



THE ART OF ENGINEERING

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CIBSE President

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Peter Y Wong

- Bachelors degree in electrical engineering from Illinois Institute of Technology, 1971
- Joined Yook Tong Electric Company Ltd, Hong Kong in 1976 as a Director
- Founding Chairman of the Building Services Division of the Hong Kong Institute of Engineers
- Elected President of the Hong Kong Institute of Engineers in 2008
- Launched CIBSE Hong Kong Region as their Chair
- Elected CIBSE President-Elect in April 2016



It is a real honour for me to be the first CIBSE President from the Hong Kong Branch. And I am delighted that several members from Hong Kong have been able to join me here tonight.

As the new CIBSE President,

I would like to take a few minutes to outline my vision for the Institution for the coming year.

I'd like to start by posing a question:

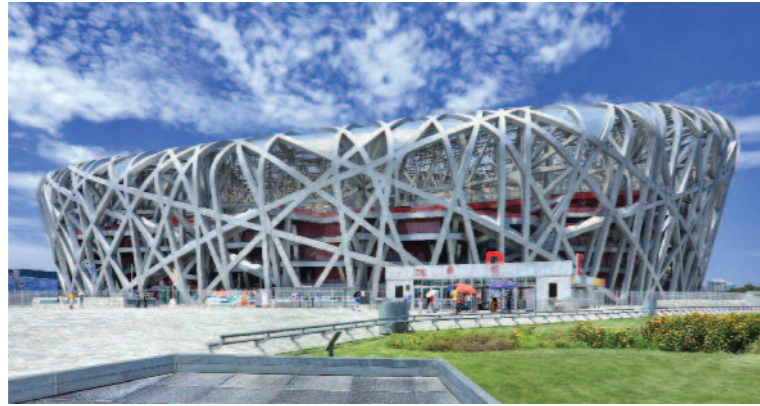
Is engineering art?

Michaelangelo's David manifests determination, beauty and potent strength. It is also structurally sound and demonstrates perfect proportions. We call it a piece of art.

Look at the Bird's Nest Stadium in Beijing, built for the 2008 Summer Olympics. A structure built for a purpose, a venue awaiting the display of sporting strength. It is also structurally sound, with its famous commensurate loading curves. If it is not an



image of David manifesting determination and potent strength, what is? But why don't we call it art?



Beijing National Stadium

In CIBSE, we think it IS art. In our Charter, we say 'we exist to support the Science, **Art** and Practice of building services engineering'.

But surely, if we get the 'science' and 'practice' right – why does the art matter?

If the problem is solved and the solution works, what does art have to do with it?

The answer is that the artistry brings our work innately alive and is vibrant.

I'd also like to argue that for Chartered Engineers, 'art' is the most important word in that sentence.

There are many building services engineering projects that could illustrate my point well. I shall first look at some winners of our CIBSE Building Performance Awards.

The International Commerce Centre (ICC) in

Hong Kong is an impressive example.

The building has 2.5 million square feet of office and hotel space. It's

about 1,600 feet high, and divided over 118 floors – many thousands of people live, work and play there day-in and day-out. I shall skip the scientific and practical skill it took to build the world's seventh tallest building as that is obvious.

But day-in, day-out the building's tenants are engaged in creating a sustainable environment. Food waste is collected, and condensation from the air handling units is used to flush the toilets. From the design to its operation, the mission of the building services engineers involved was to create a living, breathing building that works alongside its occupants.

The other recent Award winner, the University of Bradford, is a double winner of the CIBSE Building Performance Champion Award. The estate was mostly built in the 60s and early 70s and delivered sub-optimal performance for



The International Commerce Centre in Hong Kong



University of Bradford

many years. But, by tearing up the rule book on what we thought was appropriate with older buildings, the skills of the building services engineers delivered the only University campus in the world with three 'BREEAM Outstanding' buildings and a Passivhaus building within 100 metres of each other. The completed project has rejuvenated the campus and the art of engineering is spread across the whole University. It is now not merely functional: it

goes above and beyond, to help generations of young people flourish and develop in a positive learning environment for years to come

Art is often about making a breakthrough, not merely a successful copy. CIBSE members are ready and prepared to go beyond what we thought was possible. Let's look at another example.



The Gardens by the Bay project in Singapore

The Gardens by the Bay project in Singapore, which won a CIBSE Building Performance Award in 2014, demonstrates exceptionally what can be achieved by marrying science, practice and art:

The project is impressive scientifically because it has enormous sculptural towers called 'supertrees' which carry out functions from heat dissipation to power generation with their integrated systems. It is impressive practically

because the botanical gardens re-create a Mediterranean springtime with mild, dry days and cool nights in a city that neighbours the Equator. These two factors alone make it a remarkable project, but the hidden 'art' is that it uses no more power than an average Singaporean office block. It was about building a city inside a city.

By the way, Singapore will have a new CIBSE Branch soon.



Amsterdam

Another example is a city outside a city: The Dutch City of Amsterdam, where the municipal administration preserves the artistic ambience of the inner city while deploying a huge array of futuristic technologies for the benefit of its residents; including rainwater recycling, demand-responsive street lighting, and integration of transport and logistics management while keeping commuters living outside the city ring road.

In a way, the principles behind the Amsterdam

Smart City are the same as the ones behind the Beijing stadium, but on a larger scale. They are both designed to create a high performing project that is at once a functional building, and a piece of sculpture.

Both the Bradford and Amsterdam projects show us that our existing building stock can be sustainable. Both the ICC and Gardens by the Bay projects go well beyond statutory requirements.

The Art of Engineering

Prestige

Professionalism

Public Interest

The reason we marvel at the art of Michelangelo's statue, Picasso's paintings and Mozart's symphonies is because they are alive: each encounter with them brings us fresh sensations and different meanings; they are still alive irrespective of their age.

The projects I have talked about – The International Commerce Centre, Gardens by the Bay, the University of Bradford's estate and Amsterdam's de-urbanization are recognised examples of CIBSE members engineering skill. Creating beautiful environments and experiences for the people who live, work, learn and play in them. Every day millions of people benefit from CIBSE members' commitment to professional standards and serving the public good.

In addition to the technical skills we have learned, all these examples demonstrate the 'art' of the building services engineering profession. What marks these projects out as 'extraordinary' is not just the undoubtedly impressive engineering it took to create them, but the way that the core values of Engineers were upheld throughout – prestige, professionalism and public interest.

Hong Kong Harbour

1980

2017

Construction has transformed Hong Kong beyond recognition since I first started work there. It has become a beautiful urban jungle of towers, but not all changes have been good. The urban environment is less healthy, the air is still and humid.

If building services engineers were allowed to emulate these Award winning projects more often, then the skyline of Hong Kong would remain as beautiful as it is, but the health of the city would be much improved.

Are Engineers artists?

This question is a tough one. Imagine me asking other people this question, what they would see is a dull and boring person. You will never get any answer except “why would you ever ask such a stupid question?”

Luckily you are not as dull and boring as I am.

Seriously, the Art part lies within our practice – and fuelled by our core values and beliefs. We need to tell others we are artists, and explain

why we call ourselves that, and now is the time to do so.

Picasso never hid that he was a Cubist, and Dali never hid that he was a surrealist. Artists are proud of their movements, and believe that their principles can change the world – and we need to borrow some of that inspiration and apply it to our roles as Building Services Engineers.

We should tell others art can be more than ornamental, it can also be functional as well - in the form of a building and built environment. The functional aspects often hidden away are actually the most creative work an engineer will do in their careers

In my presidential year, it is my aim to celebrate and elevate the exceptional work that our members do to inspire. That CIBSE promotes the art and science of building services: we are engineers; we talk about the science and we practice art. The art of collaboration, intuition, invention and creative thinking to challenge and inspire the public and each other.

The value of CIBSE

I am extremely proud to be a CIBSE Fellow and Chartered Engineer.

I think it is important that we understand the difference between being made a Chartered Engineer (CEng), Incorporated Engineer (IEng) and Engineering Technician (EngTech), in the UK and the 'registration' process elsewhere.

In the UK CEng, IEng and EngTech are a status that the engineering profession is proud of, that the public respects, and that is valued in the industry, and registration implies acceptance of professional values. In many places elsewhere, registration is often just a licence to practice – the legal minimum required to be allowed to work as an engineer.

The UK system embraces a person who is ready to take on professional

responsibility and the liability of malpractice. It is personal. It marks professionals out because of the quality we aspire to and the values of professionalism we commit to uphold; in addition to basic compliance, standards and safeguarding of the public interest.

A licence to practice often merely relies on successful attainment of some entry requirements. One may argue that the license also penalises malpractice, but it's only after malpractice has occurred that offenders are caught and punished. Professionalism is about instilling values in an engineer that prevent them even thinking about malpractice in the first place.

As a Chartered Institution, CIBSE helps define and protect those values and principles of professionalism.

Membership

Membership is one of the key pillars of our 2020 CIBSE vision, because everything that CIBSE does for the industry, for the public, and for engineering at large, flows from the strength of our membership. It is the members who are the experts that are delivering new knowledge, sharing guidance and introducing new expertise. It is the members who go out into the world and apply the knowledge that we publish, for the good of society.

More importantly, we are willing to share our knowledge and expertise world-wide.

The Knowledge Portal is one of our best assets, because it allows anyone who has an interest in CIBSE anywhere in the world to benefit from and contribute to CIBSE's wider Knowledge offering. The language of engineering has no boundaries, and CIBSE takes pride in sharing and learning from others. All the better if CIBSE could help those with less developed engineering sectors to springboard to the future of low carbon buildings in the years to come.

Despite this, we shouldn't be complacent.

Reach out

CIBSE and its members can't know everything and be everywhere, and the best way to change that is to bring new members on board around the globe. And with them, to bring in new knowledge about industries, technologies, regions and markets that can ensure that we offer the deepest and most diverse pool of knowledge.

Of course, we don't just exist to distribute Guides. We exist to spread what we believe and say in our Charter, 'we exist to support the Science, Art and Practice of building services engineering'.

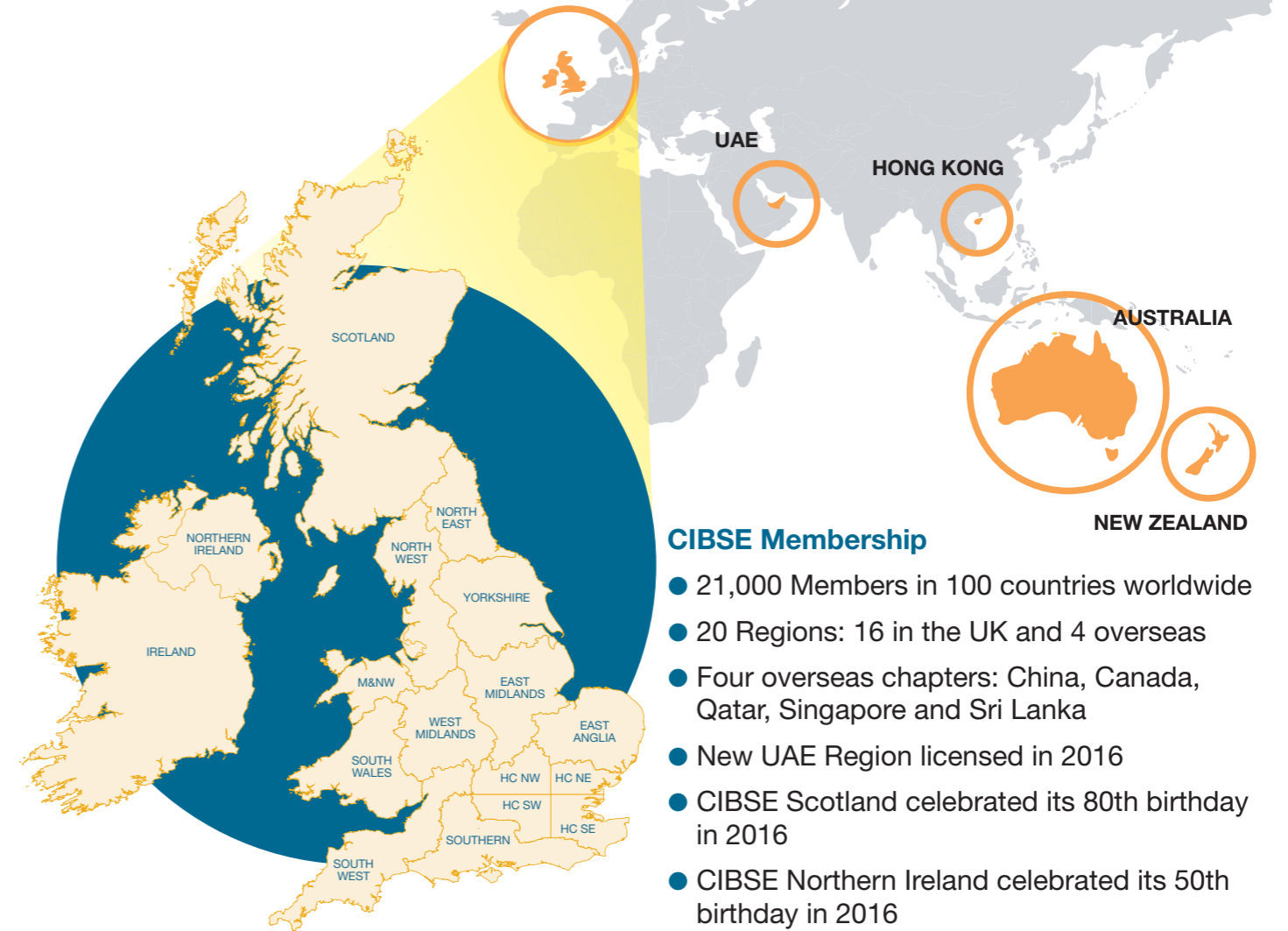
My presidential pledge is to inspire the industry to embody the spirit and values of being a CIBSE member and to promote the positive message of the values we believe in, the professionalism we treasure and the aspiration of exchanging best practice among like-minded professionals worldwide. I am confident that once they see the calibre of CIBSE members, a growth in membership is inevitable.

I can't do this alone.

CIBSE now represent nearly 21,000 members bringing out the ART in building services engineering worldwide. I also have an eye on our Young Engineers Network around the world. For one thing, they don't look as dull and boring as I do. And they will be our ambassadors for many years to come.

Building Services Engineers are one of the most important professions for the future health of the planet, and the world is depending on what we do to ensure that we have healthy and productive places to live and work for generations.

Reach out. It is a big world out there. Spread the CIBSE message.



CIBSE Membership

- 21,000 Members in 100 countries worldwide
- 20 Regions: 16 in the UK and 4 overseas
- Four overseas chapters: China, Canada, Qatar, Singapore and Sri Lanka
- New UAE Region licensed in 2016
- CIBSE Scotland celebrated its 80th birthday in 2016
- CIBSE Northern Ireland celebrated its 50th birthday in 2016
- CIBSE ANZ is celebrating its 30th birthday in 2017

The Chartered Institution of Building Services Engineers

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