



ice  
Institution of Civil Engineers

Scotland

# ANNUAL REVIEW 2019/20

Whether you're interested in pursuing a professional qualification, becoming an Associate Member, or getting involved in the ICE's policy work – we'd love to hear from you.

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## Chair's report

**It would be an understatement to say the last year has been challenging for us all.**

Although things started normally, we had to quickly move all of our activities online. The inevitable IT problems notwithstanding this proved there are some benefits in not having to travel around Scotland and down to London to take part in training and conferences. Online events in Scotland proved very popular and I am sure some permanent changes will be made.

Civil Engineering's profile continues to be enhanced by the work of Hannah Smith, our Regional Director. The importance of infrastructure in supporting Scottish life has been recognised in the input to the numerous consultations and reviews including the first report by the Scottish Infrastructure Commission.

I must congratulate our past Chair, Jim Young, in steering the ICE Scotland Public Voice Committee. Although part of the wider ICE community, our work in Scotland must remain distinctive. My own professional interests are in sustainable engineering and I look forward to our own Scottish State of the Nation report later this year.

We can all help however and communications, internal and external will become more and more important. Our new Communications Executive Gordon Brown was welcomed to the team during the year and is already doing a great job

in enhancing our profile. Thanks must be given to the unsung heroes of the Regional Support Team, Lynn Dow and Alison Ward and the whole committee who have supported each other during a difficult time.

Civil engineering is all about creating and maintaining infrastructure that can benefit current and future generations. At the heart is always simple, basic engineering. We would enjoy the world we live in a lot better if we try to make things less complicated, not more. Far too much time is allocated to managing procurement and the minutiae of contract specification. Sustainable engineering requires understanding of the whole life of an asset, how it can be maintained and how it can last.

In my career I know I am prouder of the things that required me to be brave and stick my neck out. I suggest you be brave and keep it simple.

I wish the next ICE Scotland chair, Emma Dickson, all the very best.

**Graham Edmond**  
Chair



## Director's report

**When I took up post at ICE Scotland in late 2019 one of my first tasks was to develop our business plan for 2020. I focused on three priorities – climate change, increasing our public profile and delivering for members.**

Through autumn and winter, we hosted an inaugural ICE Fellows Lecture, toured ICE President Paul Sheffield round key projects, and celebrated the industry at awards and dinners. Into the New Year we held a strategy day, boosted our representation on Government panels and began planning our involvement in the UN Climate Change Conference scheduled for Glasgow in November.

The plan was off to a great start, but the best laid schemes...

Covid-19 may have halted some activities, but I am pleased to say that most have continued apace. Our Branches and Specialist Interest Groups across Scotland continue to provide CPD opportunities for members with 62 events with a total audience, in person or online, of almost 3,000.

Climate change has remained central to our work and we delivered a number of events around this theme. Key pieces of work, like our 2020 State of the Nation report, have climate at their heart, and we're making the case wherever we can that civil engineers will hold many of the practical answers to reaching 'net zero' and adapting to climate change impacts.

Despite us being unable to meet in person, our profile is growing. We've published key inputs to shape the policy debate, represented ICE in online forums, and secured primetime media slots.

The ICE Scotland staff team has been working tirelessly to meet our objectives. I'd like to take this opportunity to personally thank them for all their hard work.

I'd also like to thank our members. 2020 has been a challenge, but I'm thrilled to see that with new ways of working we are now engaging more of you than ever before. Your flexibility as we re-calibrated has greatly helped us navigate this period and your commitment to ICE has enabled us to make 2020 a success.

It's fair to say that my first year in post strayed some distance from what I anticipated, but I'm enormously proud of what we've delivered under testing circumstances.

We will continue to rise to the challenges we meet and move forward with a renewed vigour to seize every opportunity we can.

**Hannah Smith**  
Director, ICE Scotland



## Events and awards

As always, we had a range of events and awards scheduled to take place around the country, but COVID-19 meant we had to be innovative in organising them.

In terms of events, there was a seamless transition to putting lectures, discussions – and even the occasional ‘pub quiz!’ – online.

Unfortunately, the Scottish Civil Engineering Awards had to be postponed but two other competitions went ahead – albeit in new online formats.

Ensuring the cooling water supply is as resilient as possible at the UK’s first nuclear generator in a generation earned 26-year-old Dyllan Parkinson from [Glasgow the coveted title of Scotland’s Emerging Engineer 2020](#). (Pictured)

And [explaining the similarities between road construction and a chocolate desert](#) won Nicolas Fauvergue ICE Scotland’s Pitch 200 award.

The ICE Scotland STEM Ambassador of the Year Award went to Fran Ratcliffe (pictured) for her work in encouraging school children to take up engineering.

Over the years, Fran, who leads the Bridges and Structures team at Fife Council, has taken part in numerous kinds of activities including Rapid Response Engineering Challenge, careers evenings, parents evenings, classroom talks and workshops such as the Big Bang Fair and Girls into Engineering and Science Fairs.

Fran has worked with children from pre-school right up to undergraduate students. But how do you introduce engineering to pre-school children?

“ In the messiest way possible – with lots and lots of jelly and Duplo! ”



Scotland’s Emerging Engineer 2020 – Dyllan Parkinson

ICE Scotland STEM Ambassador of the Year – Fran Ratcliffe

# The impact of COVID-19

“2020 has been a challenging year for Civil Engineering but our resilience and adaptability has meant investigating new ways of working.” We asked our members what the impact of COVID-19 has been – and might still be.

“ A worldwide pandemic has meant a more sustainable approach to the working environment but has meant we continue to push boundaries to achieve success. The next few months will be challenging, but as engineers, we’re ready. ”

“ We should build on this opportunity to continue the new ways of working and define a better, collaborative, approach to work, not hindered by geography. ”

“ Whilst we have continued on, online, we have lost recent impetus made towards increasing face to face interactions and extending our various outreach programmes. ”

“ We are now all fairly settled in to working from home and have overcome the various initial technical challenges and learning to juggle a different work/life balance. Some of us and our colleagues are seeing huge advantages in not having to commute so getting more family time or even just the opportunity to get out cycling or running at lunch! ”

“ Being site based and working remote from central office for most of my career the move to home working during Covid-19 was simply a case of plugging in; the challenge was I recently had moved into a new roaming customer facing role and suddenly I couldn’t roam. The tasks within my role have therefore evolved with some duties not existing pre-Covid-19 especially with respect to staying in touch with colleagues. It’s much harder to facilitate the incidental conversation that comes across in work venue or client venue which would routinely occur pre-Covid-19. ”

“ Within days we had our entire European business working from home. Use of video conferencing went from being rare to the default. With a heavy reliance on the digital technology inherent in our systems, productivity is high and staff feedback is that many see this as the way forward. If that is the case, then this fundamentally affects how we provision our business. ”

“ It’s been just another challenge in my engineering career. It’s created opportunities to adapt, rebalance activities and created opportunities for efficiencies. Many team members have adapted to work remotely, but missing the social contact and interactions experiences in the office. Looking ahead to a slight adjustment back to collaborating physically, but overall a positive change with environmental benefits. ”

“ I have had to adapt significantly as to how I manage and deliver my works on site for my client and employer. This has resulted in a review in work methodology – changing how we do things on site to reduce the risk of transmission of the virus wherever possible. As well as delivering the works safely, I have been tracking the commercial & programme impact COVID19 has on my project. This has been essential to both client and employer to understand the overall impact on the project. ”

“ Despite Covid 19 causing initial disruption to site works we adapted through the use of Microsoft Teams for meetings. What this has shown is there is no need for lengthy journeys – as a contractor who works in remote locations across Scotland we can sometimes spend 1-2 days travelling for meetings which can now be completed digitally – this ensures site management is maintained but off site works can be planned as required. ”

“ Embracing working remotely, learning to adapt to flexible working and more actively managing physical and mental wellness. ”

“ As we start to think about returning to the office, it certainly won’t look like what it did before. The prospect of splitting teams into A/B/C to ensure social distancing is very likely however there will definitely be a significant online presence for the future. ”

## Education

The academic session 2019-2020 was unlike any previously experienced. ICE members continued to inspire young people throughout, both in person before the Covid 19 pandemic closed schools and then digitally as parents, pupils and volunteers embarked on the challenge of home learning.

- Over 600 senior phase pupils took part in presentations from ICE members on “how to become a civil engineer” as part of the ICE’s 16-18 campaign
- All ICE Schools Volunteers became STEM Ambassadors under the STEM Learning umbrella, giving them nationally recognised status and additional support & opportunities.
- A successful Lunch & learn webinar “How to inspire future civil engineers” gave guidance to interested members on how to volunteer for education & inspiration activity.
- Almost 8500 young people took part in a wide range of ICE activities in person before engagement had to adapt to digital only.
- The inaugural Scottish ICE STEM Ambassador of the Year award was closely contested. It was won by Fran Ratcliffe for her dedication and enthusiasm, including mentoring, diversity, curriculum development and encouragement of others to join the STEM Ambassador ranks.
- New civil engineering walking trails for Glasgow’s Forth & Clyde Canal, Aberdeen Harbour and Kelvin Bridges were produced, with many more in development.
- Parents and pupils adapting to home learning during the Covid 19 pandemic were supported with digital activities and challenges delivered through social media and the ICE website.



## Membership

The Scotland & Northern Ireland Membership Recruitment Team works together to grow the membership numbers at student, graduate, EngTech MICE, IEng MICE and CEng MICE.

If you need advice on membership and professional qualification, or to become a supervising civil engineer, delegated engineer, mentor or professional reviewer – get in touch. We are Membership Manager: [Donna Surgeoner](#) (East, Scotland, NI and Rol), and Membership Development Officers: [Sabine Maclean](#) (West), [Barbara Murray](#) (North), and [Jen Hopkins](#) (NI and Rol).

In the past year we have run, in person until March, and then online, membership surgeries and guidance seminars – topics have included Experiential Learning, Attributes and Professional Reviews; and we have regular visits to employers, universities and colleges.

| Grade/Event Numbers                              | End Aug 19 to end Aug 2020 |
|--|----------------------------|
| New Student members                              | 501                        |
| New Graduate members                             | 265                        |
| New Technician Members                           | 27                         |
| New IEng/CEng Members                            | 127                        |
| SCEs/Mentors/DEs briefed or updated              | 577                        |
| Membership Guidance Seminar attendees            | 975                        |
| Employer Visits and Membership Surgery attendees | 972                        |

2019/2020 MRT summary - Scotland





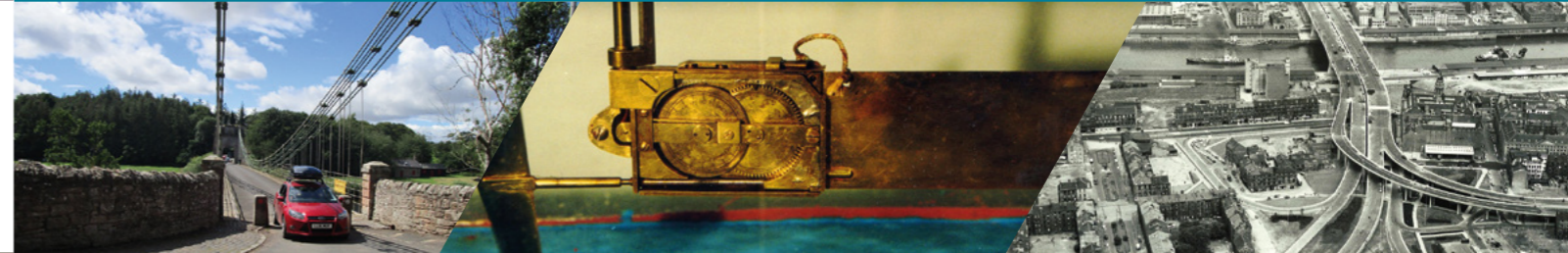
## ICE Scotland's Home Engineering Challenge

We challenged school pupils across Scotland to demonstrate their creativity and problem-solving skills by building an iconic civil engineering project just from household materials. Here are some of the results.



## Celebrating our Heritage

The last year has seen a number of important anniversaries in the world of Scottish Civil Engineering including:



- Centenary of the birth of [William Macquorn Rankine](#), Regius Professor of Civil and Mechanical Engineering at Glasgow University 1855-1872.
- The 130th anniversary of the [Forth Rail Bridge](#).
- The 75th anniversary of the opening of the [Churchill Barrier](#) on Orkney.
- The 50th anniversary of the opening of the [Kingston Bridge](#).
- The bicentennial of the [Union Chain Bridge](#).

Another important development was the [creation of an online tour of the ICE Scotland Museum](#).

The collection boasts over 500 items containing such diverse items as original Thomas Telford letters and specimens of iron from the Union Chain Bridge, the world's longest suspension bridge span when built over the River Tweed in 1820.

The museum, based at Heriot Watt University, is the only one of its kind in the UK and also includes a hydraulic riveting machine used to construct the Forth Bridge as well as a wide range of surveying and drawing instruments.

## Insights and influence

As always, a key part of our work this year has been informing the debate on the wide range of issues that civil engineering touches upon.

Most notably this year there has been a particular emphasis on how the sector can play its part in addressing the climate emergency.

In January, the [Scottish Infrastructure Commission published its Phase 1 report](#), which adopted several ICE Scotland recommendations. Among them, was that government investment should prioritise projects which deliver against an inclusive net-zero economy.

During the year, we submitted responses to consultations from the Scottish Government on a [range of topics](#), including the National Transport Strategy and Housing to 2040.

We also made our [submission to the Scottish Government's Advisory Group on economic recovery](#), which called on the Scottish Government to declare maintenance a National Infrastructure Priority and deliver a post-Covid landscape which is green, digital and inclusive.

We welcomed [September's Programme for Government](#) with its increased infrastructure investment promise, but it is vital to think about our infrastructure in the context of climate change.

As always, a key part of our work this year has been informing the debate on the wide range of issues that civil engineering touches upon. Along with building new assets to help meet net zero targets, we need to focus on adapting our infrastructure so that it can withstand the new challenges a changing climate brings.

With the Scottish Parliamentary elections in 2021, ICE Scotland will continue to be the independent voice on infrastructure matters, always acting for the public good.

## Representing us all

This year we created an ICE Scotland Diversity & Inclusion group. We've been working on diversity of speakers, access to venues, food on offer, as well as the timing of events to ensure there is something for everyone, and all members can take part in some if not all of the events. The movement to all online events has actually meant greater participation.

We intended taking part in Glasgow Pride once again due to the success of last year's participation but COVID hampered this but we will look to attend next year. We are looking forward to a joint event coming up in November with Building Equality, where Amanda McKay will present on LGBT+ Awareness in Construction.

Diversity is wide ranging though, and covers different races, ethnicities, genders, ages, religions, disabilities, and sexual orientations. However, it also encompasses differences in education, personalities, skill sets, experiences, and knowledge bases.

We will continue to probe and develop our activities with these D&I areas in mind. We want to make existing members feel part of the ICE, and potential members want to be part of ICE.