THE ELECTRICAL TESTER FOR SINGLE PHASE

IN January, we battled to get back into the swing of things after our annual holidays and, three months later, we had a week's worth of public holidays. We suffered through April's 'fool's day' and only one public holiday and, on May 1, we will celebrate 'Workers' Day'. What a misnomer! There are the employed who don't want to work and who are quite happy to strike in the hope that the settlement at the end will more than compensate for their ad hoc holiday. I often wonder what the 'real' costs are. It is quite conceivable that manufacturers, dairy farmers and supermarkets add these 'holiday costs' to their prices… Think of it, someone has to pay for someone to sit at home and still get paid for not producing on a public holiday. Not forgetting the person who actually does work on a public holiday and who gets paid more… Also interesting to note how a road construction company recently started working night shift because the small town's folk complained about the 'traffic jams' when the construction company worked during the day. The cost of that change could easily run into millions, even on a smallish project … and who pays?

I was also floored a day or two ago when I saw what portion of a simple contract is spent on complying with our own Occupational Health and Safety Act. Are we over-regulating? Well, if I knew all the answers, I would not be writing this column, would I?

So, let's get on with the definitions found in The Electrical Installation Regulations 2009. As we all should know by now, these regulations form part of the Occupational Health and Safety Act (Act 85 of 1993).

I am going to deviate slightly … You may have noticed that all the definitions we have looked at over time, have been addressed in alphabetical order but, in this column, I will do things out of sequence for a reason, which is to keep the same 'concepts' together.

In my previous column, we looked at the 'electrical tester for single phase' which, as we will see, is also referred to as a 'registered person', which brings me to:

'Registered person' means a person registered in terms of
(a) Regulation 11; or
(b) Regulation 9 of the Electrical Installation Regulations, 1992, as an electrical tester for single phase, an installation electrician or a master installation electrician, as the case may be …'

We looked at the single phase guy last time; now we look at his two colleagues, namely the three phase guy and the hazardous areas guy. Their proper designations are 'installation electrician' and 'master installation electrician' respectively and we will first look at the former.

'Installation electrician' means a person who has been registered as an installation electrician in terms of Regulation 11 (2) for the verification and certification of the construction, testing and inspection of any electrical installation, excluding specialised electrical installations …'

This definition, together with the one about general control, will receive additional attention when we tackle the Construction Regulations later on in this particular set of Regulations. The installation electrician (also referred to as a registered person in the above definition) can obviously work on single and three phase installations.

Also, it does not matter if these single or three phase installations are part of a private dwelling, or the distribution centre for South Africa's largest retailer, he can still work on them.

'Master installation electrician' means a person who has been registered as a master installation electrician in terms of Regulation 11 (2) for the verification and certification of the construction, testing and inspection of any electrical installation …'

This definition is a virtual carbon copy of the definition for the installation electrician with one difference: there is no exclusion of the specialised electrical installations. These specialised electrical installations can include electrical installations in areas with flammable atmospheres such as petrol stations, grain silos and wineries. I once had the unenviable task of finding the cause of 'ghost explosions' in a powdered milk plant. Yes, under the correct circumstances, powdered milk is explosive! But more about that another time.

The next definition looks at professional engineers and reads…

'Engineering Profession Act, 2000' means the Engineering Profession Act, 2000 (Act No. 46 of 2000); This Act regulates when and how a qualified engineer can go by the title of 'professional engineer' and add PR Eng as a suffix to his or her name.

'General control' in relation to electrical installation work that is being carried out, includes instruction, guidance and supervision in respect of that work …'

Now, this is an interesting one … I think it is quite reasonable for anyone to accept, without having to say so, that we include single and three phase installations when we talk about electrical installation work – right? So, please be on the lookout for the twist when we get to the Regulation dealing with construction and supervision.

'General Machinery Regulations' means the General Machinery Regulations, 1988, promulgated by Government Notice No. R. 1521 of 5 August 1988 …'

Although it sort of goes without saying that electricians and electrical engineers only have *The Electrical Installation Regulations and Electrical Machinery Regulations* to worry about, it is not strictly true. The General Machinery Regulations deal, inter alia, with the qualifications required by the different levels of persons required to supervise machinery from 1 200 kW to more than 10 000 kVA. We will get to those regulations in due course.

'Installation work' means
(a) The installation, extension, modification or repair of an electrical installation;
(b) The connection of machinery at the supply terminals of such machinery; or
(e) The inspection, testing and verification of electrical installations for the purpose of issuing a certificate of compliance …'

Another interesting definition that is often the cause of heated discussions is this one defining installation work. And we all know electrical installations require valid Certificates of Compliance. Therefore, if you fiddle with an electrical installation in a particular fashion, you have to issue a Certificate of Compliance for that installation. You see, it usually works out that someone says, "Well, I only connected the stove". How can that be installation work? Well, it's because the Electrical Installation Regulations 2009 definitions say so! Have a good read and then contemplate sub clause (b). This definition also features prominently when it comes to the regulations pertaining to electrical contractors.

Till next time.

LITHIUM-ION BATTERY OPTIONS FOR THREE-PHASE UPS SOLUTIONS

SCHNEIDER Electric has announced that it will support the use of lithium-ion (Li-ion) batteries as an alternative to Valve Regulated Sealed Lead-Acid (VRLA) batteries for many of its three-phase uninterruptible power supplies (UPSs).

Schneider Electric is helping customers address some of the key challenges they face with using UPSs including:

- Significantly reducing UPS footprint and weight to allow for a more effective use of space. Li-ion batteries pack a lot of energy into a much smaller footprint. As a result, they take up only about one-third the space (or less) of a comparable VRLA-based solution that delivers the same power. This helps customers increase the footprint available for IT equipment while also reducing cooling requirements, which saves both capital costs and ongoing operating costs.
- Extending UPS battery life and reducing maintenance overhead. Lithium's long design life greatly reduces the cost and maintenance burdens of performing battery replacements.

"While VRLAs remain the dominant UPS energy storage technology due to their low cost and high reliability, lithium-ion is becoming a more attractive option for a growing set of customers," says Pedro Robredo, vice-president of Secure Power Systems, Schneider Electric. "All the initial cost remains higher than comparable VRLA, the price gap has reduced significantly in the last few years. Based on the application, Li-ion solutions can offer a projected total cost of ownership savings from 10 to 40% over their design life."

Lithium-ion battery options are available immediately for select projects supporting Symmetra MW, Galaxy 7000 and Galaxy VM with broad availability in the second half of 2016. Additional three-phase product line support will be rolled out through 2017.

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