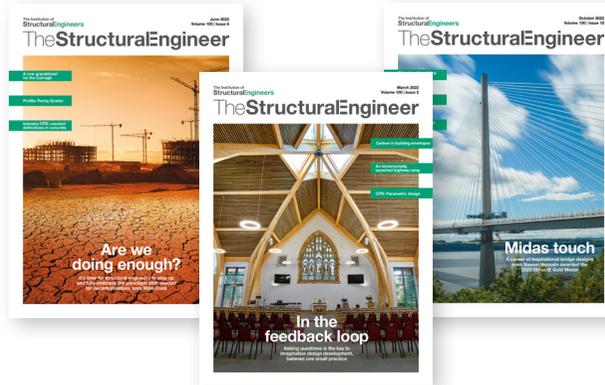


Publications

We produce a range of quality publications catering for all career stages and covering generalist and specialist structural engineering disciplines:

The Structural Engineer

Our flagship publication is published 11 times a year, featuring peer-reviewed technical and professional guidance, and case studies from a fascinating range of structural engineering projects. The magazine continues to promote lean and low-carbon design to support climate action. In January 2022, *The Structural Engineer* marked its centenary with a nod to the past.



Structures

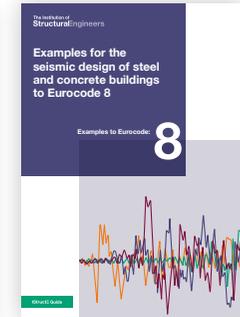
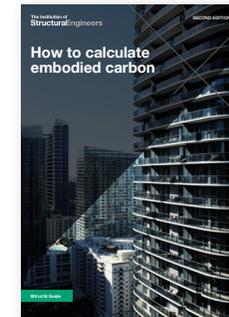
This peer-reviewed journal received over 4,900 submissions in 2022, a 29% increase on the previous year. There were over 1,000,000 downloads of *Structures* articles in 2022, up from just under 600,000 in 2021, as the journal's reputation grows within the global structural

engineering community. *Structures* further cemented its reputation and influence with a 2022 Impact factor of 4.1 (awarded June 2023), up from 4.010 the previous year.

Manuals and guides

Our book portfolio now contains almost 40 titles. Two new titles were published in 2022:

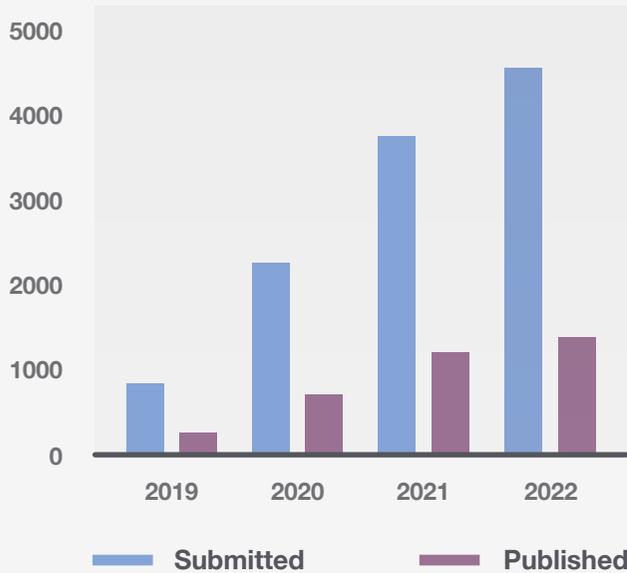
- *Examples for the seismic design of steel and concrete buildings to Eurocode 8*
- *How to calculate embodied carbon (2nd edition)*



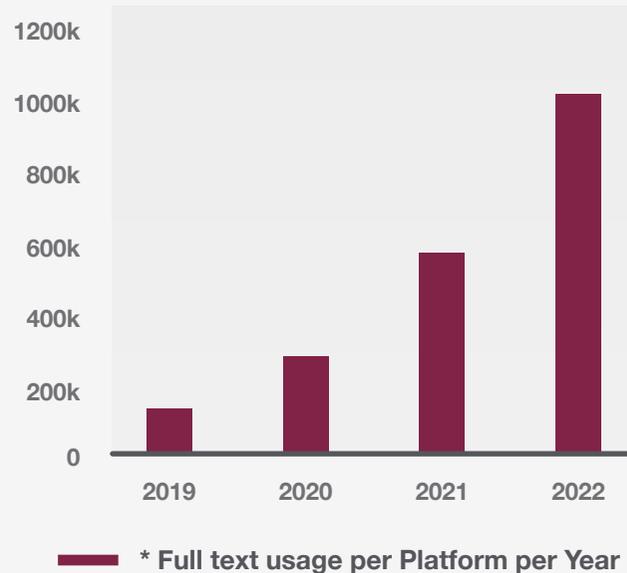
Focus on Structures journal

In order to ensure only the most interesting and innovative papers are included in *Structures*, fewer than 30% of submissions are accepted.

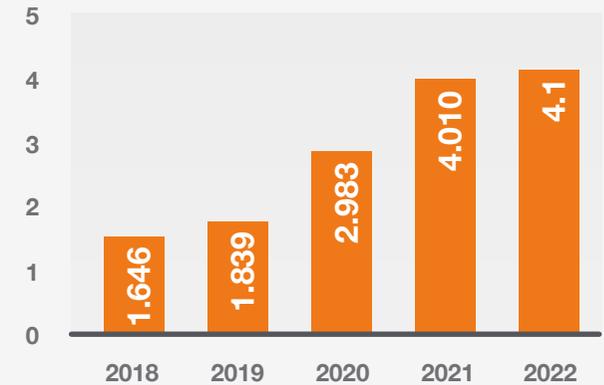
Manuscripts submitted and published



Structures usage* over time



Impact factor (IF)



Impact factor (IF) is a measure of the frequency with which the average article in a journal has been cited in a particular year. It is used to measure the importance or rank of a journal by calculating the times its articles are cited.



Award Winners 2022

The Structural Awards celebrate the very best projects from the global structural engineering community. Winners were announced at a glittering ceremony in London in November 2022.

Following the introduction of new judging criteria in 2022, the 10 winning projects all exemplify outstanding creativity and professionalism across safety in the built environment, sustainability, social value and structural elegance.

Structural Award winners 2022

Company	Project	Country	Awarded for
AKT II	HYLO	UK	Supreme Award for Structural Engineering Excellence (joint winner)
Atelier One	The Arc, Green School	Indonesia	Supreme Award for Structural Engineering Excellence (joint winner)
AKT II	HYLO	UK	Full exploitation of an existing structure to maximise retrofit potential
Arup	1 Triton Square	UK	Showcasing the power of circular economy principles across all aspects of a project
Atelier One	The Arc, Green School	Indonesia	Advancing the structural application of low carbon materials
Beca	Rankine Brown Library	New Zealand	A technically impressive and well communicated response to save a public building after earthquake damage
Eckersley O'Callaghan	London South Bank University - London Road Building	UK	Transformative sustainable design through minimal intervention
Heyne Tillett Steel	The Gramophone Works	UK	Exemplar use of timber at scale in a retrofit project
schlaich bergemann partner	Stadtbahnbrücke	Germany	Research informed innovation of novel high-performance materials
Skidmore, Owings & Merrill	United Nations New Office Building	Switzerland	Sustainable design at scale that responds to the unique environment
StructureCraft and China Architecture Design & Research Group	Tianfu Agricultural Expo Main Hall	China	Structural elegance through integrated design and construction
Webb Yates Engineers	Expo 2020 Dubai Sunshades	United Arab Emirates	Innovative form-finding and detailing in response to complex environmental conditions

People and Papers Award winners 2022

Award	Name	Award	Name
Gold Medal	Naeem Hussain	Lifetime Achievement Award	Shapour Mehrkar-Asl
Clancy Prize	Scott Brookes	Murray Buxton Award	Chew Keat Chuan, Tan Teng Hooi, Heng Kim Huat, Tan Chong Lin, Maey Leow Geok Mui and Seng Wong (diploma)
	Claire Young (diploma)		Kelly Alvarez Doran, Rosie Goldrick and James Kitchin (runner-up)
Derrington Construction Award	Andrew Robertson and Eric Sturel (diploma)		Oscar Faber Award
Excellence in Structural Engineering Education Award	Cian Farrell	Oscar Faber Award	Andy Herrmann and Steve Williams (diploma)
	Mariateresa Lombardo and Alessandro Palmeri (commendation)	Service Award	Peter Finnegan
Guthrie Brown Award	Mathai Mathew	Service Award	Timothy Jack Pope
Husband Prize	Ben Curry and Finn Graham	Service Award	Angelo Manesero
Keith Eaton International Award	Shalini Jagnarine-Azan	Service Award	John Theodore Gurney Plummer
Kenneth Severn Award	Andrew Blackie	Service Award	Robert John Mitchell
	James D'Ambrosio (commendation)	Sir Arnold Waters Medal	Lucio Blanco Martin and Marcos Sanchez
	Ying Xuan Chian (commendation)	<i>Structures</i> Best Research Paper Prize	Marc O. Eberhard, John F. Stanton and Travis Thonstad
Lewis Kent	Tristram Hope	<i>Structures</i> Best Research into Practice Paper Prize	José Miguel Castro, Aires Colaço, Pedro Alves Costa, Smail Kechidi and Mário Marques
Lewis Kent	Chi Wang James Lau	Young Structural Engineering Professional Award	Ishan Abeysekera
Lewis Kent	Phillip Nelson		Lauren Barnes (runner-up)
Lewis Kent	Rossella Nicolin		
Lifetime Achievement Award	Christopher John Bolton		

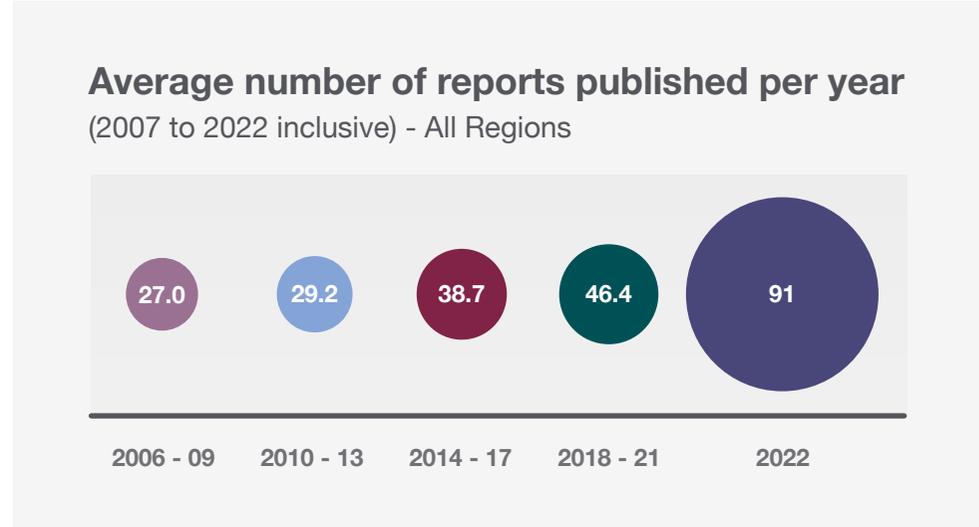
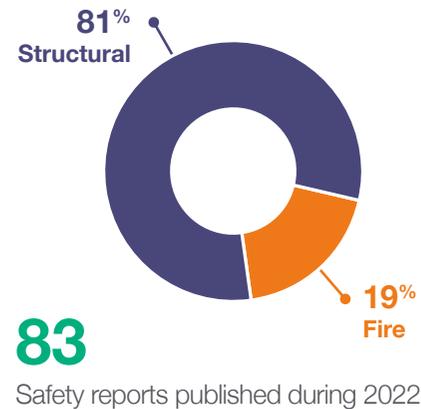
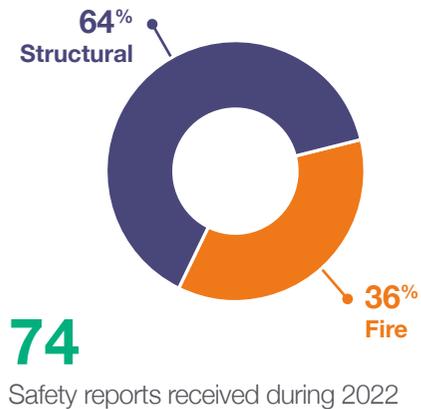
Structural Safety and CROSS



In April 2022, the Building Safety Bill received Royal assent and became the Building Safety Act. The Act created a Building Safety Regulator who will have responsibility for the safety and standards of all buildings. The Regulator needs to operate an independent system for voluntary reporting of building safety occurrences, so that lessons learned can be shared across the industry. Since 2019, the Government has invested significantly in CROSS so we can undertake this role on behalf of the Regulator. This was Dame Judith Hackitt's recommendation following the Grenfell Tower fire tragedy.

The Institution has continued to manage the expansion of CROSS into fire safety during 2022 with the support of the Institution of Civil Engineers and the Institution of Fire Engineers. The fire safety expert panel has been extended from its original eight members to 18 and is now of similar size to the structural expert panel. Our experts provide insight and best practice advice on the reports we receive and provide their services on a voluntary basis.

CROSS reports received and published during 2022



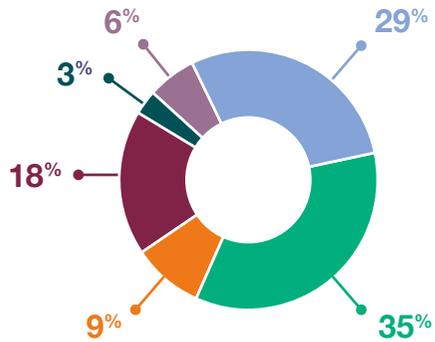
During the year we engaged with about 40 professional institutions, bodies and private companies across the built environment sector and CROSS featured in over 20 industry and academic journals. A CROSS report regularly features in The Structural Engineer magazine.

CROSS currently operates in the United Kingdom, Australasia and the United States, with the overall management and coordination of the systems being undertaken by the Institution. The year culminated with representatives from all three CROSS regions presenting nine papers at the American Society of Civil Engineers Forensic Engineering conference in Denver.



There are now over 700 safety reports freely available to read on the CROSS website, and each report is tagged to help users find the reports they need. Tags include construction material, project stage when the incident occurred, structure type, building height, product type, and the design method. Tagging also helps us understand broader trends in reports received. Here you see the occurrences of specific construction material, and project stages within the CROSS report database.

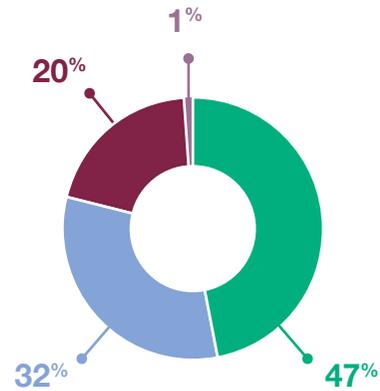
Occurrence of a specific construction material



Key

- Steel
- Concrete
- Masonry
- Timber
- Other material
- Glass

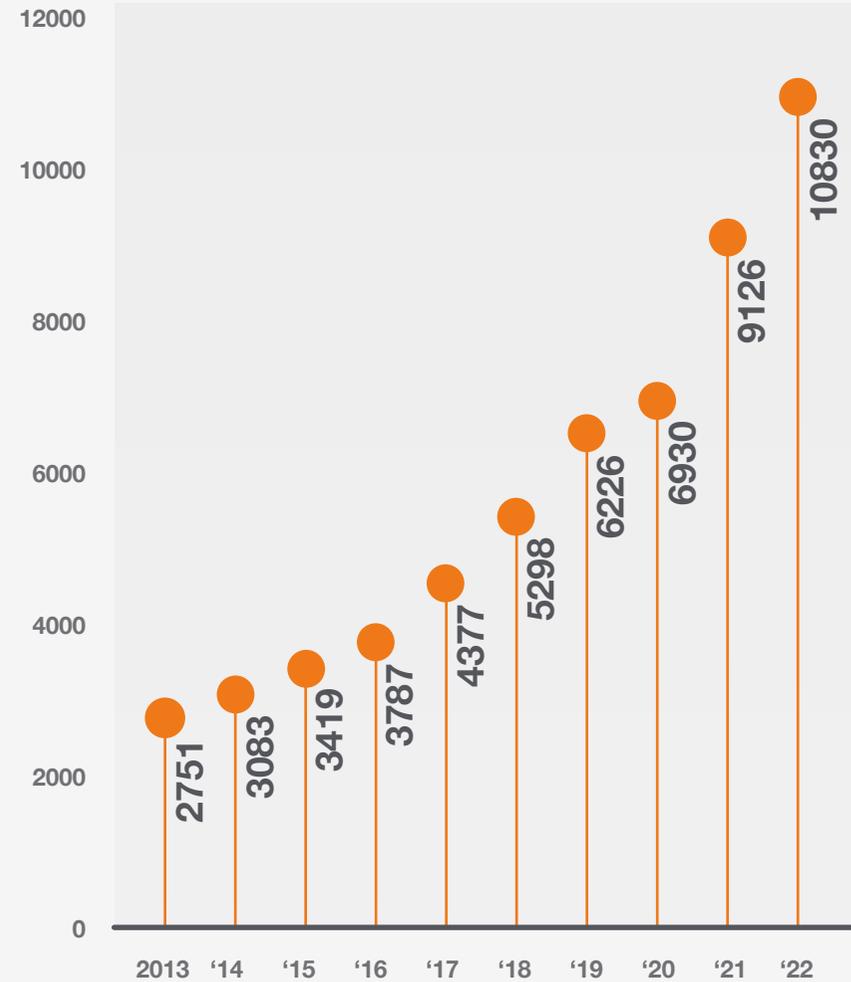
Project stage reported



Key

- Construction
- Design
- Operation
- Demolition

Number of CROSS subscribers



Sustainability: redefining the profession

In 2022 we continued to redefine the role of the structural engineer to put sustainability at its heart, from re-shaping the Structural Awards to further embedding changes to teaching requirements across degree courses that lead into our profession.

However while looking back at the past year, we are also reminded of all we have yet to achieve. The outcomes of COP27 at the end of 2022 show how vulnerable the 1.5°C limit really is, and it is more crucial than ever that engineers and Institutions such as ours continue to drive change. As we enter 2023, the Institution continues to champion climate action across the built environment, placing sustainability and safety hand-in-hand for the holistic good of people and planet.

For more information on all the sustainability activities and our Climate Emergency Task Group, head to www.istructe.org/climate-emergency or download our [2022 Climate Emergency Task Group End of Year Report](#).



Embodied carbon regulation

We continued to lead the call for embodied carbon regulation in the UK through the Part Z campaign, which keeps gathering momentum. Over 200 construction industry firms have now written in support of such regulation, including household names such as Barratt Homes and NatWest. As a result, momentum also continues to grow in Westminster. Early in the year, the House of Commons Environmental Audit Committee supported this in their report on sustainability in the built environment, saying that “the single most significant policy the Government could introduce is a mandatory requirement to undertake whole-life carbon assessments for buildings”. In response to this, the Department for Levelling Up, Housing and Communities have committed to consult on their approach to such regulation in 2023. The Carbon Emissions (Buildings) Bill (a private members bill sponsored by Jerome Mayhew MP) was also debated in the House of Commons, furthering calls for such regulation to be introduced.



The Net Zero Carbon Buildings Standard

The Institution played a pivotal role in the creation of this new voluntary Standard. Staff are active in both the Governance Board and the Technical Steering Group, driving the current and future direction of the Standard. We also extend our thanks to all those members who have volunteered time to the initiative, both through sharing embodied carbon data as well as those involved in the many Task Groups and Sector Groups.

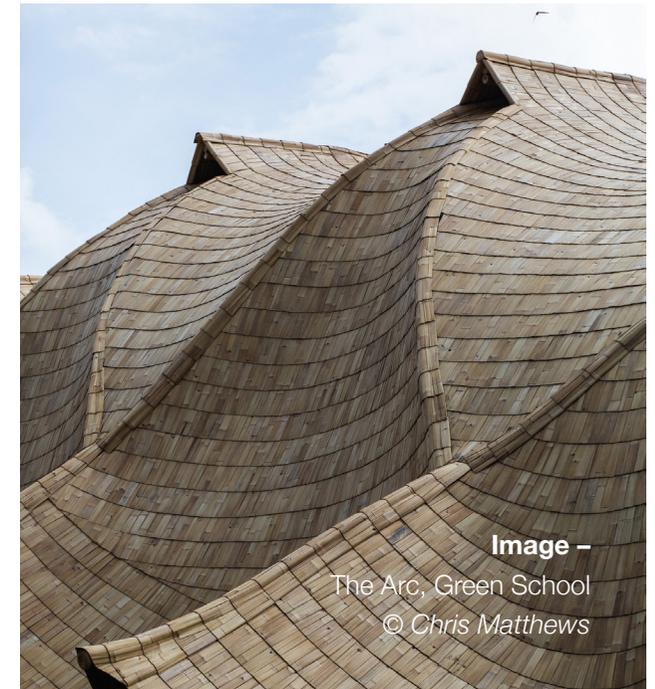


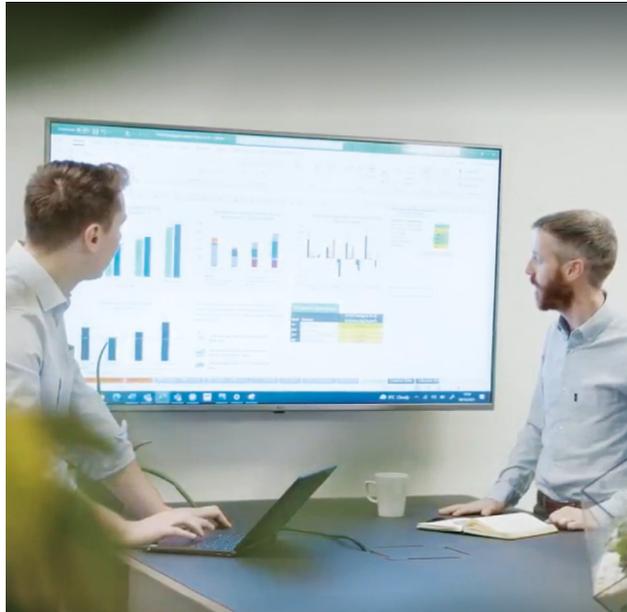
Image –
The Arc, Green School
© Chris Matthews

Equipping our Members

The end of 2022 saw an update to our [Sustainability Resource Map](#), which now links to over 250 resources. Many of these are free for non-members, and we urge you to review the document to identify items that may be of use.



Both *The Structural Carbon Tool* and *How to Calculate Embodied Carbon* were updated to reflect the ongoing evolution of knowledge on the topic that's happening across the industry. We were also proud to see the Tool win two awards during the year – the “People’s Prize” from the Alliance for Sustainable Building Products, and the “Best Sustainability Initiative” award from MemCom, the UK body for professional membership organisations.



Training courses

Finally, over 500 people have now accessed our [Embodied Carbon Basics](#) free eLearning course, which outlines the fundamentals of calculating embodied carbon on structural projects.



We also launched a [Net Zero Structural Design](#) course in 2022, which has proven similarly popular, with nearly 100 people completing the five-week interactive programme through the year. Attendees gained tools and techniques for challenging briefs, creating low-carbon ideas, and promoting better solutions to clients and collaborators.

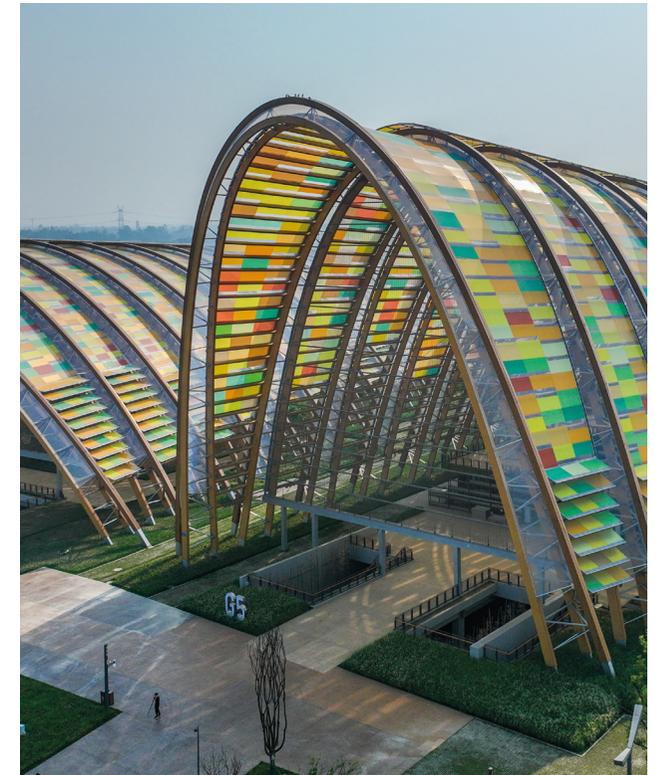


More information on both courses, along with our [in-house sustainable training courses](#), can be found on our website or by contacting the [Learning & Development team](#).



Celebrating great engineering

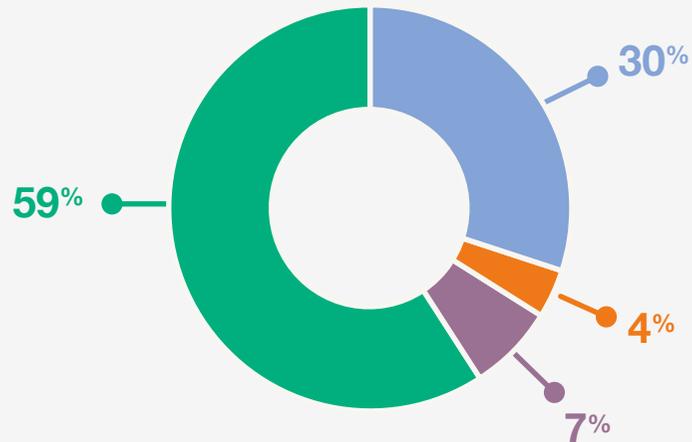
2022 saw a new approach taken to [The Structural Awards](#), celebrating positive outcomes for people and planet alongside technical prowess and sharing learning across the profession. This change was exemplified by the two joint winners of the Supreme Structural Award, both of which used intelligent and creative design to maximise benefit for both society and the environment. This change reinforces the Institution’s commitment to placing sustainability at the heart of the profession.



Financial highlights 2022¹

Income 2022

Most of our income comes from membership subscriptions and trading subsidiaries. In 2022, these sources accounted for 89% of all total revenue. This represents a 12% increase on 2021.



Key

- Trading companies
- Learning, development and examinations
- Membership subscriptions
- Other activities and donations

Expenditure 2022

The provision of membership, learning, development and examinations was the largest area of expenditure in 2022, accounting for 29.72% of total spend. This represents a 1.28% decrease on 2021.



Key

- Membership learning, development & examinations
- Other staff and employment costs
- Trading companies
- Other operating costs
- Digital transformation and IT
- Depreciation

¹ Data drawn from final 2022 management accounts. The full audited and adopted accounts of the Institution are available on [istructe.org](https://www.istructe.org)



Image –
Structural Awards joint Supreme Award
Winner The Arc Green School
© Chris Matthews

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