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SPARKS ELECTRICAL NEWS

MAY 2016

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BURNING ISSUES FOR SOUTH AFRICA'S ELECTRICAL INDUSTRY

FIRES cost the South African economy more that R2-billion every year – half of that attributable to residential fires – according to the Fire Protection Association of Southern Africa (FPASA) statistics for 2013, the latest figures available.

Between 2010 and 2013, the number of fires increased a dramatic 60% from 26 574 to 42 343. In the same period, there was a sharp rise in the number of fatalities in fire-related incidents, from 224 to 578 in 2013 – more than double.

Information from the FPASA reveals that electrical faults are a leading cause of fires worldwide. These faults include overloaded installations, defective fuses, wiring and motors, the use of improper equipment in hazardous areas and the misuse of electrical apparatus. In 2013, almost a tenth of all fires in South Africa were attributed to 'electrical fires'. The cost of residential fires was a staggering R1-billion.

In 2013, the common causes of all fires were listed as open flames (38%); electrical (9%); other (7%); arson (4%); smoking (4%); cooking (3%) and heating (2%). The cause of a third of all fires was listed as 'undetermined'.

A summary of the statistics from 2010 to 2013 shows an alarming trend:

2010: 26 574 fires – 2 110 (8%) attributed to electrical faults.
Total estimated loss: R1.32-billion, of which residential fires amounted to R613-million and industrial fires to R174-million.
Deaths: 224.

2011: 37 721 fires – 3 261 (9%) attributed to electrical faults.
Total estimated loss: R2-billion, of which residential fires amounted to R728-million and industrial fires to R574-million.
Deaths: 410.

2012: 41 481 fires – 3 588 (8.6%) attributed to electrical faults.
Total estimated cost: R3-billion, of which residential fires amounted to R744-million and industrial fires R1.5-billion.
Deaths: 391.

2013: 42 343 fires – 3 750 (8.86%) attributed to electrical faults.
Total estimated cost: R2-billion, of which residential fires amounted to more that R1-billion and industrial fires to R478-million.
Deaths: 578.

Electrical fires

Pierre Nothard, chairman of the SAFEhouse Association, believes that, in South Africa, causes of electrical fires also include sub-standard electrical products, poor installation methods and the misuse of electrical products.

'Undetermined causes'

"While the FPASA statistics are not up-to-date, it is clear that there are about 3 800 electrical fires every year and, significantly, about 14 000 fires that are attributed to 'undetermined' causes.

"I would say that some of these are very likely to be electrical. What we don't know is to what extent the root causes are sub-standard products, poor installation or misuse of products," says Nothard.

"A further look at the figures reveals that – counter to general perception – there were 81% more electrical fires occurring in 'formal' dwellings than in 'informal' ones."

He says that a significant lack of knowledge and understanding of how electricity works contribute to the common – and dangerous – attitude of 'it won't happen to me'.

Electrocution statistics

Nothard believes it is "telling" that electrocution statistics are not published, even though these are known to exist, and questions why such information is not made available from the Department of Labour, which he says is "the custodian" of the Occupational Health and Safety Act (OHASA) and the Wiring Code, which deals with electrical installations.

Awareness

"It does not take much intellectual effort to fathom that one can at least begin to address the problems through greater awareness; educating users and their suppliers; and stricter enforcement of regulations."

Nothard says it is also imperative to address electrical installation practices. "Barely a handful of people are allocated to policing that aspect of the law – and they are expected to cover the entire country," he says, adding, "This is not a strategy to beat the odds."

The Department of Labour was asked for comment but none was forthcoming at the time of going to print.

A SAFEhouse Guide to MCBs - Part 1
Page 3

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THE ACT OF TAKING THE FIRST STEP IS WHAT SEPARATES THE WINNERS FROM LOSERS

George Mashinini, director at the newly established Testing and Conformity Services Laboratories (TACS Lab).

MANAGING director at the newly established Testing and Conformity Services Laboratories (TACS Lab), George Mashinini is one of those rare people who knows exactly what he wants to achieve and is not daunted by the magnitude of the tasks that lie ahead. The eternal optimist, George sees the bright side of life – that challenges are opportunities for growth, setbacks are just another word for 'experience', and failure is not an option.

He radiates an air of determination that is infused with positivity and an attitude that declares: 'Yes! I can!

Sparks: Where were you educated?

GM: I matriculated at Boekenhoutfontein High School in Pretoria and then went to Pretoria Engineering College where I obtained an Electrical Diploma (Heavy Current). Apart from that, I've completed numerous management courses and have certification in the implementation and evaluation of quality systems ISO/SABS 9001 as well as the Certificate of Plastic Technology (with distinction).

Sparks: How long have you been involved in the electrical industry?

GM: I've been in this industry for 30 years.

Sparks: When and where did you start your career?

GM: In 1985, I started out at Asea Electric cables, which was subsequently bought by Aberdare Cables, where I ended as technician-in-charge. I was responsible for the running of the laboratory and this involved the testing of raw materials, in-process and completed cables and various polymers or plastics used in the processing of telecom and power cables.

I was also responsible for the PVC plant and, while at Aberdare Cables, I was given the opportunity to go to ABB Cables' plants and the Borealis Innovation Centre, both in Sweden; NKF Cables in The Netherlands and Exxon Chemicals in Belgium, all as part of my career development.

When Aberdare closed its operations in Rosslyn, I moved to the SABS-NEFTA materials/installations laboratory where I served as manager and technical specialist. I subsequently joined Testing and Conformity Services Laboratories in July 2015, as managing director.

Sparks: What are the greatest changes you have seen over the years?

GM: I would say that it has been the movement from plastic additives that were not environmentally friendly, to more 'friendly' additives in the plastics that are used in the production of telecom and power cables. Another great change has been the movement from copper on telecom cables to optic fibre.

Sparks: What major projects have you worked on and what is your greatest accomplishment?

GM: While I was at Aberdare Cables, I was involved in the trials and development of 'Airdac' cable, now called 'service cable' that was used mainly in low cost housing. I also worked on the changes to the PVC additives in the PVC plant – and this led to major savings without compromising the quality of the PVC grades.

The highlight of my career has been working on the establishment of TACS Laboratories, which is an alternative, independent and accredited laboratory that will serve the electrical fraternity and consumers within our scope.

"I can't change the past but if I could influence the future, I would introduce electricity into the high school science curriculum so that youngsters are exposed to this industry from an early age."

Sparks: Who has been your inspiration or have you had a mentor who has influenced your career?

GM: I have been privileged to have had guidance from a number of mentors, namely, John Yuill, a professional electrical engineer who was the executive director-technical at Aberdare Cables; Thembani Bukula who is now regulatory member of National Energy Regulator of South Africa (NERSA) and Lucas Monyai who rose through the ranks at SABS and is now the general manager: Electrotechnical division at SABS.

Sparks: What, to your mind, are the biggest challenges facing the industry at this time?

GM: A huge challenge in South Africa is the theft of cable copper. Another challenge is for Eskom to maintain the electrical infrastructure and ensure the supply of power without having to resort to load-shedding.

Sparks: What do you enjoy most about your job?

GM: I enjoy the challenges and the achievements of my work.

Sparks: How do you motivate your staff?

GM: I would say that I lead by example or 'walk the talk'.

Sparks: If you could 'do it all again', would you change anything? If so, what would that be?

GM: I can't change the past but if I could influence the future, I would introduce electricity into the high school science curriculum so that youngsters are exposed to this industry from an early age.

Sparks: Would you advise a person leaving school to enter the electrical industry? And why?

GM: Yes, I would because this industry's challenges are opportunities for great achievements.

Sparks: What is your advice to electrical contractors and/or electrical engineers?

GM: My advice to them is to adhere to fundamental electrical safety principles and to only use compliant materials and equipment that have been approved by accredited test facilities.

Sparks: What is your favourite quote?

GM: "The act of taking the first step is what separates the winners from losers," Brian Tracy.

Sparks: Name three things on your 'bucket list' (things you want to do before you 'kick the bucket').

GM: I would like to take TACS Laboratories to a level where it would be second none by firstly, rendering quality, efficient test services; ensuring an environment that is conducive to internships for young graduates; and, finally, by delivering an impeccable testing service that would allow local manufacturers to compete at international levels.

WORKING KNOWLEDGE BY TERRY MACKENZIE HOY

MOTOR CONTROL SYSTEMS: REMOTE STARTING AND STOPPING – A MATTER FOR CAREFUL CONSIDERATION

THERE are few things that are more misunderstood in electrical engineering than the control of electric motors. An electric motor delivers a certain amount of torque at a certain speed and, with a few losses included, the electrical power drawn by the motor is approximately proportional to the torque if the motor speed is more or less constant.

Now, let us consider the cable that supplies the motor: if it were connected to the main supply by only a circuit breaker, then the circuit is not satisfactory; there's a possibility that the torque capable of being supplied by the motor is exceeded by the load (for example, when a pump impeller jams). Then the motor will stall, drawing considerable current until the circuit breaker trips or the motor burns out. Unless the circuit breaker is specially designed, the time to trip will not be short enough to stop the motor burning out. For this reason, between the supply circuit breaker and the cable to the motor, a motor contactor with a thermal overload is usually fitted.

If the motor stalls, or if it is just overloaded, the thermal overload will detect this and cause the contactor to open. Further, the overload will 'remember' the degree of overload and cannot be reset until the motor has cooled down enough to be restarted.

The contactor is an important device. When it is closed (by means of a pushbutton being temporarily depressed and energising the contactor coil, which pulls in the main contacts), an auxiliary contact of the contactor short-circuits the pushbutton contacts and thus the contactor 'latches closed'. To stop the motor, you have to open the contactor again by means of another pushbutton, which contacts temporarily interrupt the supply to the contactor.

One might ask: "Why not have an on-off switch in series with a contactor coil?" Because if the switch is on, the coil is energised; if the switch is off, it is de-energised. This would save on pushbuttons. The downside of this is that if there is a power dip, the contactor will open and then reclose – which will then reapply power to the motor, which will be slowing down or have stopped. Thus, the motor will restart. This is not necessarily undesirable but if there are whole lot of other motors, then they will all restart at the same time, which may well trip the main supply.

Therefore, it is a much better idea for the motor contactor to drop out on a power dip and then be restarted (automatically, if necessary) after a short interval and in sequence with other motors.

Another thing that is frequently done incorrectly is the matter of the remote control of the motor. Generally, in an industrial plant a motor is controlled by a start-stop station located next to the motor. Now, quite clearly, it should be possible to start the motor either from the motor control centre room or from the start-stop station. The motor control panel of the motor in the motor control centre room must have a local/remote switch that selects either 'remote start' or 'local start'.

It is naturally important that the remote and local stops are wired in such a way that either will stop the motor, regardless of the position of the local remote switch.

Now let us consider a few scenarios: (1) The motor has tripped on overload. (2) The electrician is called out to reset the overload and check things out. (3) This is done but the electrician forgets to switch the local/remote switch to 'remote'. Thus, the operator tries to start the motor in the plant but it doesn't start. So the electrician is called out again.

Then there are other things: for example, how does the operator lock the motor out in the field at the control station? If you fit a lockable emergency stop to the control station there is the matter of Who Will Keep The Key … the operator or electrician?

The matter of remote starting and stopping must be carefully considered as must the motor control circuit. Think it through from the beginning; in some plants they have been doing it the wrong way for years …

INTERNATIONAL QUALIFICATIONS TRAINING IN CAPE TOWN

THE Energy Training Foundation will present Association of Energy Engineers (AEE) qualifications training programmes in Cape Town in May, which are recognised in 98 countries and offer an opportunity for persons with years of experience to receive a qualification. The course content is of value to any persons, whether they wish to write the examination and pursue certification or not. All delegates will learn a great deal and be able to implement changes in the workplace directly after the training.

The training will be held at Hotel Verde on:

- 30 May – 3 June: Certified Energy Manager (CEM).
- 30 May – 2 June: Certified Energy Auditor (CEA).
- 30 May – 1 June: Certified Measurement and Verification Professional (CMVP).

Contact Thieda Ferreira at info@entf.co.za or visit www.energytrainingfoundation.co.za

Enquiries: +27 041 582 2043

IGNORANCE CAN BE DEADLY

A guide to Miniature Circuit Breakers.

This vital safety device has been commoditized and the number of brands of MCBs available in South Africa today has increased dramatically. Unscrupulous suppliers compromise design and materials to reduce cost and the inclination to buy on price can endanger lives and assets.

It is very difficult, if not impossible, for most people to determine if a MCB is sub-standard and whether or not it will do the protective work it is supposed to.
Functionality defects will, more often than not, only become evident when it's too late.

SAFEhouse has produced a guide to MCBs to help specifiers, suppliers and users make better decisions regarding their choice of product. Please see our website for a free download or contact the SAFEhouse Association.

What to do? Some SAFEhouse guidelines:

- Insist on being informed by the supplier about the origin and pedigree of the product and, where applicable, by the electrical consulting engineer or contractor about available choices.
- Ask for proof of regulatory compliance – see the SAFEhouse MCB guide for detail.
- Deal with a supplier and brand you know and can trust.
- Look for markings and information detailed in the SAFEhouse MCB guide. If absent or deficient, be suspicious.
- Look for certification references such as SABS or VDE marks.
- Look for the test specification marking: "Tested to SANS or IEC 60947-1" or "VC8036".
- Try to validate 'sales talk' about quality and performance. Make contact with the original manufacturer or importer in South Africa.
- Beware of copies of prominent brands.
- Beware of products at substantially lower prices than others on offer.
- Check with the SAFEhouse Association for information it may have on products.

FREE SAFEhouse product guides

Download your **FREE** copy of the SAFEhouse guides from
www.safehousesa.co.za

The SAFEhouse Association is a non-profit, industry organisation committed to the fight against sub-standard, unsafe electrical products.

For more information contact:
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As at 8/04/2016

MARK PALMER - ELECTRICAL APPROVED INSPECTION AUTHORITY SOUTHERN AFRICA (EAIASA)

GENERAL SAFETY PRINCIPLES – THE FUNDAMENTAL REQUIREMENTS

In last month's column I started to clarify the 'general safety principles' referred to in the Electrical Installation Regulations as well as in the incorporated standard, SANS 10142-1. As indicated in that column, understanding these requirements is an intrinsic part of issuing valid Certificates of Compliance. Let's start at the beginning then …

Fundamental Requirements SANS 10142-1; clarification notes:

At the beginning of Clause 5, the standard provides these clarification notes – *all commodities in an electrical installation shall be installed in accordance with the requirements in this part of SANS 10142 and with the manufacturer's instructions, where applicable.*

NOTE 1: This clause contains the general safety principles applicable to electrical installations.

NOTE 2: The manufacturer's instructions may contain more stringent requirements.

The important issues here are the references to *"requirements of this part of SANS 10142"* and *"manufacturer's instructions"*. It is also important to link this requirement with Note 2 that *"the manufacturer's instructions may contain more stringent requirements"*.

This is where Registered Persons need to have a clear understanding of what the requirements are that are being referred to relating to particular parts of electrical installations, which are going to be certified. In understanding the general application of Clause 5, it becomes evident that this clause applies to "all" electrical installations, that is, new, altered and temporary installations as well as to existing installations. Insofar as new, altered or temporary installations are concerned, "requirements of this part of SANS 10142" will again include Clause 6, Installation Requirements, which in itself is an extensive section of the standard.

Of equal importance here, with reference to "manufacturer's instructions", is the understanding of the requirements of regulations and, in particular, the Occupational Health and Safety Act 85 of 1993:

Section 10 - General duties of manufacturers and others regarding articles and substances for use at work

Any person who designs, manufactures, imports, sells or supplies any article for use at work shall ensure, as far as is reasonably practicable, that the article is safe and without risks to health when properly used and that it complies with all prescribed requirements.

In the context of electrical installations then, this duty is aimed at manufactures to ensure that all electrical components/equipment are safe and without risk to health when "*properly used*". The reference to "*properly used*" is an important one. Here one actually sees that there is a dual responsibility — the user has to use something with reasonable care but, on the other hand, the provider of the article or substance has to provide *information and instructions* in order to enable the user thereof to use it properly.

The definition of '*properly used*' means used with reasonable care and with due regard to any information, instruction or advice supplied by the designer, manufacturer, importer, seller or supplier.

It is clear from statutory requirements, therefore, that manufacturers' instructions play a vital role in ensuring the safety of persons. Of equal importance here is not only the duty imposed on the manufacturer, *but also the duty imposed on the installer, that is the electrical contractor;*

Section 10 (2)

Any person who erects or installs any article for use at work on or in any premises shall ensure, as far as is reasonably practicable, that nothing about the manner in which it is erected or installed makes it unsafe or creates a risk to health when properly used.

In my experience over many years in the investigation of non-compliant electrical installations, it is evident that many electrical contractors and registered persons have very little understanding of the above statutory requirements, which are identified in the opening paragraphs of SANS 10142-1, as detailed in my opening reference in this column.

So, when understanding that statutory requirements are always in the background, it becomes an essential exercise on the part of the electrical contractor to look at all the electrical equipment that is installed in an electrical installation and make a determination whether these articles/equipment have been installed in such a manner that is in line with the "*manufacturer's instructions*" as well as the "*general requirements of SANS 10142-1*".

Having made the above determination, the last factor to take into account here is whether the manufacturer's instructions are, in fact, more stringent than those detailed in the standard. As long as these instructions are not in conflict with the statutory requirements or the SANS 10142-1 standard itself, these instructions will take precedence.

In my next column, I will start dealing with the general safety principles as prescribed.

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.

Enquiries: +27 11 254 6400

ECA(SA) NEWS BY MARK MFIKOE – NATIONAL DIRECTOR, ELECTRICAL CONTRACTORS' ASSOCIATION OF SOUTH AFRICA

TERMINATION OF EMPLOYMENT AGREEMENTS

IN commercial life, sometimes parties to the employment agreement come to the conclusion that the only way forward for them is if they were to separate. Our dismissal statutes do not define such a voluntary agreement as a dismissal. My strategy, in instances such as these when I am defending a member, is to argue that no dismissal took place. My argument is that there was a contract between the employer and the employee and that such contract has been honoured and that the member cannot be accused of acting in terms of the agreement. Is there authority for this stand and would our courts bless such an interpretation?

Section 186 of the Labour Relations Act defines in conclusive terms those actions, which qualify as dismissal. Broadly there are six instances or acts that, if they have occurred, they would be taken to have been acts of dismissal. The only area where dismissal is accommodated by common consent is in the case of dismissals based on operational requirements of the business. In these instances, commonly known as retrenchments, there may be a retrenchment agreement between the parties at the end of a consultation period. Such agreement, subject to passing the legality test, closes the matter. If parties perform per their legal agreement, we accept this agreement for what it is and life goes on.

What about other instances? For example, an employee, in the middle of a disciplinary hearing offers to have the employment relationship terminated on specific terms. The motivation would ordinarily be that the employee does not want a dismissal in his record as this may have a similar impact in his employability as a criminal record would have on a rehabilitated ex-prisoner.

The Labour Appeal Court considered the validity of a Separation Agreement in Oluwatoye v Reckitt Benckiser South Africa (Pty) Ltd & 1 Other and delivered a judgement on 3 February, 2016.

In this matter, an employee, Mr Oluwatoye ('the employee') contested the termination of his employment with Reckitt Benckiser South Africa (Pty) Ltd (RBS) by agreement. The story goes that, in February 2013, the employee left the employ of Unilever to take up employment with Standard Chartered Bank in Dubai as a senior human resources manager for a period of five months. After this period he was employed by RBS as its regional human resources director.

During his pre-employment interview with RBS, the employee told the interview panel that he was, at that particular time, employed by Unilever per the information on his CV. He concealed his employment with Standard Chartered Bank and misled the interview panel into believing that he was employed by Unilever and that he would be leaving Unilever's employ in order to take up employment with RBS.

As a consequence, RBS, when it offered the employee employment agreed to compensate him for his alleged loss of Unilever shares equivalent to USD 40 000 in having to allegedly terminate his employment contract with Unilever in order to take up employment with RBS. Later RBS learned that he lied about his loss of shares.

"As a consequence, RBS, when it offered the employee employment agreed to compensate him for his alleged loss of Unilever shares equivalent to USD 40 000 in having to allegedly terminate his employment contract with Unilever in order to take up employment with RBS. Later RBS learned that he lied about his loss of shares."

A disciplinary hearing was convened and RBS agreed to consider a mutual separation agreement at the request of the employee. The parties negotiated a separation agreement and when the employee signed the agreement, he acknowledged that the agreement was in full and final settlement and that he was not forced nor coerced to enter into the agreement. Further to signing the separation agreement, the employee signed an acknowledgement of debt in favour of RBS in an amount of USD 40 000.

On 10 March 2014, (a week after he had signed the agreement), the employee approached the Labour Court (LC) with an urgent application to declare the separation agreement invalid and to set it aside on the basis that he alleged that he was coerced into signing the agreement against his will and under duress. The employee further alleged that, amongst other things, the agreement was contrary to public policy and violated his constitutional right to seek judicial redress as it contained a clause that waived his right to approach the Commission for Conciliation Mediation and Arbitration or any other court for relief emanating from his employment with RBS.

The LC held that there were no facts to indicate that the separation agreement was concluded whilst the employee was under duress nor was there scope to conclude that the agreement was contrary to public policy. The employee approached the LAC for relief.

The LAC held that the clause in question was not unique in nature and is rather common as it permits for parties to settle disputes in such a manner that brings finality. Accordingly, the LC was correct in concluding that the separation agreement was neither unlawful nor contrary to public policy.

This matter shows that legal Separation of Employment Agreements have proper standing in law.

A SINGLE SYSTEM SOLUTION THAT PROVIDES POWER DISTRIBUTION AND UPS

Efficiency and reliability of power supply in the rapidly expanding data centre business is crucial to feed the ever-hungry global information economy. As a leading technology innovator, ABB has considered the needs of data centres and continually enhanced products to meet ever-expanding needs.

"MNS-Up is the result of on-going customer-centric product development. Data centres are continually growing and two key aspects, space requirements and scalability have needed to be addressed" says Ronald van Leeuwen, business unit manager for electrification solutions in South Africa.

"MNS-Up addresses these two areas very efficiently by combining the switchgear and uninterrupted power supply (UPS) technologies into a single unit. No other provider of power distribution and uninterrupted power supplies is able to offer this level of technology in the market currently", says Van Leeuwen.

Space saving

In traditional power distribution environments three discrete areas are required. The first area is dedicated to housing the input switchgear which is fed by the main transformer. The second area, in-turn provides power to the modular UPS through either cable or external bus duct systems. The third area houses the UPS output switchgear, feeding power to the points of consumption. As the assemblies are physically separated, a specific level of safety is assumed and this architecture is well-proven and has established itself as the norm. However it does have significant drawbacks. This topology relies on providing separate incoming and outgoing switchgear assemblies, with the associated power cabling or bus duct, resulting in a large footprint and great expense to interconnect the three assemblies.

ABB's MNS-Up eliminates the need for the three separate areas, allowing for a single assembly housing the power input, uninterrupted power supply modules and the power output (distribution). Footprint savings of 20% are typical for a 500 kW system, rising to a significant 30% for 2 MW systems upwards.

Scalability

Today's information economy requires of data centres to provide cost effective solutions that can grow alongside information consumption. Avi Ramdhin, Sales Manager for Electrification Solutions, points out that, "With modules of 100 kW capacity that can be added to accommodate power requirements MNS-Up can quickly react to market driven power demands, increasing the data centre's ability to service clients".

UPS modules are expandable in 100 kW blocks. Each frame can support a total of five 100 kW UPS modules, this can be further expanded with a duplication of the frames. Up to six frames can be joined together providing 3 MW of power. It need not end there; further systems may be added in parallel.

This flexibility is also demonstrated in the ability of the system to be assembled to meet the space layout available; straight line, back-to-back, L and U-shape, without employing external bus ducts or cables.

The modular approach followed in the design of the system allows for faster installation, upgrading and commissioning, resulting in a reduced time-to-switch on. With the ability to swap-out both switchgear and UPS modules online, the dual benefit of lowered maintenance costs and increased uptime is realised.

Tried-and-tested

ABB's MNS switchgear incorporates innovative power management technology, including the Emax 2 air circuit-breaker alongside contactors and motor-starting technologies that are class-leaders in the process control environment. Safety lies at the heart of the design. Complete compliance with the International Electro technical Commission (IEC) 61439-2 and TR 61641 form the base on which MNS switchboards are designed. The broad scope of ABB switchgear extends beyond its proven track record in power distribution, a core area of ABB's expertise. The MNS technology boasts an installed base of 1.5 million systems worldwide. For MNS-Up ABB has selected the Conceptpower DPA 500 uninterrupted power supply, which sports a transformerless, double-conversion architecture. This solution is the choice of mission-critical users including major international stock exchanges.

The design of the system is such that a decentralised parallel architecture is used, each module has its own input switch, bypass, UPS and output switch and the hardware and software combination operates self-sufficiently. This allows for module isolation; as a result failure elsewhere in the system does not impact the entire operation.

Enquiries: +27 10 202 5000

"MNS-Up addresses these two areas very efficiently by combining the switchgear and uninterrupted power supply (UPS) technologies into a single unit. No other provider of power distribution and uninterrupted power supplies is able to offer this level of technology in the market currently", says Van Leeuwen.

Strategic move will ensure growth in transformer markets

WEG Transformers Africa, a division of Zest WEG Manufacturing, is determined to continue growing its share in both the South African and African transformer markets.

Louis Meiring, chief executive officer at Zest WEG Group Africa, says the acquisition last year of Heidelberg-based TSS Transformers facilitated immediate access to additional facilities as well as best-in-class technical skills. "Upskilling ourselves in this critical market sector and increasing our local manufacturing base was a strategic move that will see greater involvement from Zest WEG in this industry," Meiring says.

WTA's modern facility houses what is considered to be the best privately operated oil sampling laboratory in South Africa.

Zest WEG Group is owned by Brazil-based WEG and this significant investment in local manufacturing highlights WEG's financial commitment to its local operations. Meiring says the acquisition was in line with the international player's intention to expand its global network of businesses and manufacturing plants. The WEG Group aims to increase its sales year-on-year by a minimum of 17% until it reaches an annual turnover of US$10-billion in 2020.

WEG Transformer Africa (WTA) operates two major facilities and is poised to reinforce its position as a leading African manufacturer of electrical equipment. The last two years has seen the recapitalisation of the WTA Wadeville operation. Andre Mans, COO of WTA, says that this extensive investment programme has seen the facility undergo a complete makeover with the upgrading of equipment and streamlining of processes. "Today, WTA Wadeville is a modern operation that boasts best-in-class production and manufacturing capabilities," he says.

WTA Wadeville produces standard distribution, power and special application transformers ranging from 50 kVA to 10 MVA in voltages up to 66 kV with off-load tap switch or on-load tap-changers. Known for its responsiveness to customer specific needs, the facility also has the engineering expertise and capability to manufacture special transformers for mining, industrial, rectifier/traction, converter and thyristor drive applications. WTA also manufactures a range of mini substations. Mans says that, where applicable, the transformers carry SABS certification.

The Heidelberg facility, which was previously TSS Transformers, was acquired in the third quarter of 2015 and boasts an impressive 45 000 m² footprint. The modern facility is capable of locally manufacturing power transformers up to 40 MVA in voltages up to 132 kV as well as mini substations and moulded circuit breakers.

This modern facility houses what is considered to be the best privately operated oil sampling laboratory in South Africa. Mans says this is a crucial differentiator in the market as it gives customers access to skilled technicians who analyse samples on state-of-the-art equipment to world class standards.

An important value-added service offering from WTA is its suite of structured transformer maintenance programmes that allow customers to protect these assets from degradation.

Enquiries: +27 11 723 6000

THE A-Z OF electrical compression connections

BY KEVIN GRAY, OPERATIONS DIRECTOR, STONE STAMCOR

WHEN terminating or splicing an electrical connection, one thing is common throughout this industry, you get one chance to do it right ... and the consequences of an incorrectly crimped termination or splice are far-reaching and not only costly but potentially dangerous and life threatening.

As an industry leader in local connector manufacture as well as decades of experience in supplying the A-Z component, tooling and crimping solution, Stone Stamcor proudly offers the expertise to advise you on the right connector with the right tooling to get the job done right the first time with specific focus on local conditions and specifications.

Special applications require unique knowledge of what the final result of a connection will be when using different combinations of connectors, tooling and crimp methods.

Most importantly one connector, tool or method does not fit all applications.

Stone-Stamcor compression connectors have been designed to ensure reliable and controllable electrical connections, which can be inspected on installation.

Our copper compression connectors are manufactured from high-conductive electrolytic copper, which is tin plated. Our raw material supply is local and controlled through our ISO quality certification as well as that of our suppliers

The connector design has been matched to the cable size to provide the necessary electrical performance as well as mechanical strength; more importantly a local connector is more likely to be suited to local conductors and local conditions..

Copper compression lugs are recommended for use on copper conductors.

Aluminium compression connectors are recommended for use on aluminium conductors.

Bi-metallic connections are recommended when an aluminium conductor is connect to copper conductor or terminated to copper terminals.

There are two basic compression methods available: hexagonal and indent.

After compression, virtually all the air is effectively removed leaving a tight homogeneous mass of conductor and connector.

The hexagonal crimp method compresses the cable into hexagonal shapes forming a solid mass between the cable strands and the connector. Quality control is guaranteed on installation as the hexagonal crimp can be measured and compared to the A/F (Across Flats) of the dies, ensuring the correct die selection has been made, this could also verify the serviceability of the crimp tool being used.

The indent type crimp method can be used on any application except for PVC (Polyvinylchloride) insulated terminals such as ABC (Arial Bundle Cable) connectors and splices. This method is an excellent means of terminating flexible and welding cable. The result is a crimp with high pull-out strength and an excellent electrical connection.

Of utmost importance is that the correct tooling selection is essential, ensuring proper installation of the compression connector. As the connectors and dies are designed as a unit for specific wire/cable sizes, only the recommended tools and dies should be used.

Stone-Stamcor has a wide range of crimp tools available which includes ratchet, mechanical, hydraulic or battery. Some have permanent die grooves, rotary or change of die sets for each connector.

Stone-Stamcor compression connectors have been tested by an independent test laboratory to SANS IEC 61238-1.

Stone Stamcor offers a complete, standard or custom solution, from connector to crimp method to suit our unique local conditions, giving peace of mind that the job is done right the first time.

Enquiries: +27 11 452 1415

PV MODULES PRODUCED LOCALLY FOR REIPPP ROUND 3

ARTsolar has recently completed production of the final consignment of locally produced photovoltaic (PV) modules in Round 3 of the Renewable Energy Independent Power Producer Programme (REIPPP).

"These PV modules were manufactured at the ARTsolar plant in KwaZulu-Natal, for the Mulilo Sonnedix Prieska PV solar plant project. This plant, which supplies the electricity it produces to the Eskom Kromos Substation in the Northern Cape, is the first 75 MW AC size REIPPP project to have PV modules produced by a South African owned company," says Derek Lawrance, director, ARTsolar. "After winning this Q1 2015 bid, ARTsolar implemented an expansion programme to meet production requirements of this project.

"The company made a substantial investment in new machinery and increased the total floor space of the New Germany plant from 3 500 m² to 10 000 m². The single day shift operation was increased to a 24 hour/six day schedule and we expanded our team to 200 staff.

"We are proud to be the first locally owned solar PV module manufacturer to have been awarded manufacture for the REIPPP programme. Although ARTsolar's operation has grown significantly through this project, challenges remain for local PV manufacturers outside of the REIPPP programme.

"Local industry is struggling to adapt to the 'stop-start' nature of REIPPP projects, which present extended inactive manufacturing periods between contracts. This situation requires assistance from the Industrial Development Corporation (IDC) and the Department of Trade and Industry (DTI). Unlike solar water heaters, the local PV module manufacturing sector is not protected by locally designated modules outside of the REIPPP."

These PV modules were manufactured at the ARTsolar plant in New Germany, KwaZulu-Natal, for the Mulilo Sonnedix Prieska PV solar plant project. Liam McIntosh is responsible here for framed PV modules, which are rotated into a vertical orientation for earth leakage and sun simulation testing.

Based on this, ARTsolar is currently restructuring its operations in preparation for REIPPP Round 4 in Q4 of 2016.

The company expects to operate at its pre-expansion capacity, whilst escalating its penetration of the local and sub-Saharan market, in anticipation of once more participating in the REIPPP later in the year.

Enquiries: +27 31 705 7162

Range of solar power solutions launched

Master Power Technologies has launched a new range of photovoltaic solar solutions to complement its current range of products for use in industrial applications in hot, arid regions, or wherever utility power is expensive or unreliable. The solar power systems are designed to supplement or replace utility power to save money and reduce the user's carbon footprint, and some designs can feed excess power back into the power grid.

"The Master Power Technologies' battery-free solar power solutions have been designed with characteristics such as low heat degradation and high durability, making the equipment ideal for power installations throughout Africa," explains Andre Naude, strategist for business development at Master Power Technologies. "Some of the benefits we have designed into the product include a constant power-output curve to maintain the electricity supply needed to meet peak demands, the ability to operate without active cooling mechanisms and almost no energy loss at high ambient temperatures."

The company has a range of grid-connected, grid-tie (or on-grid), stand-alone and off-grid solutions to choose from. Grid-connected photovoltaic power systems are energised by photovoltaic panels that are connected to the utility grid. These power systems consist of photovoltaic panels, MPPT (Maximum Power Point Tracking, a technique used to obtain the maximum possible power from photovoltaic devices), solar inverters, power conditioning units and grid connection equipment.

Enquiries: +27 11 792 7230

HARMONICS – DISMISSING THE AC DRIVES MYTH

THE subject of harmonics currents and voltages is one that has received increased attention over the last few years, says ACDC Dynamics' Vacon brand manager, Anil Jugmahan. "But did you know that the major sources of harmonic current can be found in a large number of installed consumer items such as fluorescent lighting, LEDs, TVs and many other common pieces of equipment?" he asks. Jugmahan, says that drives are often wrongly blamed as the culprits. "In many cases, disconnecting the drives has very little influence on the existing harmonic levels, but turning off all lighting can improve the situation significantly. All commercial and consumer equipment has to comply with reasonable harmonic requirements, but the huge number of common devices has a major impact on the harmonic levels.

"The level of harmonic distortion in the supply network is on the increase, and this higher level of distortion can cause malfunctions in equipment connected to the supply. As the utilities supplying power must guarantee a certain voltage quality to their customers, the trend is obviously worrisome to them," explains Jugmahan.

"Harmonics are defined as signals (voltage or current) that are not at the fundamental frequency, but at multiples of it. In addition, inter-harmonics exist between the normal ones. The harmonics are mainly caused by non-linear loads – loads that draw current that is not linearly dependent on the voltage. Typical examples are diode rectifiers used in the power supplies for TVs, PCs and other electronic devices, and fluorescent lighting; in both cases the supply voltage is a sine wave, but the load current is not sinusoidal, it contains harmonics. The harmonics in the current interact with the supply network impedance to create a voltage distortion in the supply. The allowed distortion in the supply is defined in different standards, notably EN 50160 and the IEC/EN 61000-2 series."

Jugmahan says that EN 50160 defines the voltage quality that is required at the terminals of a load. "The IEC standards define the compatibility levels that the distortion in the supply must meet – actually with a good margin, as the allowed levels are derived from the compatibility levels and a margin must exist between what is allowed and what is used as a basis for planning. The standards are valid for public networks, where anybody can connect a load. In private networks, where the supply transformer is owned by the user, no formal limits apply, as it is within the user's power to rectify any overly large distortion levels. In practice, owners of private supplies also apply the same EN/IEC standards," Jugmahan continues.

"As previously mentioned, the main sources of harmonic currents are lighting, both fluorescent and modern LED lamps, and power supplies in consumer equipment such as TVs, radios, refrigerators, freezers and PCs. Using a standardised network impedance and the allowed distortion levels, limits for the harmonic currents individual pieces of equipment may draw have been defined in IEC/EN 61000-3-2 and IEC/EN 61000-3-12."

"Vacon ac drives comply with the requirements of these standards," he says, adding, "ACDC Dynamics also has other solutions that allow the user to connect large loads to the supply without fear of creating an unacceptable distortion level".

"Under certain conditions, our solutions can actually 'eat' existing harmonics and thus improve the general situation," concludes Jugmahan.

Enquiries: +27 10 202 3300

ELECTRICIAN'S VISOR FOR UNRESTRICTED VISIBILITY

DEHN's new APS-T visor for electricians offers unrestricted visibility thanks to its transparent chin protector, and the face-shield's anti-mist coating allows the user to work even in hot and humid environments. The visor is an ideal supplement to an electrician's personal protective equipment (PPE). In addition to the all-round visibility, the face shield offers protection even when scratched. Its narrow and ergonomic design provides optimised protection, and further safety is achieved by its light transmittance of 80% in the protected area. The helmet also offers a slot to quickly and easily attach the visor.

DEHN's manufacturing technology guarantees no cracks, assuring customers of a long service life. Furthermore, a universal bracket with strap can be used for all standard safety helmets for electricians, making it also a cost-effective choice for electricians.

The new APS-T has been added to DEHN's comprehensive passive arc fault protection portfolio.

Enquiries: +27 704 1487

MANUFACTURERS

ABB South Africa
Aberdare Cables
ACDC Dynamics
Aurora Lighting
BEKA Schréder
Bellco
Crabtree
Invirotel
Legrand
Phambili Interface
Power Panels and Electrical
Power Process Systems
Radiant Group
Schneider Electric
Shuttle Lighting Control Systems
Voltex
Voltex Lighting
Waco
Zest WEG Group Africa

DISTRIBUTOR

ACDC Dynamics
ARB Electrical Wholesalers
Aurora Lighting
Bellco
Citilec
Envirolight
Eurolux
Invirotel
JDL Electric
Magnet Group
Major Tech
MCE Global Suppliers
Osram South Africa
Phambili Interface
Radiant Group
Silicon Engineering
Superlume
Voltex
Voltex Lighting
Waco
Webbers Electrical Contractors
Zest WEG Group Africa

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Kaber Karbelkar
Schneider Electric
Sales
Shuttle Lighting Control Systems
Reg Smith
Silicon Engineering
Chris Hanson
Superlume
Willie Garbers
Voltex
Hugh Ward
Voltex Lighting
Marc Rudman
Waco
Jaco Coetzee
Webbers Electrical Contractors
Nicole Hill
Zest WEG Group Africa
Sales

SOLAR LIGHTING

Aberdare Cables
Solarflex, Solardac
BEKA Schréder
Full range of solar lighting
ACDC Dynamics
Full range of solar lighting
Citilec
Full range of solar lighting
Eurolux
Solar spikes, solar kits, mobile solar kits
JDL Electric
Full range of solar lighting
Magnet Group
Full range of solar lighting
Radiant Group
Full range of solar lighting
Superlume
Supplier of solar lighting
Voltex
Full range of solar lighting
Waco
Full range of solar lighting
Webbers Electrical Contractors
Supplier and installer of solar lighting

SOLAR (PHOTOVOLTAIC) ELECTRICITY GENERATION

ABB South Africa
Solar electricity generation
Aberdare Cables
Solarflex, Solardac, Lotox Bells & Mains
ACDC Dynamics
Full range of solar panels and all accessories for mounting and usage
JDL Electric
Solar electricity generation
Magnet Group
Solar (photovoltaic) electricity generation
ABB South Africa
Range of solar water pumps
ACDC Dynamics
Range of solar pumps and solar pump kits
JDL Electric
Range of solar (photovoltaic) water pumps

SOLAR (PASSIVE) SPACE HEATING

JDL Electric
Range of solar (passive) space heating

SOLAR WATER HEATING

ACDC Dynamics
Solcraft range of solar geysers as well as a range of SABS approved solar geysers
JDL Electric
Range of solar water heating
Voltex
Range solar water heating

SOLAR HEAT PUMPS

JDL Electric
Range of solar heat pumps

SOLAR HYBRID SYSTEMS

JDL Electric
Range of solar heat pumps
Magnet Group
Solar hybrid systems

SOLAR BATTERIES

ACDC Dynamics
Range of solar batteries
JDL Electric
Range of solar batteries
Magnet Group
Range of solar batteries
Radiant Group
Range of solar batteries
Silicon Engineering
Supplier of solar batteries

AIR CONDITIONING

Bellco
Full range of air conditioners
JDL Electric
Range of air conditioners
Radiant Group
Full range of air conditioners
Voltex
Full range of air conditioners
Waco
Full range of air conditioners
Webbers Electrical Contractors
Installer of air conditioning units

WIND ELECTRICITY GENERATION

Aberdare Cables
Lotox Bells & Mains, Vultex XLPE, Windac
JDL Electric
Wind electricity generation

HEATING

Bellco
Range of heaters
JDL Electric

HEATING

Range of heaters
Magnet Group
Range of heaters
MCE Global Suppliers
Onesto Oracle range thermostat/underfloor heating wiring accessories; MCE temperature controllers and thermocouples
Radiant Group
Range of heaters
Voltex
Range of heaters
Waco
Range of heaters
Webbers Electrical Contractors
Supplier and installer of heating units

LIGHTING CONTROL

ABB South Africa
Full range of lighting controls
ARB Electrical Wholesalers
Lighting control systems
Aurora Lighting
Range of lighting controls
BEKA Schréder
Full range of lighting controls
Bellco
Full range of lighting controls
Citilec
Full range of lighting controls
Crabtree
Range of lighting controls
Envirolight
Full range of lighting control systems
Eurolux
Full range of switches, sensors and timers
JDL Electric
Range of lighting controls
Legrand
Switches, dimmers, time switches, switch sensors and home automation
Magnet Group
Full range of lighting controls
Major Tech
Suppliers of compact power meters, power quality analysers, current loggers, current and voltage loggers and leakage loggers
MCE Global Suppliers
O-Lite day-night switches; O-Lite range of energy saving occupancy sensors, micro sensitive sensors and LED light fittings; Onesto Oracle range of indoor and outdoor wiring accessories
Osram
Full range of commercial, industrial, domestic and specialised lighting control; electronic control gear for fluorescent, metal halide and low voltage halogen lamps; CFLs
Power Panels and Electrical
Full range of lighting control systems
Schneider Electric
Full range of lighting control systems
Shuttle Lighting Control Systems
Dimmers for LED, incandescent and halogen; building management systems
Voltex
Full range of lighting controls
Voltex Lighting
Full range of lighting controls
Waco
Full range of lighting controls
Webbers Electrical Contractors
Supplier and installer of lighting and lighting controls

METERS

ABB South Africa
Full range of meters
ACDC Dynamics
Full range of meters
ARB Electrical Wholesalers
Full range of meters
Bellco
Full range of meters
Invirotel
Full range of meters
JDL Electric
Range of meters
Magnet Group
Full range of meters
MCE Global Suppliers
MCE Panel ammeters, voltmeters
Phambili Interface
Full range of meters
Power Process Systems
Full range of meters
Radiant Group
Range of meters
Voltex
Full range of meters
Waco
Full range of meters
Webbers Electrical Contractors
Supplier and installer of electrical meters

MICRO-HYDRO ELECTRICITY GENERATION

Zest WEG Group Africa
Micro-hydro electricity generation

VENTILATION

ARB Electrical Wholesalers
Full range of ventilation products
Bellco
Ventilation systems
JDL Electric
Range of ventilation systems
Radiant Group

SOLAR (PHOTOVOLTAIC) WATER PUMPING

Range of ventilation products
Voltex
Ventilation products
Waco
Ventilation products

WATER HEATING

JDL Electric
Range of water heating products
Magnet Group
Water heating products
MCE Global Suppliers
DIN rail and mini rail geyser timers
Voltex
Water heating products
Waco
Water heating products
Webbers Electrical Contractors
Supplier and installer of gas and electrical gysers

Disclaimer: Information will be published as supplied. Only manufacturers who meet the deadline are included in the guide. The onus is on manufacturers to ensure that the editor is notified of any changes to existing listings.

BUYERS' GUIDE

ABB

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Shuttle

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Lighting your way

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your electrical connection

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MAJOR TECH

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ELECTRICAL CONTRACTORS cc

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OSRAM

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The importance of periodically testing portable earthing and short-circuiting equipment

REDUCED cable cross-sections of portable earthing and short-circuiting devices (EaS devices), resulting from copper corrosion and breakage of conductor strands or increased resistances in the connections, may have fatal consequences when subjected to short-circuit currents.

It is therefore critical that portable EaS devices are tested prior to each use and at regular intervals. This ensures that the installation is isolated from supply voltage while work is being carried out, even in the case of interference voltages, atmospheric surges or accidental reconnection.

Simply hitting a switch for isolation from the supply is not enough.

- For this purpose, the following five safety rules in accordance with EN 50 110-1 must be observed:
- Disconnect completely;
- Secure against re-connection;
- Verify that the installation is dead;
- Carry out earthing and short-circuiting; and
- Provide protection against adjacent live parts.

Certified electricians know that the most essential rule of the above-mentioned five is earthing and short-circuiting, and that these guidelines can save their lives. However, this safety measure is also as safe as the device that has been used, as over a long period of time these devices may become worn out and become vulnerable.

DEHN AFRICA, the local subsidiary of Germany-based lightning and surge protection, earthing components and safety equipment manufacturer, DEHN + SÖHNE, offers a new, improved test which provides reliable information on the condition of EaS devices, based on static and dynamic measurements of the ohmic resistance.

Tested in three steps, DEHN starts this process by making a visual inspection of an earthing and short-circuiting device for visible signs of damage. Next, a static test is performed, measuring the absolute resistance value of the device when stationary. Finally, step three is a dynamic test, which ascertains the relative change in resistance of the moving earthing and short-circuiting device. The measurement of the resistance change value allows DEHN to detect local damage, such as to conductor strands in the conductor cable.

DEHN safety equipment is manufactured and tested in line with the requirements of relevant standards. The company also provides maintenance tests on voltage detectors, switching sticks, fuse tongs, insulating sticks and earthing sticks.

Enquiries: +27 11 704 1487

SAVE TIME WITH DURABLE CABLE and component identification

IMAGINE important machinery, power or business systems are down because of one damaged cable hidden in a thick bundle. Singling it out manually would cost a lot of time when time is critical. A simple, yet durable cable identification label at regular intervals helps to have important systems back up a lot faster.

Fast on-site label printers

Brady offers fast label printers that need only a few seconds to print the identification label you need. Built to resist dust, moisture and the occasional bump, these reliable printers help to quickly identify any cable or component with durable identification labels, available in a wide range of label types, sizes and colours.

A wide range of labels

In the hands of a professional, the right tools always get the job done faster and with greater result. That is why every Brady printer has a wide variety of labels to handle every situation. To fit a lot of information on a tiny label, insert blank flag labels in the printer. To protect a vital barcode on a cable label from abrasion, dirt or moisture, use a self-laminating label or cable sleeve material. Consider different colours to quickly identify every cable in a cable bundle. All of these identification solutions are available in the right sizes, and in easy to insert printer consumables.

Extreme durability

Cable and component labels should stick, stay attached and remain legible. Few things seem more agonising than watching the last label fall to the floor when opening an electrical cabinet during a business emergency. Brady invests heavily to continuously develop labels, inks and adhesives that really stick and remain legible, even in demanding environments.

Enquiries: +27 11 704 3295

HOW TO CHOOSE A DIGITAL MULTIMETER

Multimeters have been described as modern-day tape measures ... but what exactly is a digital multimeter (DMM) and what can you do with it? How do you make measurements safely? What features do you need? What is the easiest way to get the most out of your meter? Which meter is best suited to the environment you're working in?

Technology is rapidly changing our world. Electrical and electronic circuitry seems to permeate everything, and continues to get more complex and smaller in size. The communication industry booms with cell phones and pagers, and Internet connections have put more pressure on the electronics technician. Servicing, repairing, and installing this complex equipment in these environments requires diagnostic tools that provide accurate information.

A DMM is simply an electronic tape measure for making electrical measurements. It may have any number of special features, but mainly a DMM measures volts, ohms, and amperes. DMMs measure faster, more efficiently and with greater accuracy, almost any job in any industry. The three watch words when selecting your DMM are 'safety', 'quality', and 'performance'.

Fluke models include handheld trouble-shooters to ultra-smart instruments packed with features, including the ability to log and graph data, as well as high-precision bench units.

Choosing your DMM

Choosing a DMM for the job requires not only looking at basic specifications, but also looking at features, functions, and the overall value represented by a meter's design and the care taken in its production, reliability and robustness. Reliability, especially under tough conditions, is more important than ever today. Fluke DMMs undergo a rigorous testing and evaluation program. User safety is a primary consideration in the design of Fluke's DMMs, providing adequate component spacing, double insulation and input protection helps prevent injury and meter damage when they are used improperly. Fluke designs its DMMs to the latest, most demanding safety standards, with your safety in mind. Fluke offers many DMMs with different combinations of features like Touch Hold Auto Hold analogue bar graphs, and enhanced resolution. Accessories for high current and temperature measurements are available to extend the capabilities of DMMs.

The range comprises:

- 280 Series DMMs – for advanced diagnostic and logging functionality for maximising productivity.
- 233 Remote display multimeter – for ultimate flexibility with removable display.
- 80 Series V DMMs – performance and accuracy for maximum industrial productivity.
- 170 Series DMMs – versatile meters for field service or bench repair.
- 110 Series DMMs – compact design for ergonomic one-handed operation.
- 27II/28II rugged industrial meters – designed to survive water, dust and rough handling trouble-shooting most electrical problems.
- 88 V automotive meter – for auto-electric diagnosis.

Enquiries: +27 10 595 1821

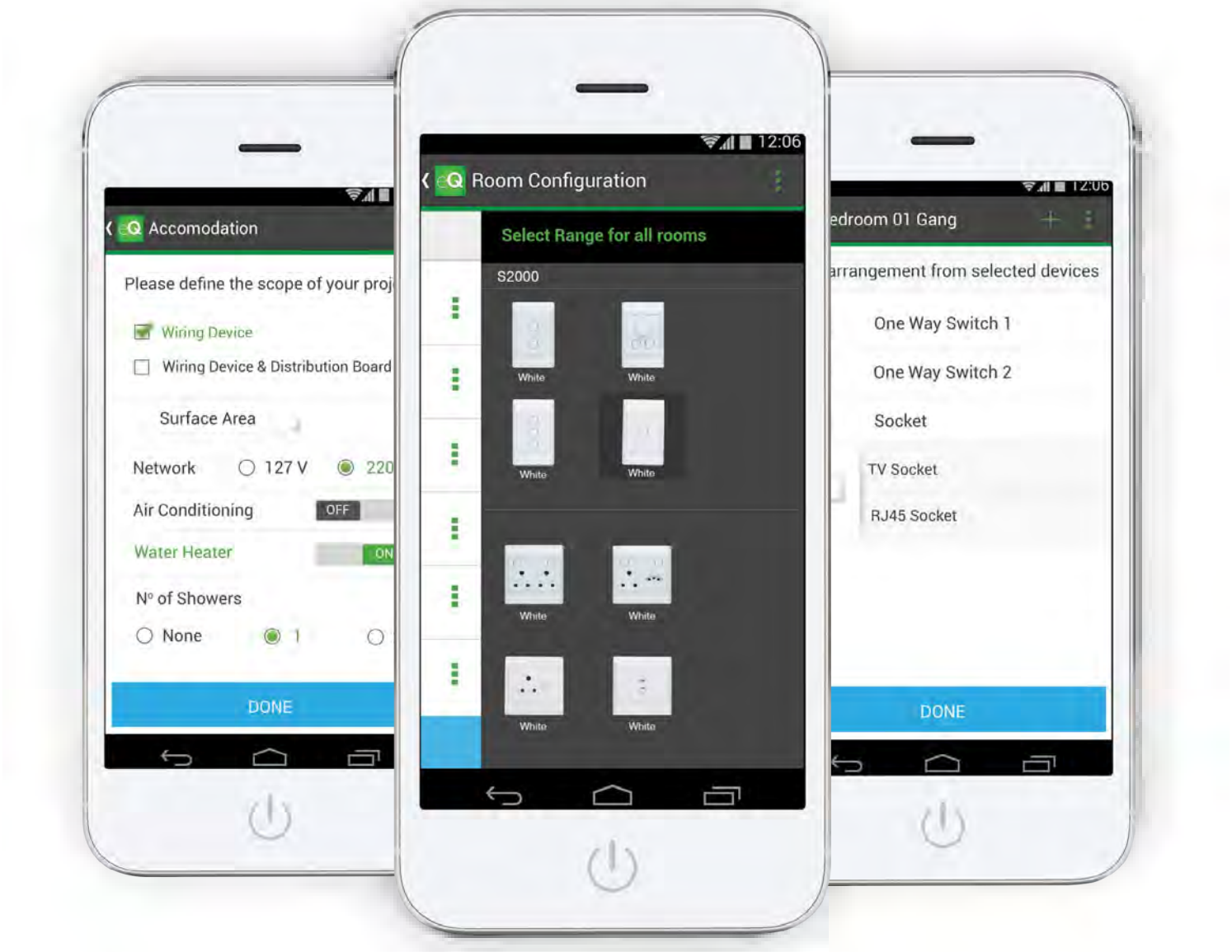
Hydraulic crimper for demanding jobs

When you decide that it's time to buy the decent heavy-duty crimper you've been promising yourself for years, an excellent choice would be the hydraulic crimper from Rennsteig, a subsidiary of KNIPEX. This quality German-made two-hand tool crimps copper and aluminium conductors with cross-sections from 10 to 400 mm2. The crimper is 600 mm long and boasts a 180° rotating head; and its 80 KN crimp force makes it the ideal tool for electricians – even for the most demanding crimp jobs. A comprehensive range of crimp dies is also available.

Enquiries: +27 11 396 4065

Schneider Electric launches an innovative app for electricians:

EasyQuote



Download on the App Store

GET IT ON Google play

Schneider Electric, the global specialist in energy management, has identified that quotations and bill of materials are time consuming tasks for electricians, based on the knowledge of its partners. In parallel, the capability to quickly answer the end-consumer and send quick quotes are important components of satisfaction, loyalty and word-of-mouth.

Schneider Electric has developed an easy-to-use mobile application for iOS and Android smartphones to help electricians better manage this pain point, generating bill of materials and quickly share quotations with their clients.

The bill of materials and quotations include distribution board and wiring devices for all the residential projects of the electrician.

EasyQuote is a free application available on the Apple App Store and Google Play, that will help electricians to create and send quotations faster.

www.schneider-electric.co.za

Life Is On Schneider Electric

A GUIDE TO AN ELECTRICAL TRADE TEST – EVALUATION IS KEY

Any candidate, who would like to embark on the path towards becoming an artisan, should be aware of the criteria needed for the trade test for which he/she is applying. There is more than one electrical trade test, so it is advisable to familiarise yourself with the electrical curriculum. This is important because once the candidate has passed the trade test, the curriculum of that trade test is the *minimum criteria* expected from that person by his future employer.

As there are rules in every sport, there are also rules for the trade. One of the main sources of rules for the electrical trade is *The Occupational Health and Safety Act* and SANS 10142 -1 Code of Practice. Therefore much of the criteria for the trade test is based on legislation and regulations. These are the minimum guidelines but there may be more specific criteria required by the employer.

An electrical trade test consists of prescribed elements and, before applying to a trade test centre, candidates should do a self-evaluation and measure his/her experience gained and related time in the electrical trade by comparing his/her experience against the curricular for an electrician.

Remember that, generally, within all the following elements, the most critical element that has to be observed during a trade test is **safety** before, during and on completion of any task.

During the electrical trade test, the applicant's skills in completing the tasks as well as the applicant's conformance with safety regulations and the application of the code's regulations will be measured in all of the following areas:

"An electrical trade test consists of prescribed elements and, before applying to a trade test centre, candidates should do a self-evaluation and measure his/her experience gained and related time in the electrical trade by comparing his/her experience against the curricular for an electrician."

Wire ways and hand skills

Wire ways and hand skills can be assessed in a one task or separately. Candidates will be tested on usage of trade-related hand tools and power tools as well as the ability to read and accurately interpret drawings.

In most cases, accuracy with regards to measuring will vary between 0.5 mm to 5 mm, depending on the type of task. The candidate will be required to install a range of different types of wire ways, including PVC and steel/bosal. The candidate is required to demonstrate skill in the making of bends and offsets. All wire ways must be installed according to the manufacturer's specifications and regulations. Safety on elevated heights is to be observed, if relevant.

Installation work

Installation work is an area where a candidate needs to demonstrate his/her abilities in the wiring of an installation according to regulations and safe working practices as well as his/her ability to fully balance all the connected loads and the safe wiring principles using various safety features.

Fault finding

In fault finding, a candidate is required to test electrical motor control circuits for faulty equipment and/or general faults such as open and short circuits. The use of test instruments and the methods applied in fault finding as well as the identification and location of the faults will be tested

Motors and starters

In motor and starters, candidates will be given a drawing based on a manufacturer's pre-wired starter. The panel will contain faults in the circuit and the candidate will have to find the faults using test instruments and using the correct methods to identify and repair those faults.

Testing

The test element consists of motor, installation and cable testing. Within each element, the candidate's knowledge and ability to test the relevant motor/installation for functionality will be assessed as well as the candidate's ability to interpret the readings according to the applicable codes. The candidate is also required to conduct a visual inspection of the equipment.

Design, wire and commission

The candidate will be expected to design, wire and commission various starters such as Star Delta motor starters, sequence starters and standard panels such as the operation of CT (current transformer) and PT (potential transformer) for measuring purposes. Metering and load balancing are also included in this section.

The most common reason that candidates fail a trade test is a lack of knowledge of the relevant topics. Other reasons include simple errors such as not earthing metal components that form part of the electrical installation and not completing tasks in the allocated times.

Candidates must remember that precision and the accurate reading of drawings, whether given or designed, is extremely important, as is following instructions accurately and adhering to safe general working practices.

Many candidates are under the mistaken impression that if they have 'some experience', they are eligible to apply for the trade test and are disappointed when they fail because they have limited scope experience.

It is highly recommended that prospective candidates first apply for a trade test evaluation to determine whether they are, in fact, sufficiently prepared for the trade test or if there are any 'gaps' in their skills and knowledge that have to be addressed. From there, they can work towards becoming a competent qualified electrician

This information was obtained from Paul van Eeden, trade test officer at P & T Technology.

SEEKING HOTSPOTS – WHAT ARE THE OPTIONS?

FOR measuring temperature is it best to use a spot thermometer, a thermal imaging camera or a combination of the two? Well, essentially it depends on the job, whether you simply want to confirm temperature or investigate a wider problem. Another consideration is value for money. Are you best served by a basic device or one whose cost can be justified across a variety of tasks?

All the devices work according to the same principle; they are non-contact devices that detect infrared radiation and translate it into a temperature reading. Indeed a spot thermometer can be seen as a thermal camera with just one pixel and it can be very useful for a wide variety of tasks. But, it is still simply a tool that measures temperature in one spot, nothing else. This may be sufficient for some jobs but it does not allow the full potential of thermal measurement to be incorporated into your working life.

"Thermal imaging is also widely used for the inspection of high voltage installations and for detailed problem analysis. But, in order to conduct this work, you will need a higher range camera. Indeed, there are two key factors when considering the best camera to detect electrical faults, clarity of image and operation safety."

Multiple measurement points

Whilst a spot thermometer gives you a single number, a thermal imaging camera generates an image from multiple pixels each of which provides a temperature reading. In effect the camera combines thousands of spot thermometers in one device. So, a camera with an image resolution of 160 x 120 pixels, such as the FLIR E40, is therefore able to provide 19,200 temperature readings at once.

These many thousands of measurement points are then translated into a thermal image embedded with temperature data, providing a complete overview of the target area. This allows you to see the thermal profile of the problem and its heat distribution. It puts the hot spot into context, greatly assisting diagnosis. Some cameras also provide a simultaneous visual image and cleverly combine both thermal and visual images to give greater detail.

A thermal camera also saves inspection time. Scanning large areas with many components using a spot thermometer is a very time consuming task whereas, with a camera, a single image is often all that is needed. Also, thanks to their advanced optics, thermal cameras can resolve temperatures from further away and with a greater degree of accuracy.

By comparison, for a spot thermometer to maintain its accuracy, very close attention must be paid to its spot size in relation to the size of the target; the smaller the target, the closer the camera needs to be to that target to ensure the spot size covers it entirely. If the target is smaller than the spot size, the detector will take in infrared radiation from the object's surroundings, potentially compromising accuracy.

Multiple applications

How can a thermal imaging camera benefit your work as a professional electrician? A small point-and-shoot model is ideal for inspecting low voltage installations. The technology can quickly locate hot spots, determine the severity of the problem and help establish a time frame in which the equipment should be repaired.

Corroded or poor connections, internal fuse damage and internal circuit breaker faults will all show up as hotspots on a thermal image you can see how they relate to one another. And most importantly this knowledge allows you to act appropriately to prevent costly damage and to avoid any danger of fire.

Thermal imaging is also widely used for the inspection of high voltage installations and for detailed problem analysis. But, in order to conduct this work, you will need a higher range camera. Indeed, there are two key factors when considering the best camera to detect electrical faults; clarity of image and operation safety.

Both are best served by a model with a minimum resolution of 320 x 240 pixels. This gives an adequate number of measurement points to allow you to see important details at a greater distance away from the target.

What's new?

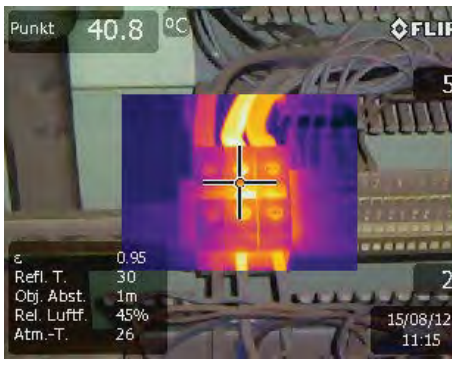
Recent developments have taken the scope of temperature measurement even further. Electricians no longer have to choose between a spot thermometer and a thermal imaging camera, they now also have the option of an imaging thermometer. The development of a micro thermal imaging core has allowed the benefits of spot measurement and radiometric imaging to be combined so electricians can have both technologies instantly available for fast and effective troubleshooting.

Indeed, the introduction of the micro-core is paving the way for a range of combined technologies, so watch this space! In the meantime we have a FLIR TG165 to give away. This is the latest generation imaging thermometer that lets you see heat patterns, measure temperatures accurately and store management data for reporting.

For more information, go to FLIR's website at www.flir.com

Enquiries: +27 11 300 5622

The Flir E40 thermal imaging camera measures the temperature of 19 200 spots.



HANDY POCKET-SIZED GUIDES FOR LUMINAIRES AND LED LIGHTING

BY PIERRE NOTHARD, CHAIRMAN OF THE SAFEHOUSE ASSOCIATION

AS is the case with many other electrical products, there is much misinformation about the regulation of lighting products in the market – and considerable malpractice, too.

Some of the misinformation is due to LED lighting being a relatively new technology that has become popular in recent years; and, more importantly, it can also be attributed to the absence of compulsory regulations that cover LED lamps. There is existing legislation that applies to LED luminaires – the light fittings into which the LED lamps fit – but not for the LED lamps themselves.

"SAFEhouse scrutinised a light fitting in packaging under one name, the product with another name and an LOA that was incompatible with both."

I don't believe that it is an exaggeration to say that the absence of LED lamp regulations has encouraged what could be described as a 'free-for-all' in the LED lamp market. The technology associated with LED lamps makes it impossible for an unsuspecting or uninformed user to accurately assess the validity of suppliers' sometimes outrageous claims of longevity and power consumption.

A few recent examples of misinformation and non-compliance that SAFEhouse has come across in this field include:

- The belief that "if the components of a light fitting are compliant with regulations, a regulatory Letter of Authority (LOA) for the entire assembly is not required."
- The misconception that EMI emissions – which are characteristic of LED technology and which can severely interfere with communications and the functioning of, for example, pacemakers and security systems – are "are not subject to regulation".
- That only imported lighting products are subject to regulation and that this is not applicable to locally manufactured products.
- SAFEhouse scrutinised a light fitting in packaging under one name, the product with another name and an LOA that was incompatible with both.

It is an indictment of the current regulatory conditions in South Africa that such cases are not rare.

In SAFEhouse's opinion, the considerable time it takes to obtain a LOA to distribute products is another significant contributor to wide-spread non-compliance in this industry.

This results in products being distributed without the required authority because of the imperative to survive on the part of businesses that would otherwise not trade without a letter of authority (LOA) – and, although this information is anecdotal, it is most certainly believable.

As ever, when there are vacuums in communications and regulatory enforcement, it encourages misinformation and illegal activity, which prejudice compliant organisations and their customers.

In this light, SAFEhouse's contribution to the cause of accurate communications, regulatory compliance and good buying decisions includes a series of SAFEhouse guides that have been inserted into Sparks Electrical News. This includes two publications on lighting: The SAFEhouse Guide to Luminaires and A SAFEhouse Guide to LED Lighting. These guides are now available in digital format and can be accessed on the SAFEhouse website: www.safehousesa.co.za

Enquiries: +27 11 396 8140

LED RETROFIT FOR SHOPPING CENTRE'S PARKING AREA

Beka Schréder supplied a cost-effective LED lighting solution for the lighting retrofit project of the outdoor parking area at the Atterbury Value Mart in Pretoria. The management at this popular shopping destination wanted to ensure that customers would feel safe and welcome at night and decided to upgrade the centre's lighting.

Atterbury Value Mart Shopping Centre is one of South Africa's largest value marts, stretching over almost a kilometre, and is arguably the most popular factory outlet destination in Pretoria. According to the engineering brief provided by the lighting project management consultants, Green Power Energy Solutions, the existing poles had to be extended and their current positions had to be used. The luminaire had to be cost-effective and also have the capability of achieving the correct lighting levels according to SANS 10389-1. In addition, achieving the correct light uniformity with low glare was important.

"The Skido 15 W LED luminaire met all these requirements," says BEKA Schréder's Paul Fourie. "The Skido has been developed to offer a compact and economic outdoor LED solution. Its versatility offers maximised savings in energy and maintenance costs."

Fourie explains that the luminaire has been designed to operate LEDs of 15 W in an ambient temperature (Tq) environment of up to 35 °C, without reducing the useful lifetime of 100 000 hours, at a lumen depreciation of not more than 30% (L70). The Skido, which weighs only 1.3 kg, features integrated lenses for performing photometry, surge protection of 10 kV, as well as a wide operating temperature (Ta) from -20 °C up to 50 °C. The luminaire has been designed to simplify the installation process, and is manufactured from durable and recyclable materials.

"The Skido 15 W LED luminaire met all these requirements," says BEKA Schréder's Paul Fourie. "The Skido has been developed to offer a compact and economic outdoor LED solution. Its versatility offers maximised savings in energy and maintenance costs."

BEKA Schréder is proud to be associated with Green Power Energy Solutions and Atterbury Value Mart in providing a successful and cost effective LED lighting solution for this project without compromising on quality.

Enquiries: +27 11 238 0036

The cost-effective Skido LED luminaire illuminates the parking area at Atterbury Value Mart.

IESSA conference: 'Lighting – then and now'

THE 12th IESSA AGM and annual Congress will be held at the picturesque coast town of St Francis Bay in the Eastern Cape from 15 to 18 May.

The theme, 'Lighting – then and now' will be explored and presentations will include:

- The Dark Side of LED Measurements by P du Toit and E M Coetzee (NMISA).
- Performance of the Perk in Elmer Lambda 1050 Spectrophotometer as a Transfer Standard for Full Scale Regular Spectral Transmittance Measurements in the 200 nm to 800 nm Wavelength Range by E K Mofokeng (NIMSA).
- Investigations and Measurement of Uncertainty Contributors for Colorimetric Calibrations by I Kruger and E M Coetzee (NIMSA).
- Passion For Light – How it Impacts my (and your) World by Retief Coetzer (BEKA).
- Good Lighting Values Provide Visual Comfort and Visual Performance for Motorists by Simon Poo (Philips Lighting).
- Street Lighting – Then and Now – from Flameproof to LED by James Jooste, Little Venice Adventures.
- Photobiological Safety of LEDs by Natasha Nel-Sakharova (NIMSA).
- Energy Performance of Lighting in Buildings by Robert Henderson.
- Human-centric Lighting by Greg Marcia, Giantlight.

Enquiries: +27 11 476 4171

Master the art of light with two-day workshops

EUROLUX and Blair Hammond and Associates have announced the 2016 dates for their popular lighting technology workshops. These are designed to enable the general lighting practitioner to make informed decisions regarding professional lighting design and application. This year's sessions offer brand new content, as well as the opportunity for electrical engineers, architects, interior designers and other professionals to earn their annually required Continuous Development Points (CPDs).

The workshop has achieved wide recognition, with Consulting Engineers South Africa (CESA), Cape Institute for Architecture (CIFA) and the South African Institute of Architects (SAIA) accrediting its offering. CESA administers the CPD system on behalf of the Engineering Council of South Africa (ECSA) and stipulate that workshop delegates are required to attend both days of training in order to earn their points.

Philip Hammond, director of Blair Hammond and Associates and the president of the South African Institute of Lighting (SAIL), is the presenter of the workshops. "This year the training theme centres on Lighting Best Practice. Delegates will be taught the best approach to lighting design, using rapidly and continually developing LED lighting products. They will also be taught how to read photometric data and how to calculate for lighting designing, using traditional, manual methods."

"In the first season, the focus was on exploring lighting basics, then moved onto LED technology and finally to the application of that knowledge. In the second season, we took it one step further and divided the LED technology section into indoor and outdoor applications."

Hammond is a qualified lighting engineer and is recognised internationally as a leading authority in the field of LEDs, making him the ideal choice to present these workshops. "At Eurolux we have daily interactions with industry professionals who continually highlight the need to better understand emerging technologies and their application within particular fields. It is essentially the demand from our customer base that prompted us to host these workshops," explains Shaun Bouchier, director at Eurolux. "We know the calibre of expert we have in Philip, having worked closely with Blair Hammond and Associates over the years; and he really has done us proud."

According to Hammond, the workshops are presented nationally and beyond. "In the past we conducted training in Cape Town, Johannesburg, Pretoria, Durban, George, Port Elizabeth, East London, Potchefstroom, Pietermaritzburg, Hermanus as well as Windhoek and Gaborone." He adds that the workshops morphed into what they are today as customer requirements changed.

"In the first season, the focus was on exploring lighting basics, then moved on to LED technology and finally to the application of that knowledge. In the second season, we took it one step further and divided the LED technology section into indoor and outdoor applications," he says.

"The attendants of the indoor training sessions urged us to provide a more in-depth two-day session, which delves into lighting essentials and follows the process right the way through to calculations of indoor lighting – and that is what we have done. This year's workshop is an enabler course – enabling information flow between the architect, engineer, lighting designer, contractor and interior designer," says Hammond.

The course dates and venues are:

Mbombela: 3 – 5 May (As it is the first time the workshops will be presented in Mbombela, the LED Lighting Technology workshop will be held on the first day.)

East London: 18 – 19 May

To book or for more information about the workshops, contact Lee-Ann Le Roux on +27 21 528 8484 or e-mail her at leeann.leroux@eurolux.co.za.

DIARY

ELECTRA MINING AFRICA

Electra Mining Africa will be held at the Expo Centre in Johannesburg, from 12 to 16 September 2016. For more information, contact Leatitia van Straten on email leatitiavs@specialised.com or visit www.electramining.co.za.

SOUTHERN AFRICAN ASSOCIATION OF ENERGY EFFICIENCY

The 11th Southern African Energy Efficiency Convention will take place on 8 and 9 November 2016 at Emperors Palace, Gauteng. Enquiries: Lydia Marais on +27 18 293 1499, on email admin@saee.org.za or visit www.saee.org.za

LIGHTING FOR HEALTHCARE AND SPECIALISED ENVIRONMENTS

Legrand works closely with medical professionals and social organisations to provide solutions and technologies that enable sick, elderly and disabled people to live safely, comfortably and as independently as possible.

"Legrand has combined the latest energy efficiency technology, enhanced aesthetics and modular systems to meet lighting requirements in specialised environments, where extra attention to visual comfort is necessary," states Johan Bosch, general manager, Legrand SA. "Included in this range of integrated lighting solutions are sensors, automatic switches, LED night lights and indoor emergency lighting units."

Lighting management sensors are used to monitor the detection area for occupancy and to automatically control lighting. Sensors equipped with a built-in light level sensor keep lighting off if there is sufficient natural light. When the area is vacated, the lighting automatically switches off after a preset time delay.

Energy saving motion sensors, with an automatic switch on/off facility, are recommended for areas with little or no natural light, including corridors, hallways, staircases and bathrooms.

Legrand's 230 V night lights, with LED technology, ensure there is exactly the right amount of light when it is needed. These units are fitted with a light sensitive sensor that automatically controls lighting levels according to pre-set light level thresholds.

Another useful lighting device is Legrand's Arteor miniature emergency lighting unit, which automatically lights up in the event of a power failure.

A key feature of this unit is that the light fitting can be easily unclipped from the mechanism and used like a conventional torch – a handy facility when a room is suddenly plunged into darkness during a power outage.

Although this removable lighting unit is small, its illumination is powerful, effective and comforting in any environment.

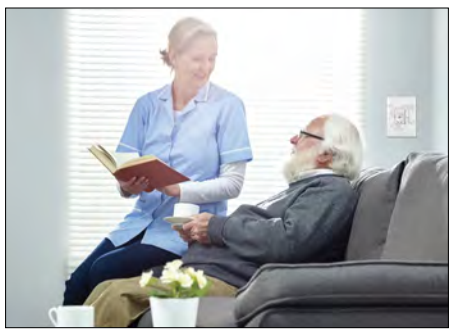
Indoor self-contained emergency lighting luminaires are fitted with high power LEDs, with a low consumption switching power supply. These maintained and non-maintained units have a removable plug-in plate for easy installation and maintenance.

Legrand's lighting systems for special need environments are enhanced by a comprehensive solutions-based service that also encompasses technical consultation and system support.

Enquiries: +27 11 444 7971

Night lights with LED technology and light sensitive sensors enhance comfort and provide peace of mind in frail care and retirement establishments.

Energy saving motion sensors, with an automatic switch on/off facility, are recommended for areas with little or no natural light, including corridors, hallways, staircases and bathrooms.



Lighting management sensors are used to monitor the detection area for occupancy and to automatically control lighting.

Miniature Arteor emergency lighting units automatically light up in the event of a power failure.

Indoor self-contained emergency lighting luminaires are fitted with high power LEDs, with a low consumption switching power supply.

GO GREEN, GO FOR LEDS – BE KIND TO THE ENVIRONMENT

MAJOR Tech welcomes a world of bright new possibilities with an innovative range of LED lighting, where, says lighting specialist, Adrian Craddock, "the brightest ideas become reality".

"One of those bright ideas should include ways to take care of the environment, as this is everyone's responsibility. Most people are already aware of the increasing pressure being placed on the environment and are already implementing daily steps to ensure that each of us does what we can to protect our world. This way of thinking has been implemented at school level, but what's interesting is that many people are still unaware of the technologies that are available that can reduce our carbon footprint", says Craddock. "A great example is LED lighting, which is the most environmentally friendly lighting option available and comes with a host of advantages."

Why LED lighting is great for the environment and your pocket

- Maximum efficiency: By generating minimal heat and using substantially less power than traditional light sources, LED technology guarantees maximum energy efficiency.
- Lasts longer: LEDs last up to 20 to 25 times longer than other light sources and are up to 80% more efficient than traditional lighting.

Craddock says, "LEDs are the future of home lighting, however, homeowners seem to be slow to implement this technology and this may be due to a lack of information or it could simply be due to cost. In these tough economic times, many consumers are watching their spending but, in the long run, not using LEDs could be regarded as being 'penny wise, pound foolish'."

He says the price of LED lights has steadily decreased and they are becoming more affordable.

"When choosing LED lighting, it may not seem like an initial cost saving exercise, however, choosing LEDs will most certainly pay off in the long run – it's a long term investment in your home and the environment."

He adds that for smart homeowners, buyers and developers who want to help the environment while being financially prudent, the choice is clear. Major Tech offers a wide variety of home and industrial products that make lighting improvements "effortless".

"Replacing your current bulb with a LED is easy. LEDs are suitable for existing lamp sockets and you can begin to save money immediately. In most cases you can retrofit a like-for-like LED bulb with the same base fitting, similar shape and light output.

Features include:

- Low power consumption and a long life of up to 25 000 hours.
- 360° light beam angle for all-over illumination
- Cost effective – reduces labour and maintenance costs.

Easy to install.

Available in warm white 3 000 K and cool white 6 000 K, Craddock says that Major Tech's standard LED lamps are ideal for restaurants and high-end retail stores as well as domestic applications. "LEDs are perfect for chandeliers, ornament lights, commercial light strings, and decorative lights strands – and for decorative applications that accept E27, E14, and B22 bases."

Security lighting

He says that security lighting has also changed drastically and that 'twisty' CFL bulbs are now being replaced with energy efficient, cost effective LEDs.

"Major Tech's IP65 LED-based floodlights with PIR (passive infrared) sensors have a high power LED chip that's capable of producing from 650 up to 3 500 lumens and has been designed as a replacement for traditional floodlights," explains Craddock.

"Choosing LED floodlights over traditional floodlights saves energy and, at the same time, provides better lighting overall. Major Tech's range of LED floodlights is designed to ensure low heat emissions, a much longer lifespan (30 000 hours), and improved visibility," concludes Craddock.

Enquiries: +27 11 872-5500

THE PERFECT MODERN RESIDENTIAL HALOGEN-LIKE LED SOLUTION

Warwick Webber, Aurora's technical director, suggests a cost-saving halogen alternative for residential projects.

ARE you looking for long-lasting residential lighting solutions that are small enough to fit into shallow ceiling voids yet offer a perfect cost-saving alternative and are similar in design to halogen luminaires?

The Enlite range of Spryte integrated LED downlights has been designed to meet the specific needs of residential installations where a bright, modern living interior and low energy costs are sought after. With easy installation and low ceiling voids in mind, the range has been designed to feature a compact integrated driver.

The Spryte is an energy-efficient LED downlight in fixed and adjustable options for new build or retrofit halogen, R63 and R80 reflector lamp installations. The latest addition to this well-designed range is an 8 W ball-joint adjustable version.

Fitted with the edge-to-edge, multifaceted 60° wide beam EnFiniti lens, these downlights allow for high light output and low glare while still providing a sparkling halogen-like optical appearance in a compact fitting. Built-in ThermoTec technology utilises a combination of highly efficient LED light source, aluminium heat sinking and thermoplastic material for longer life and consistent performance.

For simple halogen retrofits, choose the 8 W (up to 570 lumens) version that comes supplied with a fixed white bezel to fit a 60 mm cut-out. The larger 10 W version (up to 850 lumens) fits up to 90mm cut-outs and is an ideal energy-efficient replacement for R63 and R80 retrofits. Both are pre-wired with a 500 mm two-core flex cable and carry a warranty of L70 to 25 000 hours.

Spryte integrated LED downlights are part of the Enlite Lighting Essentials range with over 250 modern, innovative lighting products, designed to be your first choice for the best in value, quality and performance.

The 4th edition of the Enlite catalogue is essentially a 'one-stop-shop' of easy-to-install products engineered by the Aurora Group, which was voted 'Manufacturer of the Year' at the 2015 Lux Awards.

Enlite Lighting Essentials are available nationwide through wholesalers. To download the latest catalogue, visit: www.enlitelighting.com

Enquiries: +27 11 234 4878

RUGGED LED LIGHTS WITH 60G VIBRATION RATING

Torre Parts & Components has announced the VisionX range of rugged dual-mounting LED Ripper lights with a 60G vibration rating designed for the industrial industry.

The Ripper LEDs have an integrated electronic thermal management (ETM) system that enables the housing to dissipate heat. This technology keeps the lights at safe low-operating temperatures to ensure no touch burns will occur when hand contact is made with the unit. In addition, all lighting heads are low-voltage fixtures with no risk of electrical shock or burn.

"The Ripper produces nearly twice the light of other LEDs and includes enhanced optics that optimise the beam distance and depth, giving a full 50 000 hour potential," says Leonard Chester, VisionX product manager at Torre Parts and Components.

Chester says VisionX has "succeeded in winning military and NASA contracts based on the advanced design and extensive product offering".

"LED is one of the most energy-efficient light sources on the market and the most environmentally friendly through its reduced carbon footprint. In addition, when discarded, the LEDs do not contain mercury and therefore do not contaminate landfills or underground water systems," says Chester.

"These LED lights provide a 70% reduction in power consumption over current OE lighting systems. There is a 26% increase in light output on effective work areas (measured in lux on the work surface in 12 critical points) and an 80% decrease in light pollution based on stray light loss into surrounding hills and into oncoming equipment," he said.

The Ripper range covers 45 W to 100 W with 3,8 A to 8,33 Adraw and beam ranges of 10, 40 and 60 degrees.

The LED lights operate from -40 °C to 80 °C and have a lifespan of 50 000 hours compared to halogen, which is rated at about 250 hours.

Features:

- 20 LED and 12 LED models
- Up to 10 560 raw lumens
- Dual mounting system
- Six beam patterns
- Die-cast housing

Enquiries: +27 11 781 6190

LEDS FOR AUSTRALIAN TENNIS CENTRE

Sydney's Olympic Park Tennis Centre became the first broadcast quality sporting facility in Australia to replace its existing metal halide luminaires with LEDs. The installation at the six tennis courts utilised 120 GigaTera Sufa 400 W stadium LED flood lights. The primary goals were to increase existing light levels with significant energy savings and reduce maintenance costs. The improvements in the colour reproduction ratio using 5 000 K lights together with the flicker-free and minimal glare design of the Sufa flood lights provide optimal conditions for athletes, spectators and TV viewers. In addition the use of 5 000 K LED luminaires with a CRI in excess of 80 improved the scotopic/photopic ratio significantly. The GigaTera Sufa 400 W stadium LED flood lights are available locally from Envirolight.

Enquiries: +27 11 803 0637

MAJOR TECH

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executive accounts manager.

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SUBMIT
Submit your photos of new appointments and promotions to People on the Move at sparks@crown.co.za. All photos must be in jpeg format and high resolution (at least 1 MB when attached) .

TV TEASE

Mr Hearty wants to watch four TV programmes, all on between 7pm and 9pm. One of the programmes lasts an hour, another lasts 40 minutes and the other two each last half an hour.

Without knowing the exact times of any of the programmes, what is the least number of minutes of the programmes, in total, that Mr Hearty will have to miss? He doesn't own a video recorder

APRIL SOLUTION

THE HAIRY SITUATION

Uncle Jack knew that the number of hairs on a human head is at most about 200 000 while the total population of the world is more than 5 000 000 000. Therefore, on average, you can expect about 25 000 other people to have the same number of hairs on their heads as on yours. The chance that *no-one* has the same number is so small as to be insignificant, which is why Uncle jack was smiling to himself, even though he had never counted the hairs on Gary's head.

JUNE FEATURES

- Tools of the trade
- Energy measurement and supply
- Lighting

Buyers' guide
- Energy measurement and supply

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