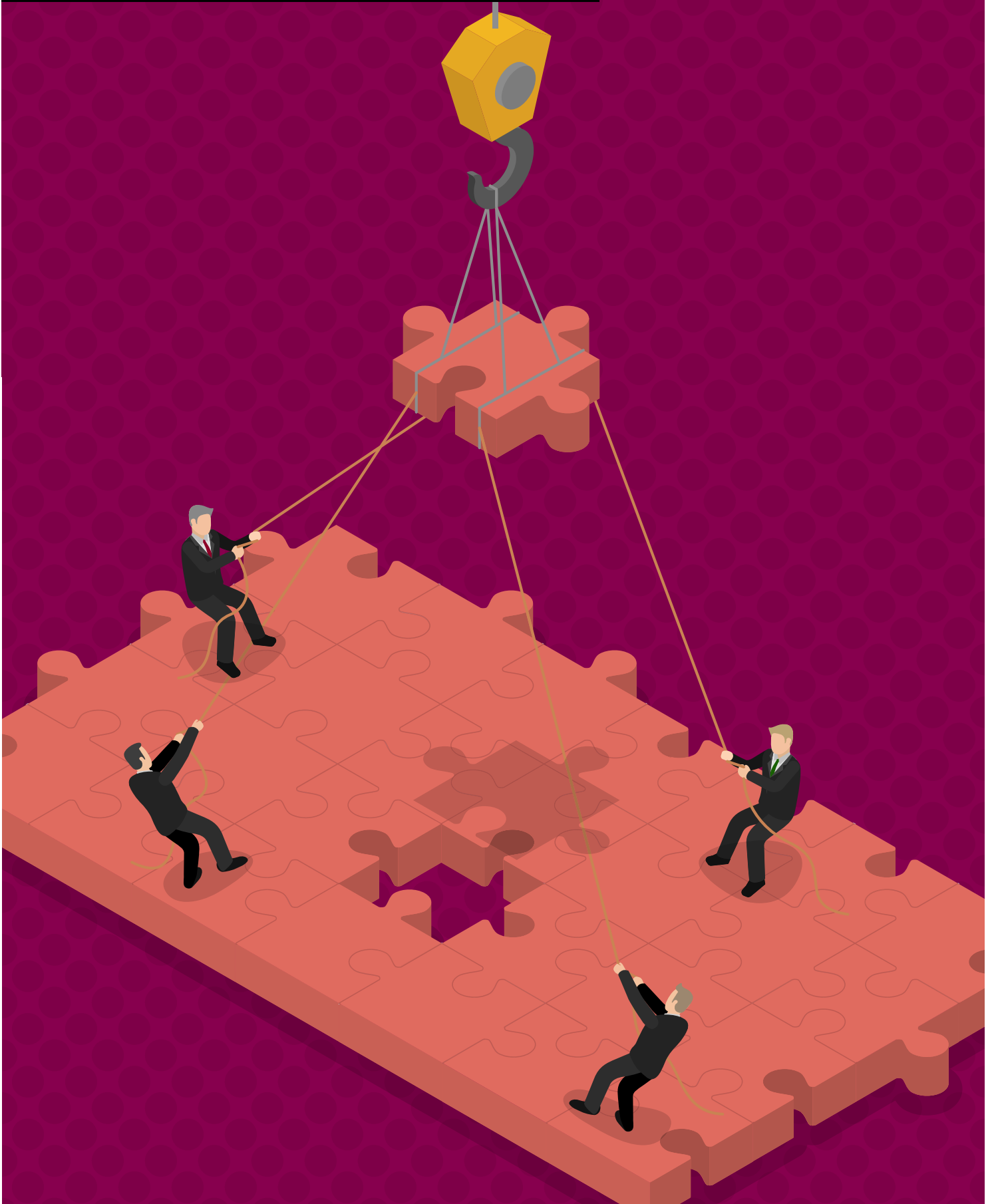


WiringMatters

Your insight into BS 7671 www.theiet.org/wm



Myth Busters

Exposing electrical myths and folklore



Electrical installation work is no stranger to the ‘we’ve always done it this way....’ attitude which is often applied with little thought. This occasional column, by James Eade, intends to expose electrical myths and folklore that still abound in the industry and, where possible, to examine their origin.

#1 Phase separation

Have you heard the one about keeping equipment supplied from different phases or supplies spaced apart by a touching distance? Or that you can’t have more than one phase in enclosures such as a 19” server bay or AV equipment rack? Well it is a regular misconception and still persists today – it even features in older HSE guidance such as INDG247 (which is under revision).

Interestingly this myth does have a foundation in previous editions of the IEE Wiring Regulations, hence it still persists. The last reference can be traced back some considerable time to the 14th Edition of the IEE ‘Regulations for the Electrical Equipment of Buildings’ issued in 1966. Regulation A20 of the same publication read as follows:

“A.20 All socket-outlets in any one room shall be connected to the same phase (or pole of a 3-wire system). Exemption: In non-domestic premises, if it is clearly impractical to comply with Regulation A.20, more than one phase (or pole) of the supply may be utilized provided that all socket-outlets on one phase (or pole) are grouped together and are not intermingled with socket-outlets connected to a different phase (or pole); and provided that in no circumstances may a socket-outlet be installed at a distance less than 6 feet from any socket-outlet connected to a different phase (or pole).”

The reason for this separation rule is unclear, but it is likely that it was because of the lack of effective protection compared to today’s use of circuit breakers and RCDs. In 1966 protection relied on fuses and it was very hard to measure circuit parameters such as earth loop impedance for example. The type of test equipment used today was still very much in its infancy. In fact at about the time when AVO purchased Megger in the mid-1970s, AVO was working on a crude version, but it wouldn’t work with circuit breakers as it kept tripping them. It was around 10 years later when the instruments used today became

more widely available. As disconnection times and hence effective protection could not be assured, in order to help protect a user from the effects of a prolonged 415 V shock between two faulty appliances the safest option was to make sure it would be unlikely that they could be touched simultaneously.

In 1970 the Regulations were ‘metricated’ and the ‘6-foot’ rule became 2 m; it was not until the 15th Edition in 1981 that this was removed. However, in the 15th Edition, Regulation 514-4 required labelling as necessary. It stated that “Every item of equipment or enclosure within which a voltage exceeding 250 volts exists, and where the presence of such a voltage would not normally be expected, shall be so arranged that before access is gained to live parts, a warning of the maximum voltage present is clearly visible.” It went on to also require a warning label between items of equipment that could be simultaneously touched, if the same voltage limit applied.

There is no reference to such separation in current or recent editions, the only exception being that Regulation 514-4 has morphed into Regulation 514.10.1. This requires a warning label to be affixed where an item of equipment has supplies inside exceeding 230 V to earth (i.e. 400 V between lines) and it would be unreasonable to expect a person to be aware of it.

So for most typical installations it is unlikely that labelling would be required, and there is certainly no restriction on polyphase supplies in equipment enclosures or equipment racks. If nothing else, it shows the authority that the Wiring Regulations command – a rule that is over 34 years old still abounds!

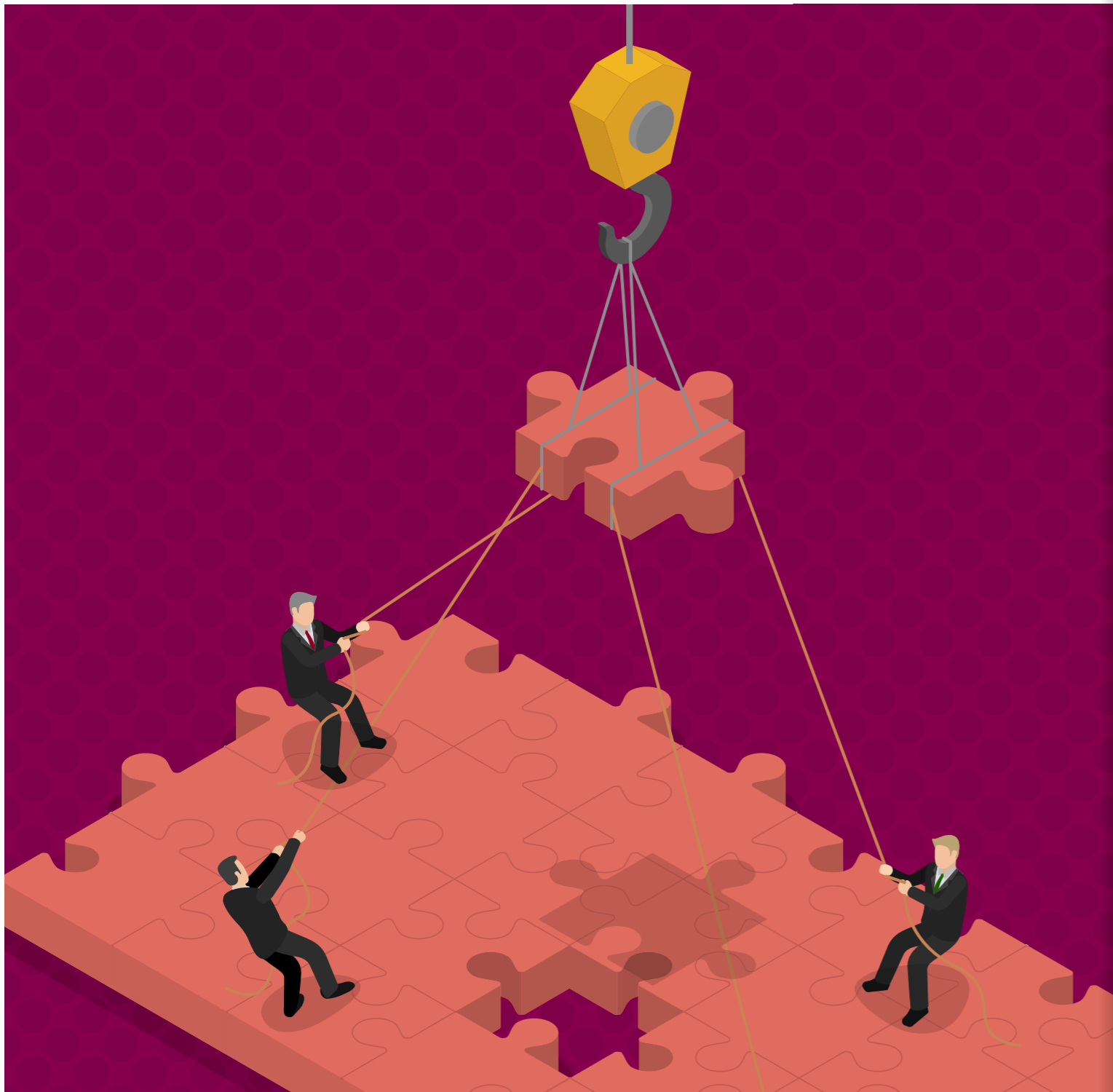
Think you have a myth that needs exposing?



Email wiringmatters@theiet.org

A brief overview of setting

Standards at the IET



We all understand how integral BS 7671 is to the electrical engineering industry, but have you ever wondered how other Standards within the sector come to fruition? In this article, Emma Chafer, takes a look at how you can get involved in setting standards that will enhance engineering.

Why get involved with standards setting?

Engineering is a rapidly changing sector that relies on good practice as well as the management and reduction of risk. In this environment, it is essential to work in a manner that embraces innovation, offers maximum efficiencies and improves safety.

The lack of professional standards and guidance for problematic functions in the work place can be frustrating. However, you can make a difference by contributing your experience and knowledge to improve consistency and working practices through your involvement in Technical Working Groups.

Getting involved in standards setting not only improves your sector's results, but can be a great step to raising your profile, both within your organisation and the wider industry.

Why set standards with the IET?

The IET creates essential professional standards and guidance in new and emerging areas of industry thanks to its:

- **Expert knowledge**
- **Key engineering contacts**
- **Vast experience**
- **Speed to market**
- **Reputation**

The IET co-publishes BS 7671 Wiring Regulations and has expert knowledge and experience in producing high level Codes of Practice and guidance. We have many key engineering contacts across a broad range of industries, many of which are in related industry bodies. Our work also influences policy and we work closely with the government in new and emerging areas. It's not a problem for the IET if there are areas of industry where key guidance is lacking as our

vast experience means we can work with industry stakeholders and subject experts to bring about consensus-based standards. Another benefit of setting standards with the IET is the speed which we can bring publications to market. We achieve this in a much timelier manner than formal standards processes whilst maintaining our robust, consensus-based standards setting processes.

How can you get involved?

There are four main ways in which you can get involved with setting standards with the IET. All are important aspects of the standards process.

Technical authorship

If you are passionate about your area of expertise and would like to take responsibility as well as gain recognition for important aspects of your industry then being a technical author is one possible option. Our technical authors are industry leaders with a wealth of experience and knowledge and are vital contributors to our publications

Committee membership

Another important way you can get involved is by sitting on a committee which directly influences the work contributed to particular standards and publications. From government departments to manufacturers and industry bodies, we value the input of industry representation on technical committees in order to achieve true consensus of important issues.

Project sponsorship

Having your organisation's branding alongside the IET on leading edge standards can help promote your organisation as a leader in your field.

Feedback on draft publications

This is the simplest way to have your say and potentially influence the way in which the IET creates a standard. By joining our mailing list you will be alerted to the publication of drafts for public comment for upcoming titles and be able to provide valuable feedback on the publication's contents.

What essential standards has the IET brought to new industry areas?

Solar PV, LED lighting technology and electric vehicle charging are just a few of the new areas that The IET has published Codes of Practice on in the past few years.

Code of Practice for Grid Connected Solar Photovoltaic Systems

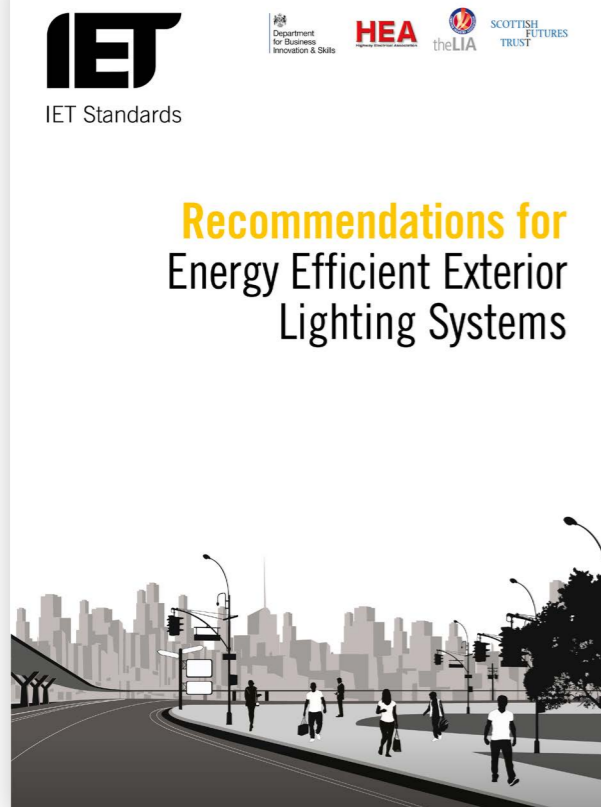
A group of stakeholders from across the solar PV industry came together with the IET to create consensus-based guidance on all stages of solar PV installation at both small and large scales.

Code of Practice for Electric Vehicle Charging Equipment Installation

With the rise in the use of electric vehicles, charging points were fast becoming necessities in towns across the UK, but no guidance previously existed to ensure that they were installed safely and consistently to industry standards.

Recommendations for Energy Efficient Exterior Lighting Systems

The IET was approached by a government department to create a document providing guidance to local authorities involved with street lighting projects.



What are the new areas of standards are in development?

Code of Practice for Building Controls and Building Energy Management Systems (BEMS) – applying BS EN 15232 for energy efficiency

A practical guide for electricians, energy managers and other interested parties working in non-residential buildings, giving advice on how to review existing building controls in properties and find areas for improvement and cost savings.

Guide to smart homes: design advice for electricians

A guide to help formalise the transition for electrical installers who wish to embark on opportunities within the smart homes industry.

Guide to Data Centre Power Systems

A comprehensive review of the various power systems that can be applied to diverse types of data centres that meet different ICT business models and risk profiles – from social networking to financial institutions. It will be a 'go-to' guide for data centre investors, end-users, operators, designers, equipment suppliers, installing contractors and training organisations.

Visit www.theiet.org/setting-standards to contact us about getting involved. After all, why wouldn't you want to get recognised for your skills and expertise as you influence better ways of working to enhance practices within your sector?



Visit the setting standards website here



Interview with

Leon Markwell



Wiring Matters interviews Leon Markwell.

How long have you worked in the electrical engineering industry?

For almost 50 years! I started as an apprentice electrician in East Anglia, where I worked for three different companies. I then went to university to study electrical and electronic engineering and afterwards to London to work for a major consultancy WS Atkins. From there I went to work in the Middle East, first in Saudi Arabia and then in Qatar. When I returned to the UK it was while self-employed that I saw an advert for the IEE (as it was then) for a position working on the wiring regulations technical staff based at Savoy Place in central London. After several years at the IEE I went back into industry in Facilities Management and did a Master's degree in Facilities Management. After being made redundant I came back to the IET to work again on BS 7671 Wiring Regulations with JPEL/64 and its committees and panels. This is the seventh time I've been involved with an amendment of the regulations.

What has been the most challenging moment of your career?

There have been several, but I would say the most challenging moment has been working in the Middle East because at the time it was an area of work that was new to me and it was also a different culture and lifestyle to that in the UK. Another challenging moment of my career was working as a HV Authorising Engineer for a facilities company while studying for my Master's degree in Facilities Management as part of a day-release scheme. It was demanding to manage staff and keep up with the practical work while studying and completing assignments.

What has been a particular highlight of your career?

There have been several but one that particularly stands out, especially as I get older, is working with young electricians and engineers and mentoring

and helping them. I have several who still keep in touch and call me occasionally for a chat or advice, which I enjoy.

There are four sub-committees which make up JPEL/64, the management committee for the BS 7671 Wiring Regulations. You are Secretary of both Sub-committee A and Sub-committee B. What work does this involve?

It is the secretary's role to organise sub-committee meetings and get the agendas and documents to the members, record the meetings' decisions and pass these decisions up to JPEL/64 (the management and approval committee for BS 7671,) for their dissemination to IEC etc. With the work for the 18th Edition of the regulations this has been an especially busy time for all the secretariat team – as well as considering the requirements for the 18th Edition there is the continual stream of normal IEC and CENELEC work to be considered.

Besides your work on Sub-committee A and Sub-committee B and JPEL/64, what other areas of the electrical engineering industry are you involved in?

I am also the secretary of the IET Electrotechnical Assessment Specification Management Committee (EAS Committee) which is an industry-wide committee separate from the wiring regulations work that agrees an industry framework for competence assessment schemes and competent person schemes for all electrotechnical installations, and considers other relevant industry matters.

As well as the IET committee work, I represent the IET on several international and UK committees such as IEC Maintenance Teams and BSI committees. I am also involved in lecturing, answering technical queries from industry and of course producing and revising IET publications such as emergency lighting and the guidance notes.

Guidance Note 3 offers guidance on Part 6 of BS 7671 – Inspection and Testing – what are the main changes to the guidance as a result of the 18th Edition update to BS 7671?

The single most significant 18th Edition change has been the renumbering of Part 6 of BS 7671 to align with the IEC and CENELEC standards, this has also had an effect on the documents in Appendix 6, and I believe this will cause some problems in the industry regarding certification and reporting. Generally, the requirements of Part 6 have not changed very much so the guidance has not changed, but we have tried to expand or update several items, and most experienced electrical operatives will soon become familiar with the revisions of Part 6 and the documents in Appendix 6.

What advice would you have to young professionals interested in a career in the electrical engineering industry?

The industry is changing and becoming more technical and technologically focused, and young professionals today will need a good education in maths and science based subjects to allow them to take an active part in it. I am concerned that the industry and the education system do not seem to be able to produce enough well trained young electricians and engineers to satisfy the demand and help the industry show what it can do.

Looking forward to the second half of 2018, what else have you got on the electrical engineering horizon?

I have plans to work on a new IET publication which we are developing – but I won't say anything more about it at the moment. There are also some ongoing electrotechnical issues that we need to research and I hope to get time to become more involved with them. Also, of course there is the never ending committee work!

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