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Registered with the Charity Commission
for England and Wales No. 233392 and
in Scotland No. SC038263

Annual Review

2020



Image –

Coal Drops Yard, Kings Cross, London
Winner of the Award for Structural Transformation 2019

© John Sturrock



Image –
Enterprise Centre, Norwich

Welcome

The Institution of Structural Engineers leads the development of structural engineering worldwide to secure a safe and resilient built environment for all.

We achieve this by supporting the profession in developing their competence to practise: from students wishing to become structural engineers; graduate engineers preparing for chartered examination; all the way to more experienced engineers. All can take advantage of our professional learning and development opportunities.

Structural Engineers make a vital contribution to society and our members' work is vital to public confidence in the safety of the built environment.

In addition to our commitment to structural safety, we also recognise the importance of meeting the challenges of the future, most notably the impact of construction on climate change. Through their designs and collaboration with professionals in other disciplines, structural engineers are well placed to influence and respond to the challenges of embodied carbon in construction. The Institution plays an important facilitation role between industry, academia, and the profession.

Capturing and sharing lessons learnt from structural safety issues which might not otherwise get attention was the catalyst for the CROSS confidential reporting scheme launched in the UK nearly 25 years ago. Extending that model so that the international community can benefit has been a long-held ambition. In 2018, we launched CROSS-Australasia and in 2019, CROSS-US was launched in partnership with the Structural Engineering Institute (SEI) of the American Society of Civil Engineers (ASCE). In 2020, the major focus of CROSS within the UK was to expand its reporting to include fire. Working with the Institution of Fire Engineers and with strong financial support from



Martin Powell – Chief Executive

UK Government, we are set to launch a revitalised CROSS in the UK with a remit for safer structures that goes beyond the previous focus on structural safety.

Showcasing the work of structural engineers is something we are very proud to do. Our website contains many articles and images of structures from around the world. Each year we host an international structural awards competition with entries submitted from an ever-increasing number of countries. For this 2020 Review, the focus of our imagery is from UK buildings that have been re-purposed or refurbished. This shines a light on the design skills, vision and understanding of materials necessary to extend the life of buildings for a new generation of use – just one way in which structural engineers are contributing to the challenges of climate change.

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Image –
Hobhouse, London

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.

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 (in 2020, our YouTube channel had over 146,200 views, more than double that in 2019).

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 – Bahrain World Trade Center

Worldwide statistics

30640

total members

7568

student members

9263

graduate members

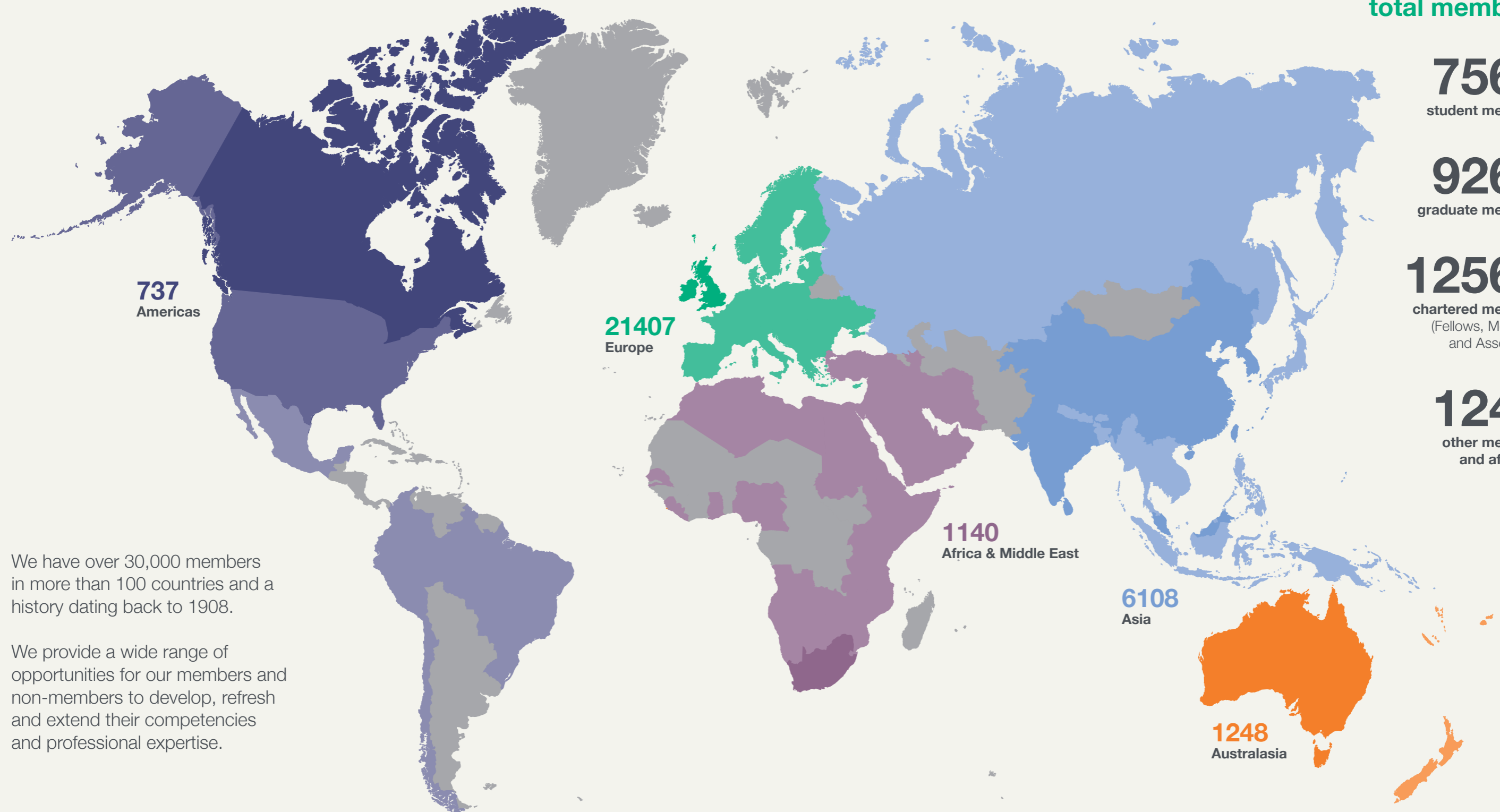
12565

chartered members
(Fellows, Members
and Associates)

1244

other members
and affiliates

Number at 31/12/2020



We have over 30,000 members in more than 100 countries and a history dating back to 1908.

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

26060

male members

4580

female members
(15% of membership)

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

Working differently – the impact of Covid 19

The Institution responded swiftly to manage the impact of the pandemic and continue supporting members worldwide.

Whilst the much valued programme of face-to-face events at Bastwick Street and by our international network of regional groups was seriously disrupted, we were able to accelerate our use of online delivery to help mitigate the impact.

The planned annual programme of lectures, conferences and courses were delivered online via a variety of virtual event platforms and meeting tools. This forced transition provided a number of opportunities to feature more international speakers, showcase more diverse topics and to create new content specifically for online delivery.

Our programme included free-to-access and paid events in both live and on-demand format so that members were supported throughout the pandemic without financial or geographical barriers. Members continued to receive significant discounts on chargeable events.

Other highlights included:

- The design and delivery of six online conferences - including our second annual Digital Design and Computation conference in May. Optimised for virtual delivery, the conference attracted 28% more attendees than in 2019 with 50% joining from outside the UK.
- A “Structural Engineering Showcase” in November in place of our annual international Structural Awards celebration. The showcase featured all 2020 Structural Awards submissions and included three interactive webinars on topics linked to the awards. This culminated in our first public vote to select preferred projects and we anticipate this becoming a regular feature as part of our engagement to raise the profile of the structural engineering profession with the general public.
- Many of our regional groups used online methods to maintain engagement with local members. We also supported a further 39 regional group events on our virtual platforms to deliver valuable technical lectures without geographical constraint.
- The annual training and events programme recorded an increase in attendance by 146% compared to 2019.
- The work of the Institution’s committees and panels continued by using online meetings and participation actually increased due to the added flexibility this approach brings. Similarly, the Trustee Board was able to fully discharge its responsibilities and obligations through online meetings and even Trustees usually dependent on international travel were able to participate. Council was able to meet physically in February with its second meeting held remotely in July.



Competence and excellence

Driving professional competence is at the core of everything we do. By developing courses, resources and qualifications in areas such as fire, seismic and offshore engineering, we help our members to develop, refresh and extend technical and professional competencies.

We nurture talent and skills from school through to retirement and provide tailored guidance for students aged 16+, promoting the benefits of a career in structural engineering. More experienced members mentor those just starting out or taking the next step in their career. We lead in best practice and industry standards. We collaborate with other industry experts to share knowledge and with national and international professional organisations to benefit from other experience. Our examinations are aligned with industry and world standards, recognising international expertise while ensuring quality is not compromised.

We review our educational, training and professional assessments and introduce routes to membership which are accessible and inclusive whilst maintaining the highest standards.

All of this is underpinned by a strong regional presence that supports engineers wherever they are in the world.

Supporting early career engineers

For early career engineers to show excellence and improve their employability we offer the Certificate in Structural Behaviour, which assesses an engineer's understanding of fundamental structural theory. The certificate is an internationally recognised mark of competence sought by modern employers. It also helps engineers become professionally qualified.

Affiliate scheme

The IStructE Affiliate scheme is intended for engineers that belong to a Professional Engineering Institution (PEI) in their home country, but is open to anyone with an interest in structural engineering. Benefits include discounts on our publications and courses, access to the Elibrary, and to networking events, lectures and livestreams.

Convenient flexible learning choices

Structural engineering is constantly evolving and keeping abreast of technical and professional developments is an essential part of the role. The Institution offers many resources to benefit both members and non-members. These are useful to practising structural engineers but also to broader audiences across the built environment such as teachers looking to inspire future generations, non-structural engineers undertaking research, or those new to the industry.

Courses

Through partnerships with leading experts, academic institutions, trade and professional organisations, our CPD courses offer a range of technical, professional and management topics to support practitioners at every stage of their career. In 2020, we ran 45 live courses, of which 32 were delivered online.

A brand new on-demand training course was launched in August 2020. The Professional Review Interview (PRI) preparation course complements the existing CM Exam preparation course and provides an accessible and flexible way to prepare for Chartership.

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 2020 we ran 47 HQ events, of which 43 were delivered exclusively online and in total we ran 246 events, of which 65% were on online.

Library

The Institution's Library houses one of the UK's finest collections of printed structural engineering literature. Books, standards and technical reports were available to access on-site (or loaned via post) until 20 March, when the Library closed for the remainder of the year due to Covid. 27 new titles were purchased in preparation for reopening in 2021. Our literature-based enquiry service remained open for much of the year, with our librarians able to resolve the majority of enquiries while working remotely.

Elibrary

With the physical library closed for the majority of the year, we focused on providing members with access to digital material. 76 new e-titles were purchased (taking the total to more than 400). In 2020, the Elibrary received almost 25,000 accesses requests, a 26% increase on 2019.

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.

Structures

This peer-reviewed journal received more than 2,000 submissions in 2020 — and continues to gain importance and influence amongst the global structural engineering research community, as well as amongst practising engineers.

Manuals and guides

Our book portfolio now contains almost 40 titles. Six new titles were published in 2020:

- Computational engineering
- Conceptual design of buildings
- How to calculate embodied carbon
- Introduction to structural fire engineering
- Manual for the design of timber building structures to Eurocode 5 (2nd edition)
- Structural aspects of cladding

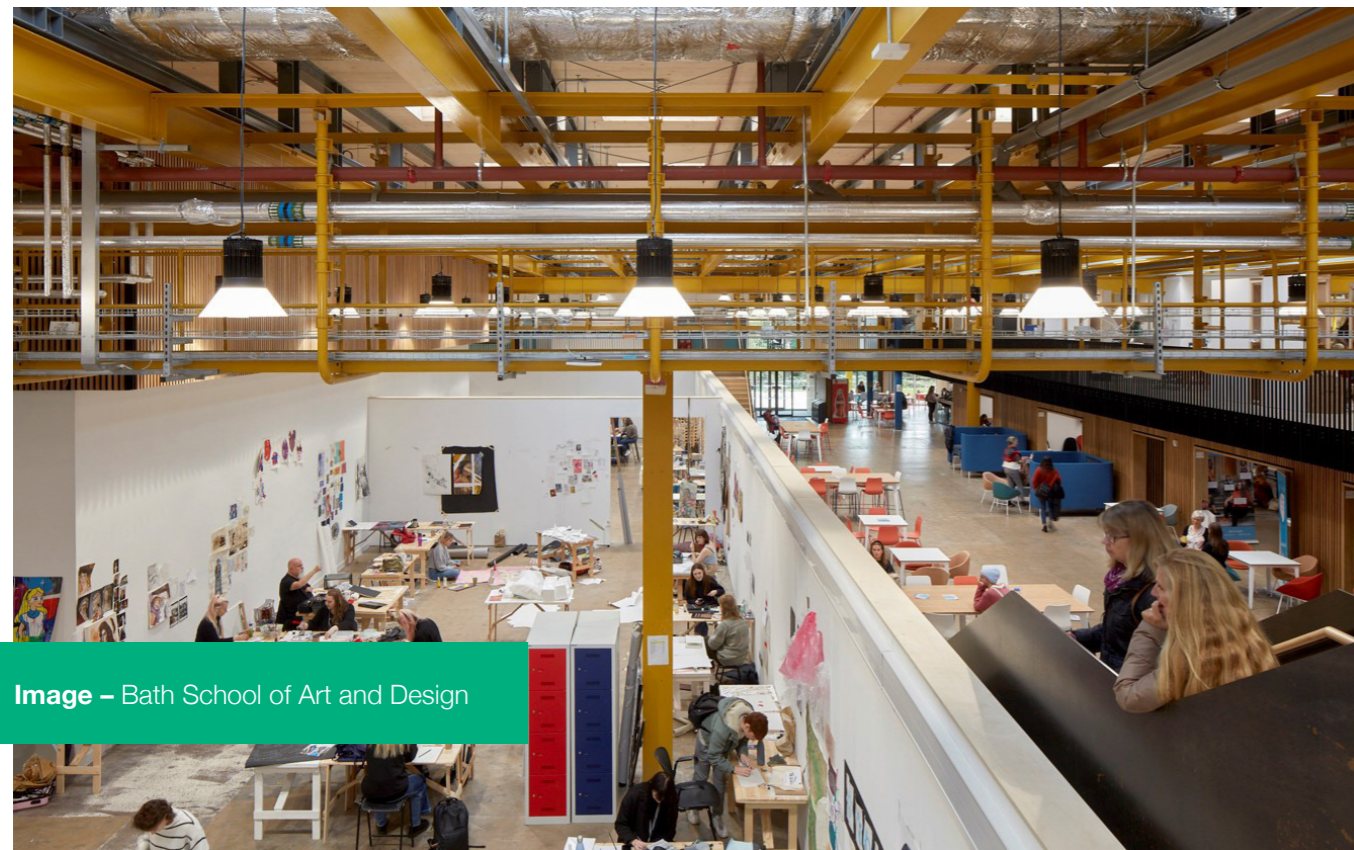


Image – Bath School of Art and Design

Award winners 2020

The Structural Awards this year were a little different due to the Covid pandemic. An online showcase of all submissions received took the place of the usual judging and ceremony. A public vote on all the entries was held and awards made in the following categories:

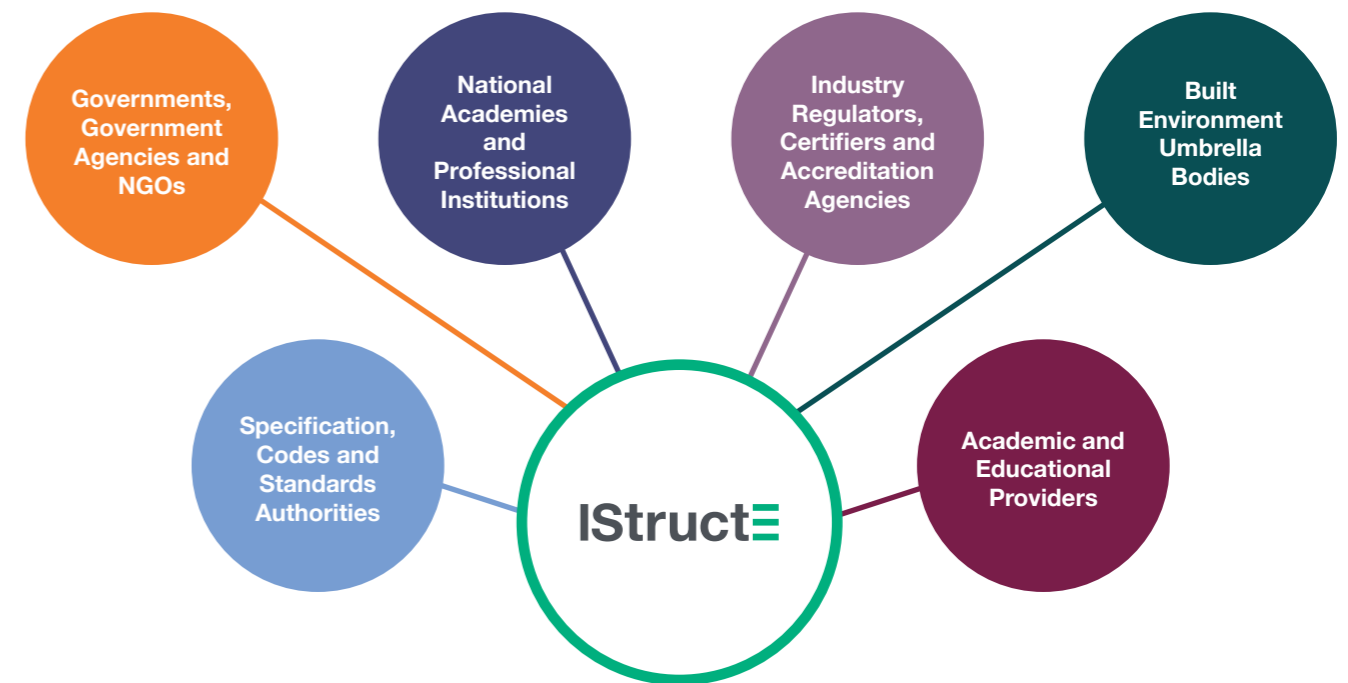
Award winners 2020			
Award	Company	Project	Country
Achieving Architectural Vision	Beijing Institute of Architectural Design	Beijing Daxing International Airport Terminal	China
Challenging Construction	Helium Engineering	Skiing Platform	Andorra
Creative Design	XinY Structural Consultants	Donut	China
Sustainable Leadership	Thornton Tomasetti	Hobhouse	UK

Showcase entries will be formally judged next year and awards will be made at a combined 2020/2021 Structural Awards ceremony.

People Award winners 2020	
Award	Name
Gold Medal	Mike Cook
Award for Excellence in Structural Engineering Education	Jonathan Haynes
Best Research Paper Prize	Islam M. Mantawy, Travis Thonstad, David H. Sanders, John F. Stanton, Marc O. Eberhard
Best Research into Practice Paper Prize	Leroy Gardner, Andreas Fieber, Lorenzo Macorini
Clancy Prize	Allan Mann
Derrington Construction Award (Diploma)	Ron Slade, Ross Harvey, Nello Petrioli, Matthew Sharratt
Derrington Construction Award (Medal)	Malcolm Turpin, Andrew Rolf
Guthrie Brown Award	Cameron Millar
Husband Prize	Simon Bourne
Keith Eaton Award	Glenn Bell
Kenneth Severn Award (Runner-up)	Eugenie Sentucq
Kenneth Severn Award (Winner)	William Rogers-Tizard
Lewis Kent Award	Leroy Gardner, Richard Nicholl, Chris O'Regan, Sarah Williamson
Lifetime Achievement Award	Paul Wilson, Lowry Manson
Murray Buxton Award	Dmitri Jajicj, Stuart Marsh
Oscar Faber Award (Diploma)	Kaare K.B. Dahl
Oscar Faber Award (Medal)	Angus Law
Pai Lin Li Travel Grant	Euan Stenson, Victoria Stephenson, Annie Scott
Service Award	Helen Kwan, Paul Burrell, Brendan Brophy, Richard Gibson, Eric Lewis, Jeslin Quek,
Sir Arnold Waters Medal	Chris Shaw
Young Structural Engineering Professional Award (Winner)	Eleanor Davies, Miguel Martinez-Paneda
Young Structural Engineering Professional Award (Commendation)	Victoria Tinney
Young Structural Engineers International Design Competition - The Drury Medal	Pranav Darda
Young Structural Engineers International Design Competition - The Undergraduate Prize	Tobias Ng, Maria Valderrabano, Samuel Wright

Collaboration with other organisations –

Using our expert guidance and knowledge, we work in partnership with many national and international organisations to support the development of a safe, sustainable and resilient built environment for all. Our members sit on national and international external specialist advisory panels and bodies.



Structural Safety

Structural Safety works with the industry to improve safety in the design, construction and use of structures. It has two entities SCOSS (Standing Committee on Structural Safety) and CROSS (Confidential Reporting on Structural Safety) and is a collaboration between the Institution of Structural Engineers, the Institution of Civil Engineers (ICE) and the Health and Safety Executive (HSE). To date, CROSS has received over 1,000 safety reports on topics ranging from issues with domestic buildings to major structural collapses. Each report contains information which the industry can learn from to make structures safer.

In 2020, Structural Safety began a project, funded by the Ministry for Housing, Communities and

Local Government (MHCLG), to strengthen the existing CROSS scheme and to expand it to cover fire safety issues. The project is due to complete in March 2021. This will ultimately result in a new and improved website for CROSS, which will collect confidential reports on fire safety issues alongside structural safety issues and provide a streamlined process for submitting safety reports. CROSS hopes to bring safety reports to all those involved in the design, construction and management of buildings and other structures. In 2020 extensive user research was undertaken to ensure that the new service meets the needs of its audience.

CROSS currently operates in the United Kingdom, Australasia and the United States. We plan to expand our international network further so that even more people can contribute to the CROSS community.

Climate emergency

The Institution of Structural Engineers set the pace for change in 2020, recognising the urgent need for engineers to acquire new skills and develop new ways of thinking about their role in this time of climate emergency. The Institution's Board decided to place climate change on a par with its enduring commitment to structural safety. We set up the Climate Emergency Task Group, a small coordinating group to input into many different layers of change, both driven by the Institution and in step with the wider built environment professions.

Objectives

- Collaborate and influence: lead from the front across the industry, working with other UK institutions across the built environment, as well as internationally such as with the Structural Engineering Institute (SEI) in the USA
- Support the profession: continued support for Structural Engineers Declare by assisting in bringing firms together to share knowledge and progress
- Raise standards: provide guidance to help members meet the expectations of this changing world, delivered through publications, training, webinars and conferences
- Set standards: reset what it means to be a structural engineer, from education requirements to our charter process, Continuing Professional Development (CPD) and awards

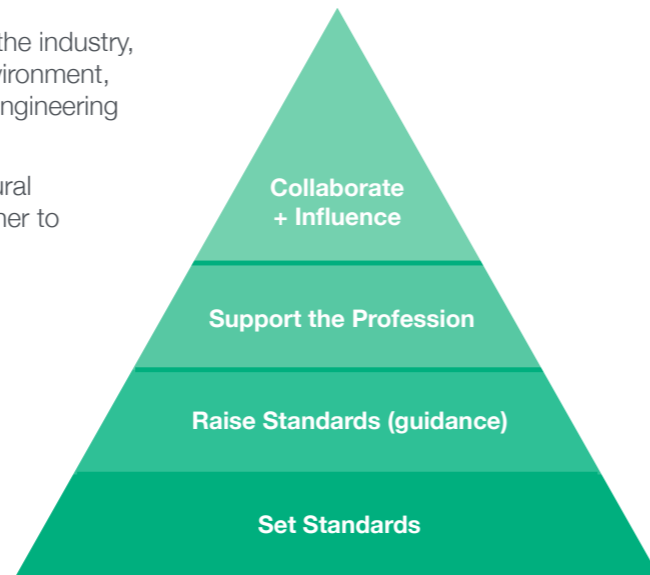


Image – Hongqiao International Airport, Shanghai

In support of this greater focus on the climate emergency, many new resources were made available on <https://www.istructe.org/resources/climate-emergency/> and other materials produced included:

How to calculate embodied carbon

We published How to Calculate Embodied Carbon supporting legislation by UK Parliament to achieve net zero carbon emissions by 2050. The guide sets out a single-point-of-information for structural engineers to use when calculating the environmental impact of their projects. Being able to measure and compare embodied carbon of structures is an important step in the quest for the decarbonisation of the construction industry. The publication is free for anyone (including non-members).

Climate emergency conference 2020

The Climate Emergency Conference took place in September across two days, with around 700 attendees from over 40 countries around the world. The conference focused on raising standards and supporting the profession, including guidance for members with expert speakers covering a range of topics followed by discussions led by “declared” firms around what change is required through the next year. Recorded sessions are available on our website.

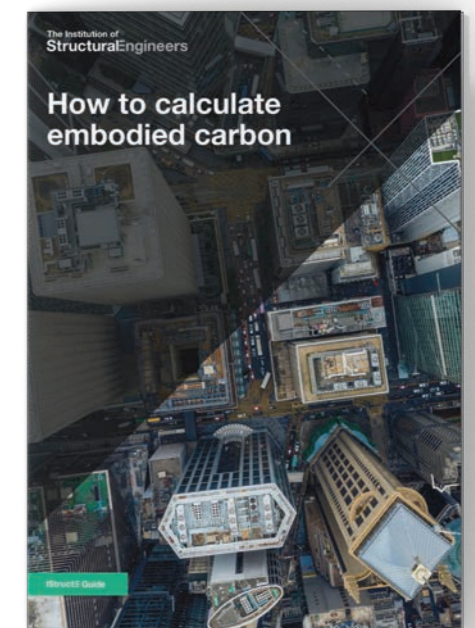


Image – Rwanda Institute for Conservation Agriculture
© Mass Design Group

Financial highlights 2020¹

Income 2020

Most of our income comes from membership subscriptions and trading subsidiaries. In 2020, these sources accounted for 81% of total revenue.

2.25% increase on 2019.

Key

- Subscriptions (down 6% on 2019)
- Subsidiary interests (up 1% on 2019)
- Examinations (up 1% on 2019)
- Other activities (up 4% on 2019)

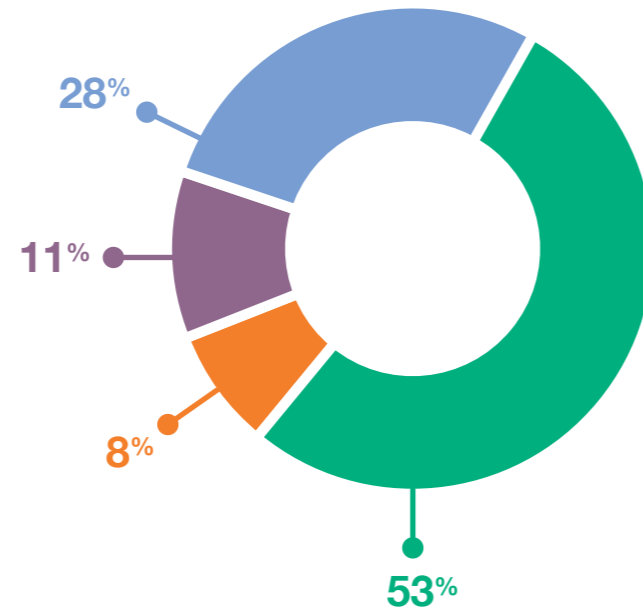


Image – 1 Finsbury Ave, London

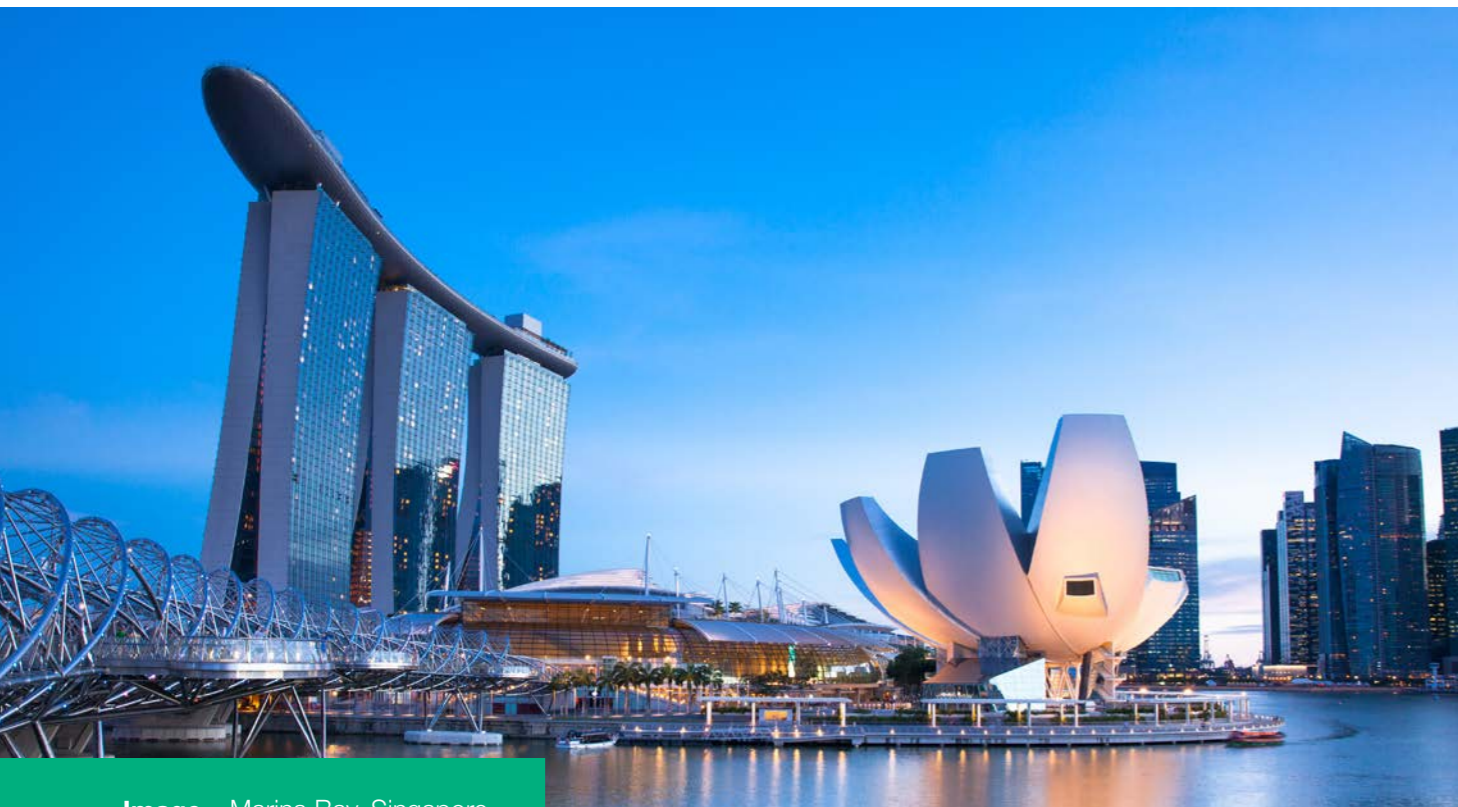


Image – Marina Bay, Singapore

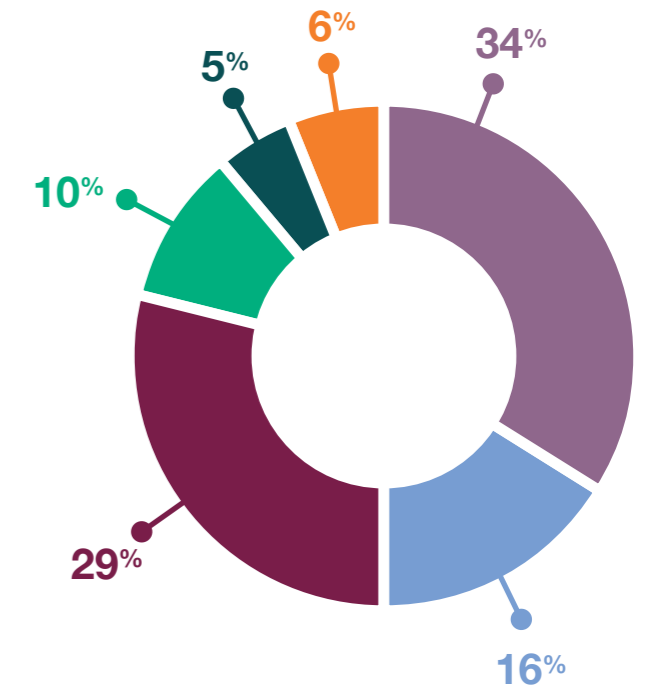
Expenditure 2020

The provision of membership, learning, development and examinations was the largest area of expenditure in 2020, accounting for 34% of total spend.

6.4% decrease on 2019.

Key

- Learning, development and examinations
- Other staff and employment costs
- Subsidiary interests
- Digital development and IT
- Other operating costs
- Depreciation



¹ Data drawn from final 2020 management accounts. The full audited and adopted accounts of the Institution can be accessed via our website.

Looking to the future

The future of the Institution is bound together with the development of structural engineering as a profession.

The IStructE's relevance is in its ability to support the profession – a resource; a qualifier; a mentor and a thought-leader – and ultimately in its role as a public servant. Making sure that structural engineers, wherever in the world they practice, do so competently and with safety at the heart of their work.

We live in a fast-paced ever-changing world and a host of new challenges are on the horizon. As society adapts to the aftermath of the Covid pandemic, the implications of climate change and the challenges of the global urban-rural divide; all built environment professionals will need to respond to these fundamental changes.

In last year's report we touched upon the challenges of globalisation versus on-shoring and localised fulfilment. With advances in online communications, there has never been a better time for the Institution to facilitate exchanges between structural engineers - both individually and corporately. By enhancing the capability of the profession, we can help structural engineers to meet existing and new challenges and opportunities.

Digital connectivity is however only part of the way forward. At the heart of the Institution and its increasingly diverse membership is the very real benefit of physical connectivity. The chance to meet, to share and to learn together. Local and global communities are essential for success and must feature prominently in everything we do.

Whatever the future of the profession looks like and however the Institution needs to adapt to future needs, there is little doubt that its core values of competency and community are a firm foundation.

“

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Image –

1 Triton Square, London

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Image –

Coal Drops Yard, Kings Cross, London
Winner of the Award for Structural Transformation 2019

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