

Transcript of Presidential Address by Nick Mead CEng FCIBSE - 7 May 2015

Honoured guests, ladies and gentlemen

I would like to open by returning to a statement made by Peter in his opening presidential speech.

“We live in a rapidly changing world. The climate is changing, people are living longer, world population is increasing; resources are coming under ever increasing pressure. Power prices are rising and the world is shrinking. There has never been a better time to be a building services engineer”.

Whilst power prices may be in a temporary decline, we still live in a rapidly changing world, constraints on resources are growing, and it is still a great time to be a building services engineer.

As services engineers we are responsible for almost all of the energy using systems in buildings. These systems are responsible for 40-45% of primary energy demand and carbon emissions in most developed economies. Those same systems also use large quantities of metals and rare earths which are scarce, expensive resources, and some of them only currently available from certain parts of the world. Energy and resource constraints on the built environment are set to grow, and as Peter reminded us last year, our Institution has the knowledge and skills to deliver significant improvements in energy and resource efficiency without compromising building performance.

Policy makers around the world face what is termed the “energy trilemma” – the need to improve security of supply, reduce energy costs to consumers and businesses, and to reduce carbon emissions to minimise the increase in global average surface temperatures. That urgency has not diminished in the last year. The forthcoming Conference of the Parties to the United Nations Framework Climate Change Treaty in Paris next December faces critical challenges to set the world on a path to mitigate the impact of human activity on global climate, or to commit the climate to further damage which will be irreversible in our lifetimes.

And all these changes are being viewed by the public by means of the internet, twitter and facebook. The electronic world is shrinking the natural world and people’s knowledge and demands are greater and more immediate than ever.

The public’s expectation of the world they live in is greater than ever: from their homes, their cars, and public transport, the buildings they learn in and work in and their leisure facilities.

As building services engineers we have a major role to play in this and the Institution has a greater role in helping our members achieve their aims. These aims are as diverse as the individuals and their projects. Whether it their own professional development, the development of their projects or designs, the management of those buildings or just to be part of the bigger future. The institution needs to recognise these and service them at an international level.

The industry has changed markedly in my 37 year career and CIBSE has changed to match it.

With over 21,000 members spread over all continents, CIBSE has moved to meet the demands of new technologies, international membership, legislation and international treaties and demands for sustainable construction.

We face environmental uncertainties, threats from climate change, concerns about national security in both the physical and virtual worlds, and constraints presented by economic priorities and socio-political inertia. As services engineers we must face these challenges, and we need to be at the top of our game if we are to deliver the improvements in design, construction and lifetime performance of the built environment that society needs.

And we must deliver that improved building performance with a collaborative approach, working with others.

All these are issues that many deal with on a daily basis.

On the demand side we have a growing world population, a demand for a higher standard of living and a growth in new technologies and energy consumption.

On the supply side we foresee a decline in the production of fossil fuels. Earlier this year a team at University College London published a study in Nature which set out the extent to which we need to reduce our dependence on fossil fuels. That study attracted global interest as it set out the scale of the change that is needed if we are to avoid further significant rises in global carbon emissions.

Nuclear, wind, solar power and renewable heat are all currently available options, although all have their detractors and present challenges. Despite our environmental needs we still struggle to accept these as potential solutions, although we all want to play our part in finding sustainable and environmentally friendly solutions.

Whilst CIBSE is not directly involved in questions of energy supply, and we have limited influence on these decisions, we most certainly can influence the fact that buildings and their services play a very large part in a nation's energy consumption and resulting carbon emissions. Delivering significant cuts in energy consumption and carbon emissions and balancing the economic and environmental imperative will require careful engineering, genuine collaboration and effective management.

We may have limited influence as individuals. But as building services engineers we are the key professionals in the delivery of building performance. That may sound as if we are blowing our trumpets, and perhaps we should do that, but it also identifies the very significant professional responsibility that building services engineers have. If we are to achieve significant reductions in energy use in the built environment then we have a key role to play.

Working together, to support our institution as a professional unit of designers, contractors, manufacturers and facility managers we can give the institution the support to deliver this knowledge we have.

And we cannot deliver better building performance on our own. Better building performance requires collaboration with other professions, as together we focus on meeting the needs of our clients and of building occupants, and delivering better buildings that use less energy whilst meeting those needs.

Then, along with other engineering professional bodies, we can also hold 'open' debates with government to raise the profile of our industry and its own sustainability.

CIBSE has been focussed on this theme for some time with the launch of the CIBSE Building Performance Awards eight years ago, which my company, Imtech, is delighted to support.

CIBSE developed the Building Performance Awards to recognise buildings that perform in reality as a system, and not as a load of products placed in a building simulation. In 2014 the standard of entries was the highest ever proving that we can design, build and operate buildings.

We also launched our annual Technical Symposium in 2011, and just two weeks ago we held the fifth of these in London, with international speakers and over 200 delegates, all committed to the role of the building services engineer in delivering improved performance.

A key issue in the presentations and discussion was the importance of real measured performance rather than calculations and predictions, and how we achieve better real life performance.

We also now have the CIBSE Building Performance Conference which we launched last year and will be run again this year in November. We are just concluding the programme, but the themes of performance and collaboration will be central.

We have a wealth of bright, intelligent engineers; we see very competent contractors and some outstanding products on the market.

The facility managers are now a far cry from caretakers and janitors offering technical maintenance to the highest standard.

Despite this there are a lot of buildings that do not perform in the way that the designers intended or the occupants want.

What the awards have shown is that highly efficient green products, environmental tick boxes and processes do not on their own deliver buildings that work as intended, or well.

They need to work together, collaboratively, not only during design, construction and handover; but the whole life of the system.

Buildings have varied life expectancies depending on their operation and purpose, but many commercial buildings could have an expected life of 50 years and any inefficiencies built in at the start will remain for the full fifty years.

So how do we ensure that buildings continue to improve? This must begin with our sector becoming joined up and giving the government good reason to believe that we are serious about delivering what our clients require. A mix of both voluntary and mandatory measures will drive overall building performance. These measures need to address the differences between private and public sectors and offer motivation and reward to both landlords and tenants of new and existing building stock.

Governments control the codes and regulations in our industry and have a big part to play in planning for the future. They themselves occupy or own a large number of buildings and recognise the issues in much of their new and existing portfolio.

Through their regulatory control they have the power to mandate more efficient buildings, yet have tried for many years without much evidence of success. Some of the measures have been ambiguous or not reasonably enforceable. Many are open to misinterpretation and this is exploited in various ways by different professional teams. Some just have minimal penalties for failure to comply, and finally, the Building Control system is stretched to cover structure, fire, sanitary provision, energy, ventilation, access and now, with the new Part Q, security.

To improve building performance, we must consider whole life. High performance buildings tend to start off with shape, orientation and façade design. However, this is not always possible on refurbishments or city developments and quite often the influence of surrounding buildings is not considered.

Many buildings are still being constructed with few, if any, passive measures to reduce heat loads. Managing these loads with mechanical plant will incur increasing cost over the whole life of the building. We cannot continue to divorce design and construction from operation.

Design intent needs to address the intended operational requirement for that building over its intended life and there is a fine line between flexibility and adaptability.

More collaboration is required amongst the professional teams including architects, quantity surveyors and the various branches of engineering.

On many projects design intent is diluted when the contractor, who has to find money in the project, attempts to find economies during the construction.

Even when constructed, many of the building services are complex or are installed in spaces that make maintenance impractical. And often one wonders whether the designer really understood how the system was to be controlled. Quite often services are designed without the knowledge of a complex support system for a plaster ceiling or marble finishes in bathrooms which are only recognised during construction.

We are keen to deliver LEED and BREEAM projects, but we must not let a box ticking exercise distract us from overall real system efficiencies when the building is actually put into use.

IMAGE NOTE: image on the right was taken by a CIBSE engineer who discovered this hot water cylinder installed in a ceiling void that's rather inaccessible! (There was also no timer, programmer or thermostat on it either!!)

Many excellent high performance, low carbon products are used in a manner that doesn't allow them to achieve their maximum efficiencies. Designing for one day in ten years and adding margins on margins to protect our PI dilute the performance of that product. Systems work harder when pushed and are therefore more efficient. Sometimes we need to be brave and stick our head above the parapet and look at the long term performance.

Getting designers, contractors and manufacturers working together earlier and having a collaborative approach can give assurances to a client. It is when we work in silos and point the finger of blame at others that clients lose confidence in our profession and our sector as a whole.

I have mentioned the services element of the built environment, but also the structural and architecture aspects and cost management and how they can work together need to be considered. Better collaboration across these areas will deliver better overall performance but this needs to be led by the institutions and not by individual companies.

The EDGE report into the future of the professions recognises this and calls very clearly for all the professional bodies to develop a more unified approach. Given the importance of our role in delivering buildings that meet the needs of their users and owners, and the importance of buildings to our daily life, wellbeing and our economy, I believe that it is essential that the Institutions give a clear lead, and that not in isolation, but as a collective. I welcome the call from the EDGE for us to do this.

BIM is a start to this and, on paper, it is the answer to all our problems. In reality we have a long way to go to deliver a building with a full asset information model. A non-unified approach, differing agendas and the cost to set it up is hindering development. Like any guide or recommendation, interpretation is taken differently to suit the interpreters needs.

CIBSE has had a BIM Steering Group for four years, and led the recent C8 initiative to develop a collaborative approach by the 8 leading professional bodies in the sector. The 2050 BIM steering group also includes CIBSE members.

Amongst the uncertainties of our future, our profession can only grow in stature and relevance. The tower cranes on the London skyline and in many cities around the world show these are exciting times. We need to project this fact, not only to our clients and the general community, but also to those considering a career in engineering.

We need to get the message of diversity and variety out to those considering a career in building services, and not just in the UK. CIBSE has over 21,000 members, and a third of these work outside the UK, taking UK knowledge and expertise around the globe.

We talk of sustainability a lot in our industry but we must look at ourselves in the future. We must sustain our current and new future engineers by offering knowledge and access to new technologies

that embrace the changes. CIBSE is committed to recruiting the next generation of building services engineers.

Our careers panel, supported by the companies who form the CIBSE Patrons, has some excellent career fact sheets that assist our regions and young engineers in promoting our industry. These, like so many things that CIBSE does and promotes, are only possible with the hard work and support of the staff and volunteers.

I would therefore like to close by giving thanks to those staff and volunteers. Their enthusiasm, knowledge and passion is invaluable. Together they help our members show the important role that building services play in the built environment and how we can achieve improvement in that environment.

Finally I would like to recognise a membership group in CIBSE that sustains our knowledge and inspires young engineers. I recently attended another professional body presidential speech where the theme was around past famous engineers and the background music was no more heroes by the stranglers.

I believe there are still many heroes but, in true services engineers' fashion, we don't shout about it. The new Fellows Network that Peter Kinsella announced earlier this evening is intended to change that, and recognise our senior members. Their knowledge and experience will continue to help drive and inspire our membership in knowledge, stature and recognition.

Honoured guests, ladies and gentlemen, we are at the beginning of the future, today's innovation is tomorrow's normal standard and I'm sure we haven't even discovered tomorrow's new innovation. The future of the built environment is exciting and building services engineers will deliver that future to ensure that buildings perform using a collaborative approach.