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**FEATURES**

- CONTRACTORS' CORNER
- DISTRIBUTION BOARDS, SWITCHES, SOCKETS AND PROTECTION
- TOOLS OF THE TRADE

# ..Hello.. SUMMER

It's almost time for the long-awaited 'builders' holidays' and many readers will be taking a well-deserved break over December. But, before you pack the camping gear or the beach umbrella and head off to your holiday destination, please take a few minutes to enter your name into the draw for one of 24 fantastic gifts sponsored by our loyal advertisers.

To see the gifts that are up for grabs, flip this page over to the right.

## HOW TO ENTER

There are three ways to enter the draw:

- Scan in the QR code on this page to go straight to the online entry form and fill in your details.
- Log onto the Sparks website <http://crown.co.za/sparks-electrical-news> and click on the Cool Summer Stuff banner then complete the online form.
- Email your name, company name, postal address and telephone number to [promotions@crowm.co.za](mailto:promotions@crowm.co.za)

### CLOSING DATE

Entries close at noon on 18 January, 2017.

### DRAW

The sponsors will draw the names of the lucky recipients of gifts on 19 January and all the winners' names will be published in the February 2017 issue of Sparks Electrical News.

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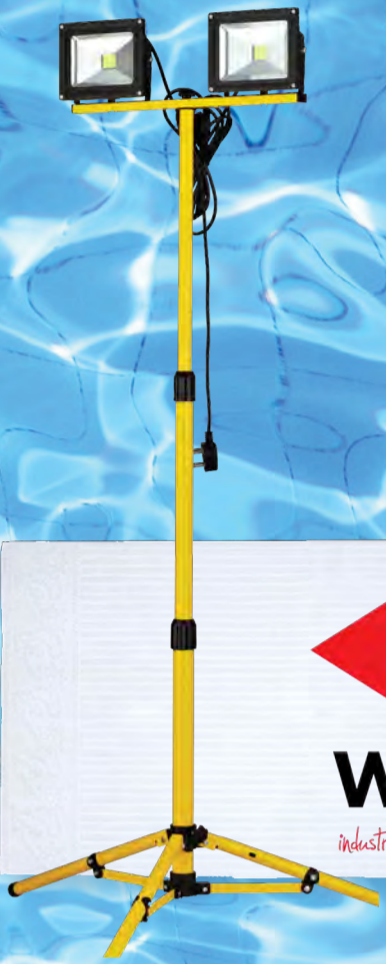
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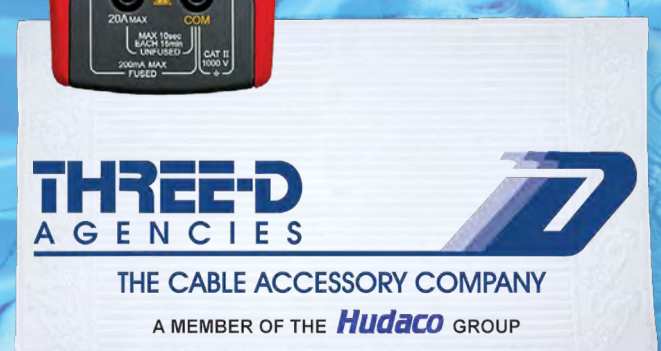
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## BE THE CHANGE YOU WANT TO SEE IN THE WORLD



Ryan Robertson.

**RYAN ROBERTSON** is a co-founder and director at Vert Energy and has been in that position for the past six years. At only 33, he has a lot of responsibility on his young shoulders and is being groomed to take over the family-owned business when his father, Grant Robertson, retires one day.

Dynamic, forward thinking and focused on the future, Ryan is multi-talented – besides his daily work, amongst other things he also has been instrumental in securing new exclusive distributorships, overseeing the sales and marketing functions and was responsible for the design and construction of the Vert Energy stand at this year's Electra Mining.

**Sparks:** Where were you educated?

**RR:** I matriculated from Dainfern College and obtained a B Com from the University of Johannesburg.

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

**RR:** I've been in this industry since 2010 but my family has been in the electrical industry for 35 years so, by default, I've grown up surrounded by the products we sell today.

**Sparks:** When and where did you start your career?

**RR:** My first job was at the Ed Holding Golf Shop where I worked on weekends when I was 16-years old.

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

**RR:** South Africa in the early 2000s was buoyant on the back of commodity prices and was largely unaffected by the economic crisis in 2009 as a result of the infrastructure development around the 2010 FIFA World Cup, but the last six years have exposed our vulnerability on natural resources and we need to leverage our infrastructure as the gateway to sub Saharan and East Africa.

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

**RR:** Our current remote monitoring project, NERVE (Networked Energy Reporting in Virtual Environments), is the largest scale project we have undertaken. It is product-agnostic and leverages the Industrial Internet of Things (IIoT) data from multiple industrial communication protocols,

across multiple devices and platforms into a single cloud-based access and control point. We hope to have our final product ready for release in the first quarter of 2017.

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

**RR:** In the field of electric power generation, there are two people who have had a profound impact on my career. Xavier Trenchant, president of Leroy Somer EPG, who granted us the exclusive rights in Southern Africa to sell and support the world's largest producer of alternators used in electric power generation and he gave us the support and opportunity to grow the business.

Kevin Donaldson, the owner of Diesel Electric Services, has provided mentorship and guidance in the field of electric power generation and has always been supportive and encouraging of our business.

**Sparks:** What, to your mind, is one of the biggest challenges facing the industry at this time?

**RR:** South Africa has an abundance of potential but we are faced with a massive skills' shortage of qualified artisans and electro-mechanical technicians. State-owned enterprises (SOEs) used to be a great platform for skills development whereby artisans and technicians would gain experience and move on to their own small to medium enterprise (SME) operation but there is no skills transfer and a stagnant economy does not provide a platform for SMEs to flourish and create additional opportunities.

**Sparks:** What do you enjoy most about your job?

**RR:** I enjoy the interaction and relationship building with our clients. As a sales and solution driven organisation the best part is engaging with clients from the outset to help them develop, implement and commission a solution that creates value for the end-user.

**Sparks:** How do you motivate your staff?

**RR:** We firstly try to create an environment that is fun. We then seek to understand their immediate financial requirements, long term career aspirations and their personal goals. Based on this, we incentivise them with commercial and personal goals so that they first feel a sense of actualisation and, second, through financial reward on achievement of these targets.

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

**RR:** I am fortunate enough to say that, as a dynamic company, we are continuously growing, changing and refining and we have experienced great growth with a passionate team where the members are all aligned to a common goal and objective so, for now, we are forward focused.

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

**RR:** As the world moves closer to the IIoT (Industrial Internet of Things), electronics and electrical engineering will form the backbone of this. The second wave that will emerge in the next 10 to 20 years is once we have all this data, new technologies and product refinement will occur and we will need an enormous number of engineers to develop solutions and products to satisfy these findings.

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

**RR:** Southern Africa needs you – it is a territory alive with possibility

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

## 2016 IN REVIEW – A YEAR WE WILL REMEMBER

We have reached the end of 2016 and what an interesting time it has been universally. Even in years to come, when we look back over 2016, we will remember 11/09 as the day that Donald Trump replaced Barack Obama as the president of the United States of America. The markets called it wrong and were shocked when they were 'corrected' by democratic processes: 'Trump victory rocks markets' screamed the headlines. We will remember the British referendum, which resulted in what is now colloquially known as

Brexit. The markets called it wrong and were shocked by the truth. I am in the electrical contracting industry and the one thing that we avoid is actually being shocked.

Closer to home, interruptions reduced the State of the Nation address (SONA) to three words: 'Zupta must fall'. This, for some reason, then dominated political and public discourse in the Republic and has culminated in what Thuli Madonsela called the 'State Capture Report'. For some reason, the markets were not shocked by this report. Instead this report was followed

by a frenzied search for an elusive 'shebeen' in Saxonworld.

We live in interesting times!

The ECA(SA) has had a great year despite all the shocking events in the business environment. We have been able to conclude a collective agreement with the representative trade union in the electrical contracting industry, which prescribes conditions of service for all employees employed in the industry until 2022. This is business certainty, the sort of thing we are told that markets love. Business can now price, with

and running away to Australia or the UK isn't going to solve Africa's problems. We need as much experience, passion and commitment from as many skilled professionals as possible to make South Africa a success.

**Sparks:** What is your favourite quote?

**RR:** "Be the change you want to see in the world." – Mahatma Gandhi.

**Sparks:** Name three things on your 'bucket list'.

**RR:** I would like to travel a little more (outside of business) and attend the following sporting fixtures in the same year: The Monaco Grand Prix; the Hong Kong Sevens; and the four golf majors.

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CONTINUED ON PAGE 4

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## PAPERWORK TAKES THE GUESSWORK OUT OF PAYMENT

Something that is not appreciated – particularly by emerging contractors – is that there is an enormous amount of paperwork associated with getting a contract from another contractor or a client.

In general, you have to submit the following documents before you can be registered as a vendor with a contractor or client: BEE certificate; tax clearance certificate pin number; a letter of good standing with the Compensation Commissioner; a letter from the bank with your banking details; your Cipro number; and any other thing that the accountant of the vendor or contractor can dream up.

Inevitably, once you've submitted a price for some

work, the contractor or client will dilly-dally for a few weeks until they finally decide to give you the job. The moment that happens, they want you to start work immediately, buy the materials and get cracking. Come the end of the month, when you are hoping to be paid 60% of the value of materials on site and for the work completed, you find that your invoice doesn't get paid because the documents are not to hand. This can seriously dent your cash flow and, even worse, if you have to apply for the documents because you haven't got them, it can put your business into a serious decline. The message is clear: make sure you have all of those documents that I've mentioned above.

Now, if you happen to be one of those people who is behind on your tax returns, you won't get a tax clearance certificate pin number. There's a way around this, though, but the best idea is to speak to an accountant about this because it is a bit dodgy.

If, on the other hand, you haven't followed this sage advice and are right now stuck in a situation where your invoice hasn't been paid, then do the following: (a) ask the principal agent or the engineer for a payment certificate stating how much you are due in the contract as at month end; (b) take the certificate to your bank and ask them to advance you the amount of the certificate less a percentage. Generally, they will – then you have a month to fix the paperwork.

A very good idea is to submit as much of the paperwork as you can with your offer. This makes the awarding of the contract to you very easy, as far as the client is concerned. Another trick played by contractors or clients is an old one: "we have to wait until the next payment run, which is in two weeks' time and we will pay you then". They can thus extend payments to 45 days from invoice. Some contractors or clients will even say that they only pay 60 days from statement.

It is important that, before you sign and accept the contract, you establish the payment terms. Take the total value that you're going to claim and divide this into payment stages; make a list of what will be paid on what date and make them sign it. They may refuse, but then at least you have been forewarned.

Another useful idea is, when you put in your proposal, to load up the amount for preliminary and general (P&G) costs as much as you can. Make sure you advise the client before appointment that full P&Gs related to the contract value are payable on appointment. When they refuse to pay or they hide behind the paperwork excuses, you can just refuse to start work. This costs you very little and, sooner or later, the contractor on site will make sure you get paid just to make you start work.

There is a breed of contractor (particularly in Cape Town) that habitually does not pay their bills; and there are some consulting engineers who delay payments just to improve their cash flow.

I used to send letters begging and pleading for money and I would hear promises, promises and more promises ... but nothing would happen. Now I just give them seven days and stop work. After a few days, it sinks in that we are not working and people start to phone us telling us to "keep going ... the money is coming".

I find it much better to wait for the money and then go.

Try it and see.

### 2016 IN REVIEW CONTINUED FROM PAGE 3

accuracy, the cost of labour for the next five years and this agreement guarantees that there will be no strikes.

An exciting part of this agreement is the introduction of a training and development fund for the training of both employers and employees in areas we consider to be of critical importance to the continued refreshment of skills and management knowledge in the industry. This is anticipated to be in place for the next five years.

We have also taken a decision on social benefits and security that should see the establishment of a new retirement fund for the whole industry by 2019. This will make sure that the benefits in this industry are uniform throughout the country. This will ensure that mobility and migration of the workforce is made easier even for companies that have a national footprint as there would be common conditions of employment. We hope that, in time, members of the retirement fund will benefit from 'economies of scale' once the critical mass has migrated to the new national retirement fund that is to be established. It is a huge challenge and it is motivated by the fact that the results must surely outweigh the pain of getting there. It will be an interesting ride.

The year 2017 will see the expiry of the current collective agreement, which we have managed with the South African Equity Workers' Association for the past three years. This journey saw stability and predictability in our space and for that we are grateful. We will also see the commencement of or new collective agreement and we are looking forward to that.

The 2016 Presidential Excellence Awards received 65 entries for the various categories and we thank the industry for its support. The standard of excellence is one we will continue to drive into the future as the yardstick by which our industry must be judged.

Enjoy your Christmas and year-end break. May you come back refreshed and more energised as we face the challenges of 2017 and beyond.



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The new IEC 309 HP – High performance range is the latest evolution in industrial connection, offering the best in terms of performance, functions and technical characteristics. The system comprises socket-outlets and plugs from 16 to 125 A with Index of Protection from IP44/IP54 to IP66/IP67 and now also IP68/IP69 for straight plugs and connectors.

These devices are manufactured to include every possible earth hour reference, thus opening the door to a world of new

applications and installation situations in the most specialised and heavy duty contexts.

Traditional screw terminals and quick wiring spring terminals (for 16 and 32 A) or cage terminals (for 63 and 125 A versions).

The new cable gland and halogen free plastic materials with nickel-plated contacts (pins and sleeves) are all factors that make IEC 309 HP the best solution in terms of resistance and protection.

The ¼ turn safe-lock coupling with body-grip system locks with a safety screw that indicates whether the system is locked.

The special shape and the rubberised surfaces in the 63 and 125 A versions ensure the best possible grip in any usage conditions, even when wearing work gloves and in the presence of water and moisture.

The IEC 309 HP plugs and sockets offer optimum resistance and mechanical stress (IK09, equivalent to 10J), even at low temperatures and in real heavy-duty conditions.

The mobile socket-outlet covers have a practical and ergonomic design allowing for one handed operation.

The new IEC309 HP range has a longer earth terminal that will disconnect last protecting the user from electric shock and avoiding electrical discharge on devices.

The extended IEC309 connection system is widely available from ACDC Dynamics, the sole distributor of the Italian Gewiss product ranges in southern Africa.

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## VANDAL-PROOF MINI SUBSTATIONS

Electrical substations pose a number of unique challenges including vandalism and the theft of copper. This is especially true for mini substations, which are often located in residential areas and in remote rural areas, and applies to those owned by power utilities as well as private owners.

While larger substations are often protected using surveillance equipment, this is not always feasible with mini substations and apart from the unnecessary disruption of electrical services, the damage done to these installations could have potentially lethal consequences for maintenance personnel.

Working in collaboration with Eskom, WEG Transformers Africa (WTA), part of the Zest WEG Group, developed a vandal proof mini substation which is now approved by the power utility.

Andre Mans, chief operating officer of WTA, says that this approval is very important as it confirms the functionality as well as reliability of the vandal-proof mini substation. "This level of approval not only underpins that the mini substation meets all the criteria but also gives absolute assurance to the marketplace," Mans says. Notably, the mini substations are targeted at both power utilities and private end-users.

The WTA vandal-proof mini substations are ideal for installation in high risk areas. The entire enclosure, including doors and lock protection facilities, are constructed from 6 mm steel with the doors being specially reinforced. The four way locking mechanism is complemented by heavy duty door hinges. The transformer unit is sealed, further protecting the installation.

A major advantage is that the mini substation is constructed as a complete unit and is offloaded on site with its roof in position. This is advantageous to contractors as installation does not necessitate assembly of the unit.

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GETTING TO GRIPS WITH SANS 10142-1 BY HANNES BAARD

# THE ELECTRICAL CoC – TIP-TOEING THROUGH THE MINEFIELD

It feels like yesterday that I worked on the column for December ... December last year, that is ... and here we are, 12 months and many interesting topics and friendly differences of opinion later.

The topic for this month covers a document that many people embrace, others love to hate and even more do not completely understand. The problem with the people who do not completely understand this document is that they actually make things worse by either completing it incorrectly and/or not completing it at all. I am, of course, referring to the 'infamous' Certificate of Compliance (CoC) for an electrical installation.

The original document is included in the Electrical Installation Regulations (2009) forming part of the Occupational Health and Safety Act (Act 85 of 1993), as Annexure 1. Reference to the Certificate of Compliance is found in the Definitions of the Electrical Installation Regulations and Regulation 7 in its entirety is devoted to this very important document.

So, without any further delay, let's have a look what the Electrical Installation Regulations (2009) have to say about this.

## Certificate of Compliance

7.(1) Subject to the provisions of subregulation (3), every user or lessor of an electrical installation, as the case may be, shall have a valid certificate of compliance for that installation in the form of Annexure 1, which shall be accompanied by a test report in the format approved by the chief inspector, in respect of every such electrical installation.

Now, what does the paragraph above say? Well, it says that every electrical installation shall be covered by a CoC. The exception is where the electrical installation existed prior to 1992 and there have been no changes to the installation and/or ownership since 1994. And because the installation itself cannot be the custodian, the CoC is entrusted to the user or lessor of that electrical installation for safekeeping, which also infers responsibility, therefore the reference to "every user or lessor... shall have ..."

Somewhere amongst all that, the word 'duty' also comes to mind. And, on top of it all, by implication, the owner of the electrical installation is part of the equation, too. But note, not everyone who uses an electrical installation is the owner of that installation – the person renting a residential property, the shopkeeper at the corner café or the haberdashery store in a shopping mall, for instance.

So, the use of the words 'user' or 'lessor' makes things more practical when it comes to delegating responsibility. It goes further to say that the CoC shall look like and contain at least the information as per the example you will find in the Electrical Installation Regulations as Annexure 1.

Now, to be able to issue a CoC, it stands to reason that you have to inspect and test that electrical installation otherwise you would not be able to answer the questions on the CoC truthfully, or with any extent of certainty. The format of this Test Certificate has to be approved by the chief inspector and, to make it easy for us, there is an example of such a Test Certificate in Part/Clause 8 (Verification and Certification) of SANS 10142-1, together with complete and in-depth 'how to do it' instructions.

Next we move to subregulation (2)

(2) Subject to the provisions of subregulation (3), every user or lessor of an electrical installation, as the case may be, shall on request produce the certificate of compliance for that electrical installation to an inspector, a supplier or, subject to regulation 4(1), an approved inspection authority for electrical installations.

The above is more or less self-explanatory. A CoC is required when a property is bought and/or sold (we'll get to that later), but the reference to regulation 4(1) needs a little attention. The regulation reads as follows:

4.(1) An approved inspection authority for electrical installations may enter premises and conduct an inspection, test or investigation only when

- (a) Contracted by the chief inspector or provincial director for a specific electrical installation; or
- (b) Requested by the user or lessor of an electrical installation to do so.

The question of compensation for work done, in this case inspection and testing, comes to the table. In my humble opinion, in (a) the Department of Labour pays and in (b) I have to pay, and I base my opinion on the words 'contracted' and 'requested'. A little further down, we see that a slightly different set of rules apply when a Supply Authority conducts those exact same inspections.

Next...

(3) Subregulation (1) shall not apply to an electrical installation that existed prior to 23 October 1992, and where there was no change of ownership after 1 March 1994: Provided that, if any addition or alteration is effected to such an electrical installation, the user or lessor of the electrical installation, as the case may be, shall obtain a certificate of compliance for the whole electrical installation, whereafter the provisions of subregulation (1) shall be applicable to such electrical installation.

The important part to take note of in subregulation (3) is the fact that should you work on the electrical installation for any reason after 1994 for the first time (like today, for instance), you would have to inspect and test the complete installation and issue a CoC for the entire installation. This of course can have serious financial implications for a home owner, tenant and/or the commercial/industrial property owner, user or lessor.

Once this line is crossed, subregulation 7(1) takes over and regulates the issuing of CoCs from that point on. Subregulation (4) below also covers alterations and additions, but let us have a look at what it says, so that we do not confuse matters:

(4) Where any addition or alteration has been effected to an electrical installation for which a certificate of compliance was previously issued, the user or lessor of such electrical installation shall obtain a certificate of compliance for at least the addition or alteration.

Okay, so now you have worked on the electrical installation. This is the time to establish: Do I issue a CoC only for the work I have done, or for the entire installation? Hopefully after my explanation of subregulation (3) and reading subregulation (4) it will be as clear as daylight when to issue a CoC for a part or entire installation. This CoC for the alterations only now has to be added to the original CoC. And so, over time, a CoC for an installation can comprise many certificates that will be regarded as one. Call it your installation's 'service or owner's manual' as you have for your car. And what a valuable piece of paperwork that is! You can use that document to prove a full service history to get a better price for your car when you sell it and, when you buy a car, you want to make sure that the previous owner maintained the vehicle properly so that you feel comfortable parting with your money – right? It's about time that we start looking at an electrical CoC in the same fashion. But an electrical installation does not go for a service or oil change every 15 000 km, so what now?

We will continue with subregulation (5) in the January issue and pick up where we've left off.



Hannes Baard.



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## IT'S TIME TO REFLECT ON A SUCCESSION PLAN

This has been one of the tougher years for business in all sectors ... and the current state of political affairs and the drought are not making it any easier. We have the rating agencies on our back with Pravin Gordhan trying his level best to keep the country away from 'junk status' ... and then we have #FeesMustFall. All of these issues are making it more difficult for business and it isn't easy for us to see a silver lining in the future.

But, all that aside, there is some good news: We're fast approaching that time of the year when we will be able to sit back, relax and enjoy the long-awaited rest we've been working towards all year. It is also

when we share some quality time with family and friends and, if we're lucky, we can look forward to receiving that special gift – the one we have been hinting about for months.

During the last few months, we've been bombarded with the uncertainty around us and, for many, the consideration of training for the future has not been on the radar. Listening to the 'experts', things should start improving next year; so the question you should be asking yourself is: "When the economy starts to pick up, will I be ready to take advantage of everything that comes with that?"

I can already hear some readers telling me to

wake up and smell the coffee ... However, I do believe that the people of South Africa are beginning to recognise that we all need to work together to combat the issues that are currently plaguing our country in order to bring about a new dawn in South Africa.

For a while now, many of us have been getting by with skills in our companies that are 'aging'. Many companies have been 'sitting on the fence' and adopting a 'wait and see' attitude. This December, while you're sitting with your feet in the pool or the sea, I'd like you to consider a succession plan.

It's now time to begin the uplifting process and to start training the people who will, in time, take

over from those 'aging skills' you are probably sitting with within your company. You would need to consider how much time you, or your skilled staff or colleagues have left before retirement. Working back from there, you would have an idea of when to begin introducing or recommending a succession plan.

Assuming you need a new artisan in your organisation, here is a possible planning process to follow:

- Step 1:** Recruiting to appointment – three to six months.
- Step 2:** Training an artisan to trade test – three years.
- Step 3:** Allowing the newly qualified artisan to gain experience under the guidance and mentorship of your current artisan who will be retiring in the next three years (some would say that they would need 20 years!).

This shows that to get a new employee to perform at the same optimal performance of your experienced artisan could take up to five years to achieve. This process could also be used to determine the potential cost to your future business if you do not implement a succession plan for all key positions.

It is imperative to consider which employees would have to be replaced and how long it would take to replace them to ensure that your business remains sustainable. So, it would be a good time now – while you have the 'quiet time' to stare into the braai fire or contemplate your toes in the water – to review the people, positions and skills that are vital to your company. Will you be ready to take advantage of the new dawn I mentioned earlier?

The alternative is that you may be forced to take what is available and go through a dip in productivity while you upskill the new staff to your standard.

Succession planning is seldom an urgent consideration because most of us think that we will be superman forever. Just think about how quickly this year has passed us as you stare into the fire.

Remember, it's the time of giving and, between the SETAs and the taxman you can get back some of the contributions you have made throughout the year via the Skills Development Levies (SDL).

I would like to take this opportunity to thank all of those who have commented on the articles I have written this year and I wish all our Christian readers a peaceful, joyful and Christ-filled Christmas. To all, if you are lucky enough to be going on holiday, drive safely and look out for other drivers.

Should you have any training issues you'd like to discuss with me, please email me at [nick@pandttechnology.co.za](mailto:nick@pandttechnology.co.za) and write 'Sparks Column' in the subject line.



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

## AS WE END 2016 ... SOME THOUGHTS ON THE STATE OF THE ELECTRICAL INDUSTRY

As we near the end of the year – a tumultuous one, to say the least – I will look back and try to retain at least one positive aspect from 2016 and take that with me into the New Year. Although I must admit that I've been somewhat pensive in my attempts to decide on that one thing to take with me into 2017, I was drawn to the recent developments surrounding the debacle involving Finance Minister Pravin Gordhan.

It was satisfying to see average South Africans mobilise against an obvious wrong and it certainly brought to mind a quote attributed to Edmund Burke, the Irish statesman who died in 1797:

*"The only thing necessary for the triumph of evil is for good men to do nothing."*

I looked in great depth at this strange phenomenon, which had raised its head amongst the good people of our country, and I tried to liken this to my experiences in the electrical industry over the last year. One aspect became clear to me: there are indeed good people in the industry. Although, I must add, I often look in the wrong places to find them.

Be that as it may, I do find good people every day – in residential homes, in industrial plants, in commercial properties – the law-abiding electrical contractors. It is these electrical contractors who continue to stand their ground when faced with other electricians' non-compliant and dangerous electrical installation work. These law-abiding electrical contractors are not prepared to turn a blind eye to shoddy work or to fob it off as that which could be regarded as being "reasonably safe".

Like me, they cannot operate in a world involving electricity – a commodity which, in itself, is deadly – and do nothing. I often liken "reasonably safe" to being the same as "reasonably dead". The margin for error is very small indeed.

In this final column of the year, therefore, I wish to pay tribute to those electrical contractors who have stood firm in their vision for an honest electrical industry by supporting the AIA process over many years. These electrical contractors continue in their efforts to root out mediocrity because they simply cannot stand by and do nothing. They choose instead

to expose non-compliance and thereby uplift the standards applicable to electrical installation work.

In the face of my seemingly unending struggle for compliance, is there some hope for a positive outcome within the electrical industry? I certainly think so.

So what is that 'one thing' that I'd like to take into the New Year? I think it was best said by Chuck Lorre, an American television writer, producer and composer:

*"I believe that the very act of believing in something causes us to distance ourselves from that thing, thus a duality is created: oneself and the thing in which one believes. Now since we all know that in order to fully understand a thing one must be that thing – walk a mile in its shoes*

*so to speak – it seems obvious that the state of believing in something inevitably causes us to not truly understand that thing in which we believe. This non-comprehension leads to all sorts of difficulties. 'I believe in love' has a better than even chance of leading to divorce, while 'I believe in God' seems to end in variations on the Spanish Inquisition. But – and it's a big but – if one were love, one couldn't help but be affectionate and caring towards oneself and others. If one were God, one would act toward all beings and all things as if they were one's own creations. And that, my friends, is the secret of life in a two-second vanity card. Of course, the secret could also be 'Sit, Ubu, sit'. We have to keep an open mind."*

To those who are for the AIA process and those who are against it, let's all keep an open mind and have a bountiful festive season.

### SAW BLADES MAKE LIGHT WORK OF STEEL AND WOOD

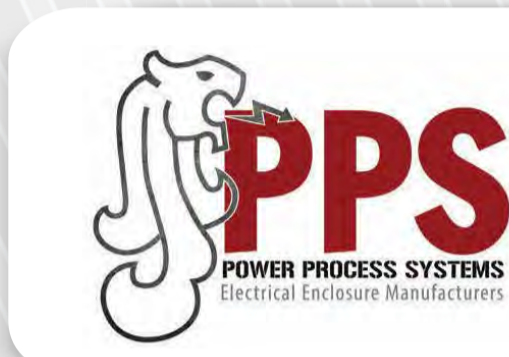
The new 'Progressor' for wood and metal series of Sabre saw blades from Bosch allows efficient cutting of various building materials. "In construction, hardened and high-alloy steels such as stainless V2A, V4A or duplex steel are being installed increasingly in combination with wooden components," Bosch Power Tool Accessories senior brand manager, Campbell Mhodi, says.

Robust and durable for the toughest applications, these saw blades have sharp carbide teeth welded onto them and the tooth strip is 'progressive'. The tooth spacing increases from the shank towards the blade tip therefore the same blade can be used to cut thin materials such as screws and thick materials such as wooden profiles simultaneously. As a result, these boast a longer lifetime than bi-metal blades.

"For cutting materials made of high-alloy steel, we recommend using the 'Endurance for Stainless Steel' saw blades," Mhodi says. New to the range is a 200 mm blade for cutting through profiles and pipes with larger diameters of up to 150 mm. The existing 115 mm and 150 mm long blades have been optimised to cover a wider range of applications.

The comprehensive carbide range from Bosch also includes Sabre saw blades for drywall materials such as cement-bound fibre boards ('Endurance for Fibre Plaster'); aerated concrete ('Endurance for Aerated Concrete'); porcelain bricks ('Endurance for Brick'); and cast iron ('Basic for Cast Iron').

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Office and administration buildings are equipped with PCs, servers, networks, air-conditioners and telecommunication systems, at the very least. Moreover, building automation systems that are used in some buildings are linked through a business system such as KNX. Should this system fail, it would bring operations to a standstill, denting the company balance sheet. Hence, it is imperative to consider the following protective solutions to protect your place of business.

#### Protection of power supply systems

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#### Protection of information and telecommunication systems

To ensure safe operation, both data and voice transmission require adequate protection elements. Networks are typically designed in the form of universal cabling systems, so even if fibre optic cables between building and floor distributors are standard today, copper cables are typically installed between the floor distributor and the terminal device. Therefore, in order to protect hubs, bridges or switches, it is advisable to have the NET Protector installed.

DEHNpatch cables are used to protect terminal devices, whilst the DEHN equipotential bonding enclosure, which can be fitted with LSA disconnection blocks and lightning current carrying DEHNrapid LSA plug-in SPD blocks, can be provided for information technology lines extending beyond the building.

A data protection module can be used for the system telephones, and NET Protector installed in the floor distributor to protect outgoing lines to the system telephones in order to protect the entire telecommunication system.

#### Protection of building automation systems

The failure of building automation systems can have fatal consequences. If the air-conditioning system fails as a result of surges, a data centre may have to be disconnected or a server may have to be shut down. Therefore, a business system such as KNX / EIB can be protected by BUSector, DEHNconnect or BLITZDUCTOR XT.

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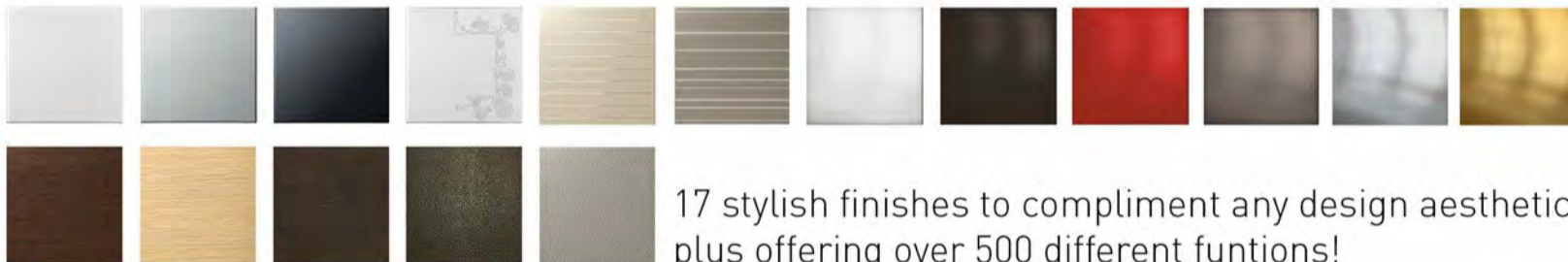
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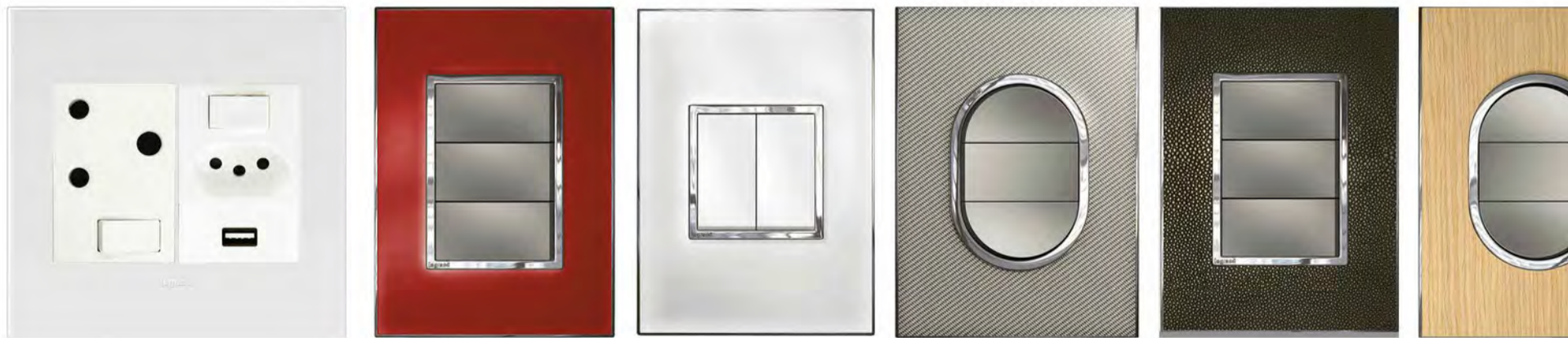
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O-lite LED plinth, cabinet and reading lights<br><b>Voltex</b><br>Available on request, eg spotlights, follow spots and strobe lights               |
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| <b>Aberdare Cables</b><br>Jyoshie Dhunes<br><b>ACDC Dynamics</b><br>Sales<br><b>ACTOM Electrical Products</b><br>Millicent Mabote<br><b>ARB Electrical Wholesalers</b><br>Arvinash Ramdass<br><b>Atlas Group</b><br>Annie Storar/Imran Gaffoor<br><b>Aurora Lighting</b><br>Michael Clark<br><b>Ausma</b><br>Ares<br><b>BEKA Schröder</b><br>Nadja Smith<br><b>Bellco</b><br>Fred Wilson<br><b>Citilec</b><br>Geoffrey Bower<br><b>Crabtree Electrical Accessories</b><br>Sales<br><b>Denver Technical Products</b><br>Mervyn Stocks<br><b>Eaton Electric</b><br>Marlene Coetzee<br><b>Eurolux</b><br>Sales<br><b>Genlux Lighting</b><br>Glen Hill<br><b>JDL Electric</b><br>Shaun Singh<br><b>LEDVANCE</b><br>Ledvance Head office<br><b>Legrand</b><br>Johan Bosch<br><b>LS Lighting Structures</b><br>Juanita Kanagan<br><b>Major Tech</b><br>Werner Grobbelaar<br><b>MCE Global Suppliers</b><br>Sales<br><b>Nordland</b><br>Cyril Nunns<br><b>OSRAM</b><br>Sales<br><b>Radiant Lighting</b><br>Alfred Weldon<br><b>Shuttle Lighting Control Systems</b><br>Reg Smith | <b>ACDC Dynamics</b><br>Wide range of outdoor decorative lighting: bulkheads, wall mounts, deck and floor lighting, floodlights, lanterns, garden lights, solar garden lights, security lights, decorative bollards<br><b>ACTOM Electrical Products</b><br>Distributors of Genlux brand imported and local manufactured product<br><b>ARB Electrical Wholesalers</b><br>Full range of outdoor decorative lighting<br><b>Atlas Group</b><br>Solar street lights, flood lights, bulkheads, sensor lights with conventional control gears; energy efficient and LED<br><b>Aurora Lighting</b><br>Aurora Lighting and Enlite Lighting outdoor decorative lighting<br><b>Ausma</b><br>Full range of outdoor decorative lighting<br><b>BEKA Schröder</b><br>Full range of outdoor decorative lighting<br><b>Bellco</b><br>Solar street lights, flood lights, bulkheads, sensor lights with conventional control gears; energy efficient and LED   | <b>ACDC Dynamics</b><br>Full range of flameproof/hazardous area lighting: visual alarms and beacons   | <b>ACDC Dynamics</b><br>Full range of street lighting: solar lights, LED lights, traffic lights, high power LED street lights (IP65), high power single LED chip lights in die-cast aluminium and Technopolymer<br><b>ACTOM Electrical Products</b><br>Distributors Genlux brand imported and local manufactured product<br><b>ARB Electrical Wholesalers</b><br>Full range of street lighting luminaires<br><b>Atlas Group</b><br>Masts and poles available on request; solar street lights; floodlights; bulkheads; sensor lights with conventional control gear, energy efficient and LED<br><b>Aurora Lighting</b><br>Aurora Lighting street lighting<br><b>BEKA Schröder</b><br>Full range of street lighting luminaires<br><b>Bellco</b><br>Masts and poles available on request; solar street lights; floodlights; bulkheads; sensor lights with conventional control gear, energy efficient and LED<br><b>Citilec</b><br>Full range of street lighting<br><b>Eaton Electric</b><br>Full range of street lighting<br><b>Genlux Lighting</b><br>Full range of street lighting<br><b>JDL Electric</b><br>Full range of street lighting |



# GUIDE

## INDUSTRIAL LIGHTING

**LS Lighting Structures**  
Masts and poles available on request; solar street lights; floodlights; bulkheads; sensor lights with conventional control gear, energy efficient and LED

**Voltex**  
Full range of street lighting luminaires

**Voltex Smart Solutions**  
Masts and poles available on request; solar street lights; floodlights; bulkheads; sensor lights with conventional control gear, energy efficient and LED

**ACDC Dynamics**  
Full range of industrial lighting: IP65 highbays, lowbays, bulkheads in aluminium and acrylic, surface-mounted and recessed fluorescent fittings, downlighting

**ACTOM Electrical Products**  
Distributors of imported and local manufactured highbays, lowbays, bulkheads

**ARB Electrical Wholesalers**  
Full range of industrial lighting

**Atlas Group**  
Complete range available; bulkheads, floodlights and weatherproof; energy efficient high bays and low bays

**Aurora Lighting**  
Aurora Lighting and Enlite Lighting industrial lighting

**Ausma**  
Full range of industrial lighting

**BEKA Schröder**  
Full range of industrial lighting luminaires

**Bellco**  
Full range of industrial lighting luminaires

**Citilec**  
Full range of industrial lighting

**Crabtree Electrical Accessories**  
Hi-bay luminaires

**Denver Technical Products**  
Mains fail safety lighting

**Eaton Electric**  
Full range of industrial lighting

**Eurolux**  
Highbays, HID and PL downlights, recessed and surface-mounted fluorescent fittings Genlux Lighting

**JDL Electric**  
Full range of industrial lighting

**LEDVANCE**  
Full range of industrial lighting

**Legrand**  
Weatherproof bulk headlights as well as vandal-resistant units

**Major Tech**  
Range of fully enclosed work lights

**MCE Global Suppliers**  
O-lite LED floodlights; O-lite LED panel lights; O-lite LED tubes and fittings

**Nordland**  
Full range of industrial lighting luminaires

**Voltex**  
Complete range available; bulkheads, floodlights and weatherproof; energy efficient high bays and low bays

**Voltex Lighting**  
Complete range available; bulkheads, floodlights and weatherproof; energy efficient high bays and low bays

## OFFICE LIGHTING

**Aberdare Cables**  
Surface decorative fittings – switch start and electronic; recessed – prismatic and low brightness – switch start and electronic

**ACDC Dynamics**  
Full range of office lighting: CFL and LED and high power LED downlights, surface and recess wall lighting; bulkheads, T5 and T8 linear lights, bay lights, glare reducing LED lamps

**ACTOM Electrical Products**  
Distributors of imported and local manufactured downlighters, fluorescent

**ARB Electrical Wholesalers**  
Full range of office lighting luminaires

**Atlas Group**  
Recessed and surface lighting for all applications; energy efficient and LED light sources

**Aurora Lighting**  
Aurora Lighting and Enlite Lighting office lighting

**Ausma**  
Full range of office lighting

**BEKA Schröder**  
Full range of office lighting luminaires

**Bellco**  
Recessed and surface lighting for all applications; energy efficient and LED light sources

**Citilec**  
Full range of office lighting

**Denver Technical Products**  
Mains fail safety lighting

**Eaton Electric**  
Full range of office lighting

## OFFICE LIGHTING

**Eurolux**  
Highbays, HID and PL downlights, recessed and surface-mounted fluorescent fittings

**Genlux Lighting**  
Full range of office lighting

**JDL Electric**  
Full range of office lighting

**LEDVANCE**  
Full range of office lighting

**Major Tech**  
Wide range of dynamic and modern energy saving LED lighting products

**MCE Global Suppliers**  
O-lite LED floodlights; O-lite LED panel lights; O-lite LED tubes and fittings

**Radiant Lighting**  
Full range of office lighting luminaires

**Voltex**  
Recessed and surface lighting for all applications; energy efficient and LED light sources Voltex Lighting

Recessed and surface lighting for all applications; energy efficient and LED light sources Waco

Recessed and surface lighting for all applications; energy efficient and LED light sources

## RETAIL LIGHTING

**ACDC Dynamics**  
Full range of retail lighting: downlights, LED flexible and rigid strip lighting, LED track lighting, under-counter LED fittings, LED single modules, light box high power LEDs, LED neon flex lights

**ACTOM Electrical Products**  
Distributors of Oppl LED lighting solutions

**ARB Electrical Wholesalers**  
Full range of retail lighting

**Atlas Group**  
Full range available; troffer fittings; track lights; downlights and spots

**Aurora Lighting**  
Aurora Lighting retail lighting

**Ausma**  
Full range of retail lighting

**BEKA Schröder**  
Full range of retail lighting luminaires

**Bellco**  
Full range available; troffer fittings; track lights; downlights and spots

**Citilec**  
Full range of retail lighting

Denver Technical Products

Mains fail safety lighting

**Eaton Electric**  
Full range of retail lighting

**Eurolux**  
Highbays, HID and PL downlights, recessed and surface-mounted fluorescent fittings Genlux Lighting

Full range of retail lighting luminaires

**JDL Electric**  
Full range of retail lighting

**LEDVANCE**  
Full range of retail lighting

**Major Tech**  
Wide range of LED lighting to meet specific retail applications

**MCE Global Suppliers**  
O-lite LED floodlights; O-lite LED panel lights; O-lite LED tubes and fittings

**Radiant Lighting**  
Full range of retail lighting

**Voltex**  
Full range available; troffer fittings; track lights; downlights and spots

**Voltex Lighting**  
Full range available; troffer fittings; track lights; downlights and spots

**Waco**  
Full range available; troffer fittings; track lights; downlights and spots

## STADIUM LIGHTING

**ACDC Dynamics**  
Full range of stadium lighting, including Gewiss Horus and Titano floodlights

**ACTOM Electrical Products**  
Distributors of imported and local manufactured product

**ARB Electrical Wholesalers**  
Full range of stadium lighting

**Atlas Group**  
Floodlights; masts; poles for mounting

**BEKA Schröder**  
Full range of stadium lighting luminaires

**Bellco**  
Floodlights; masts; poles for mounting

**Crabtree Electrical Accessories**  
All-purpose energy saving floodlights

## EXHIBITION LIGHTING

**Eaton Electric**  
Full range of stadium lighting

**Genlux Lighting**  
Full range of stadium lighting

**JDL Electric**  
Full range of stadium lighting

**LS Lighting Structures**  
Floodlights; masts; poles for mounting

**Voltex**  
Floodlights; masts; poles for mounting

**ACDC Dynamics**  
ACDC supports exhibition stand builders with a wide range of lighting, spots, downlighting and floodlights

**ACTOM Electrical Products**  
Distributors of LED lighting solutions

**ARB Electrical Wholesalers**  
Full range of exhibition lighting

**Atlas Group**  
Available on request to customer specifications

**Citilec**  
Full range of exhibition lighting

**Eaton Electric**  
Full range of exhibition lighting

**Eurolux**  
Highbays, HID and PL downlights, recessed and surface-mounted fluorescent fittings

**Genlux Lighting**  
Full range of exhibition lighting

**JDL Electric**  
Full range of exhibition lighting

**MCE Global Suppliers**  
O-lite LED floodlights; O-lite LED panel lights; O-lite LED tubes and fittings; O-lite LED downlights; O-lite plinth and cabinet lights

## OTHER

Aurora Lighting  
Smart lighting

**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.



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## ENCLOSURES FOR THE COMMERCIAL SECTOR

Legrand's new freestanding and wall mounting Linkeo 19" enclosures have been designed for easy installation, high performance and optimum safety in commercial sector installations.

"Linkeo 19" enclosures are supplied with a wide range of accessories to offer a complete solution for all projects," says Sonja Leibbrandt, marketing and pricing manager, Legrand SA. "These metallic extendable freestanding and wall mounting cabinets ensure the ordered arrangement and optimum protection of electrical components like terminal blocks, switches and sockets, fuse carriers, safety transformers and circuit breakers.

Linkeo 19" enclosures have a textured polyester coating which provides excellent resistance to corrosion and scratching. An IP 20 Index protection rating guards against solid objects and liquids and an IK08 rating offers protection against mechanical impacts.

"Cabinets and equipment are supplied ready-assembled or as flatpack solutions in stackable wooden cases, depending on customer requirements."

Linkeo 19" freestanding cabinets have a reversible front door with a safety glass window and removable side and rear panels. For added security, all four sides can be locked with a key lock. These units are equipped with two 19" uprights, which are adjustable in depth. There are pre-cut top and bottom cable entries and a cut-out at the top for fan kits.

These freestanding enclosures, with a loading capacity of 400 kg, are equipped with levelling feet and an earthing kit. Extension cabinets are supplied with a baying kit for safely joining the cabinets. Other accessories include metal plinths and pivoting castors, as well as fixed or telescopic shelves. Linkeo fan kits have an integrated thermostat which is adjustable from -10 °C to 80 °C.

Linkeo 19" wall mounting cabinets, with a reversible flat safety glass door and integrated lock, are designed for simple, two-step wall fixing of the base and the cabinet. These enclosures are supplied with two 19" uprights which are adjustable in length. Other features include an adjustable top cable entry with a foam seal and rear and bottom cable entries equipped with blanking plates. These cabinets have top perforations for natural ventilation and can also be equipped with fan kits. Earthing kits are a standard safety feature.

As an alternative to ready assembled Linkeo 19" enclosures, Legrand also offers flatpack solutions for compact transportation, easy handling, efficient storage and effortless mounting.

Linkeo 19" freestanding and wall-mounting flatpack cabinets are available as a 'one part number', where all components are supplied in one pack, with high protection packaging. Flatpack cabinets can also be split up into four part numbers and delivered in small, light packages.

Also available are 19" metal Bati-racks for housing 19" equipment in an air-conditioned, secure, dust-free environment. For improved resistance to corrosion and scratching, these units have a textured polyester coating.

Bati-racks, which comprise two or four 19" uprights, ensure full access to wiring and are supplied ready for assembly. Specially designed cable management sleeves, with a closed vertical feedthrough, are designed for fixing on the left or right of the 19" uprights, providing a perfect finish.

These units, with a 300 kg permissible load, are supplied with a roof for four upright Bati-racks, a set of four castors, shelves and levelling feet.

Linkeo 19" enclosures and equipment form part of Legrand's extensive range of stainless steel and metal cabinets, which meets stringent quality and safety specifications.

Enquiries: +27 11 444 7971

## ELECTRONIC RECLOSER TEST SIMULATOR FOR EASY FIELD TESTING

The Megger Model ERTS, Electronic Recloser Test Simulator unit, is designed to interconnect to Megger Models MPRT, SMRT, and FREJA 400/500 relay test systems for easy field testing of electronically controlled reclosers. The ERTS has 14-, 19- and 32-pin cable adapters to directly interface with the most common forms of reclosers such as the G&W Viper, Elastimold MVR, with SEL 351R and SEL 651R, and Cooper Forms four, five and six reclosers.

The ERTS provides the interface between the Megger relay test system and the recloser. The ERTS is used to test the electronic recloser control and test the electrical operation of the recloser.

The three different multi-pin connectors provide flexibility in the different types of reclosers that the ERTS can simulate and test.

The Megger relay test units provide the individual test currents and voltages through the interface unit, and monitor the individual trip and reclose circuits from the simulator.

The relay test systems are controlled by the Relay Test and Management Software (RTMS) Sequencer test screen to simulate pre-fault, fault, and reclose scenarios. Sequencer test templates are provided for two, three and four shots to lockout scenarios. The sequencer test can be easily re-programmed by the user for single pole trip and reclose if desired. Different trip and reclose tests can be saved to the software memory for recall and test at a later date. Test results can also be saved to the internal memory of the software for download into a database at a later time and date.



Enquiries: +27 11 391 3832

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## TOOL BACKPACK DESIGNED AND CUSTOM-BUILT FOR ELECTRICAL CONTRACTORS

**THE** Major Tech TBP5-9 is the first genuine backpack tool bag on the South African market for the professional tradesman. Designed and manufactured according to mining specifications, the backpack has reflective tape for visibility, heavy duty construction for durability and a stabilising injection-moulded water-proof base that keeps tools dry, even in the most extreme of conditions.

The TBP5-9 tool backpack easily transforms into a convenient portable 'workstation' and is an excellent solution for installers and repair technicians who need to carry tools and still have their hands free when climbing ladders or carrying bulky replacement parts.

The overall design incorporates a removable sleeve with pockets of various sizes and configurations to hold a multitude of tools and small parts.

The TBP5-9 features a comfortable thermo-formed padded back panel that helps cushion the load while providing structural stability along with a padded load-displacing shoulder strap with multiple adjustable strap points and an ergonomic rubber grip.

Major Tech custom built the this tool backpack to hold 22 high quality durable chrome vanadium steel tools: 230 mm and 165 mm combination pliers; 215 mm diagonal cutting pliers; 200 mm and 165 mm long-nose

pliers; a fully insulated seven-piece 1 000 V screwdriver set with corrosion-resistant tips for heavy duty professional use up to 1 000 V ac; and soft-grip handles for maximum torque.

Other tools include a terminal driver; utility knife; 160 mm wire stripper; 200 mm adjustable spanner; 100 g hammer; neon screwdriver tester; 150 mm junior hacksaw; a tape measure; and 38 mm cable shears – all neatly packed in a well-organised, space-saving and easy-to-carry backpack. Beware of imitations, if it doesn't say Major Tech, it's not Major Tech.

Enquiries: +27 11 872 5500



## COMPACT, FLEXIBLE INFRARED CAMERA FOR R&D AND T&M

**L**ocal distributor of process control instrumentation and specialised systems, Instrotech, has announced the availability of the Optris PI camera featuring online thermal imaging systems, and claiming impressive cost-to-performance ratios. Developed to thermally determine objects and automatically detect hot or cold spots, typical applications are research and development (R&D); test stations (T&M); process automation and portable measurement tasks.

The Optris PI covers a range of temperature measurements between -20 °C and 1 500 °C. The camera, once connected to a PC with USB 2.0, can be used immediately after connection. The Optris PI Connect software displays the captured temperature data as a thermal image, while remotely controlling the camera.

Based on a small, uncooled bolometer (UFPA) with 160 x 120 pixels or 382 x 288 pixels, the Optris PI delivers thermal images in real time with a frequency of up to 128 Hz. Fast processes can be captured and stored as snapshots or video sequences and it's possible to detect the smallest temperature differences of an object due to the unit's high thermal sensitivity range.

Optris PI200 using BI-SPECTRAL technology, can combine a visual image (VIS) with a thermal image (IR) which can be captured time-synchronously. In a ready-to-use mode, the camera's weight is not more than 320 g, including lens and cable, making it the smallest (dimensions: 46 mm x 56 mm x 90 mm) thermal imager in the world. And, in combination with a tablet PC, the cameras are used as a mobile solution for preventive maintenance or construction thermography, covering the existing gap between portable infrared snapshot cameras and pure fixed devices.

Enquiries: +27 11 462 1920

## UNIVERSAL DISMANTLING TOOL WITH ERGONOMIC PISTOL GRIP



New from Knipex is the ErgoStrip Universal dismantling tool for fast and precise dismantling and stripping of all common round and damp-proof installation cables, such as NYM cable 3 x 1.5 mm<sup>2</sup>, data cable (for example, twisted pair) and coax cable. The innovative, ergonomic pistol grip design ensures easy cutting, stripping and longitudinal cutting of sheaths. Knipex has simplified the insertion of single wires for stripping using location ridges and a special opening aid for the insertion of coax cables. The housing of the tool is made from stable glass fibre reinforced plastic and the multi-component design features a soft plastic zone for comfortable use and a secure grip.

Enquiries: +27 11 396 4065

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## INSTALLATION TESTING SOLUTION FOR DEMANDING ENVIRONMENTS

COMTEST, accredited southern African partner to Fluke, has announced extended specifications and new advanced features on their tried-and-tested 1650 Series multifunction installation testers that verify domestic, commercial and industrial electrical installations, and ensure fixed wiring is safe and correctly installed to meet local and international IEC 60364, HD 384 standards.

The 1650 Series allows users to measure loop impedance without tripping RCDs, eliminating the need to bypass them. Slim reach probes keep eyes on the panel whilst the user probes hard to reach areas. With a large display and a wide viewing angle, padded neck strap, and a compact, ergonomic design,

these testers are comfortable enough to use for all-day testing.

The 1650 Series extended specifications are:

- Fast high current loop test (high current mode).
  - Advanced loop testing prevents RCDs from tripping.
  - Variable RCD current mode for customised settings.
  - Zero adapter for easy test lead compensation
- The 'pass'/'fail' indicator takes the guesswork out of RCD testing.
- Insulation test voltages (1652C: 250 V, 500 V, 1 000 V), (1653B/1654B: 50 V, 100 V, 250 V, 500 V, 1 000 V) for a variety of applications.

- Select voltage measurement between L-N, L-PE, and N-PE.
- Dual display gives simultaneous readout of mains voltage and frequency.
- Auto discharge allows fast and safe discharge of electrical energy in capacitive circuits.
- Added safety through live circuit detection, to check and inhibit test if circuit under test is live.
- Wiring connection check indication and live circuit detection for added safety.
- Time-saving auto-null feature subtracts lead resistance from measurements, and stores it in memory even after powering down.
- High resolution measurements down to 0.01 ohm



for a high level of accuracy.

- User selectable safety voltage level of 50 V or 25 V for varied environments.
- Perform ground tests with auxiliary earth spikes eliminating the need for multiple instruments (1653B/1654B only).
- Download up to 444 (1653B) or 1 500 (1654B) stored results with IR port and adapter for professional reporting.
- Detachable leads for easy replacement EN-61557 and VDE 0413 compliant.

Enquiries: +27 10 595 1821

## ROTARY HAMMER WITH ANTI VIBRATION CONTROL



The HR2631F Rotary Hammer from Makita is powered by an 800 W motor and produces speed and efficiency during drilling, chiselling and demolition operations in reinforced concrete.

The anti-vibration technology built into this specific model will produce unrivalled lower levels of vibration. This is achieved by using active vibration absorbers and a damper spring that absorbs the reaction force caused by the drill bit at the moment of impact.

Another great new addition on the HR2631F is the rotation reversing system using a brush holder unit. The advantage of this system extends the life of the carbon brush by 2.7 times longer than the existing models, protecting the brush from dust and debris and providing the same speed and torque even in reverse.

The one-touch sliding chuck allows for quick and easy bit changes. This three-mode rotary hammer has an easy-to-operate operation mode change lever that is located on the top of the gear housing enabling the user to switch between rotation and hammering modes and vice versa without rotating the chuck. There are 40 different bit-angle settings, which are adjustable without a chisel adaptor and then, of course, the rotation with hammering.

The HR2631F has a LED job light that illuminates the work area.

Specifications include 0 - 4 600 blow per minute and a no-load speed of 0 - 1 200 r/min. This rotary hammer weighs 2.9 kg and comes with a 2.5 m power supply cord. A depth gauge and a side handle are included as standard items but bits are sold separately.

The Makita HR2631F with its low level of vibration (11.5 m/s<sup>2</sup>) will make a substantial difference to both user and project alike, enhancing operator comfort and productivity.

For further information or information about your nearest Makita dealer, visit [www.makita.co.za](http://www.makita.co.za)

Enquiries: +27 11 878 2600

# Makita

## SG1251J Double Blade Wall Chaser

### Cutting to the Chase

Efficient cutting of clean edged grooves for channels

- Soft start for suppressing start-up reaction
- Overload protection
- Constant speed control
- Connectable to dust extraction unit (optional accessory)
- 9 different cutting width settings
- Improved trigger switch with dust cover, operable with fingers of the hand holding the top handle

#### Specifications

|                         |          |
|-------------------------|----------|
| Continuous Rating Input | 1,400W   |
| Blade Diameter          | 125mm    |
| Bore Size               | 22.23mm  |
| Cutting Depth           | 0 - 30mm |
| Cutting Width           | 6 - 30mm |
| No Load Speed (r/min)   | 10, 000  |
| Net Weight              | 4.5kg    |
| Power Supply Cord       | 5m       |



Supplied with diamond blade (Part No. A-80438) and a sustainer case.



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MakitaPowerToolsSA



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For more info. or your nearest Makita dealer contact Rutherford:  
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[www.makita.co.za](http://www.makita.co.za)



## LIGHTING COMPONENTS AND STARTER KITS ENSURE OPTIMUM CONDITIONS FOR PLANTS

RS Components (RS), the trading brand of Electrocomponents plc the global distributor for engineers, has introduced new LED-lighting components and kits that enable designers to create advanced products for boosting horticultural business performance.

The Petunia series by Intelligent LED Solutions (ILS) features LED modules that generate various combinations of warm white, hyper red and deep blue wavelengths to create optimal lighting for rapid growth of seedlings or vegetation, or for energy-saving retail displays. The range includes all parts needed to build the complete lighting solution, including optimised lenses, constant-current LED drivers, heatsinks and thermal materials.

Starter kits available in five configurations help accelerate product development by bringing together the 12-LED module and lens, driver, heatsink, adapter, screws, spacer and top cap as a ready-to-use package. The ILK- Petunia -01 and ILK- Petunia -01S starter kits for general illumination contain six warm white (3000K), five red and one blue LED. Also for general illumination, the ILK-PETUNIA-02 starter kit features a high-efficacy module containing nine hyper-red and three deep blue LEDs.

To create lighting that accelerates the growth of leafy vegetation for increased yield, designers can choose the ILK-Petunia-03 kit containing an LED module with six blue and six red LEDs. The last kit, ILK-PETUNIA-04, features a board with nine blue and three red LEDs for promoting rapid growth of seedlings, recognises that younger plants respond well to predominantly blue wavelengths.

As an OSRAM certified partner, ILS uses the latest OSRAM Oscon SSL ThinGaN emitters in its LED modules. The emitters remain extremely efficient up to high drive currents and have low thermal resistance that promotes cool operation and high reliability.

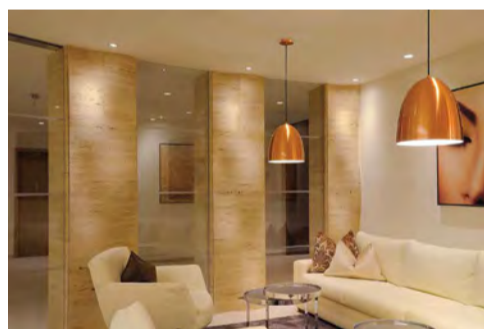
The modules are optimised for use with LEDiL Petunia lenses, which were conceived for horticultural applications and feature a compact design making them ideal for use in greenhouses and retail fixtures.

The lenses feature moulded pins that allow accurate and economical attachment to the module baseboard, and are manufactured in long-lasting optical-grade polycarbonate to ensure a durable, high-quality end product.

Enquiries: +27 11 691 9345



## Pendant luminaires add ambience



SLV Para Cone luminaires, which enhance the ambience of modern living areas, form part of Magnet's extensive range of SLV pendant luminaires. "These conical shaped luminaires are designed for surface ceiling mounting and are available in various colours, including brushed copper, black high gloss, white high gloss, brushed aluminium and black/gold duo," says Sheldon Payne, national sales manager - SLV. "These steel luminaires are fitted with a round ceiling rosette and have a 150 cm pendant length. A cloth covered cable adds a stylish finish and offers functional protection against damage. The Para Cone series is suitable for energy efficiency class A++ LED and energy saving lamps."

Enquiries: +27 11 397 7936

# Shuttle

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## ENERGY DEAL SIGNALS KICK-OFF OF POWER SAVINGS DRIVE



International sales director at Powerstar, Martin Stevens (right), takes Rhino Group MD, Brian van Niekerk, and Rhino Lighting MD, Heather McEwan, through the company's plant in Sheffield.

**A** NEW deal between two South African energy efficiency specialists – Rhino Lighting and Powerstar SA – has signalled the rollout of a globally-patented Powerstar range of voltage optimisation systems aimed at slashing the power bills of big business and industry.

Manufactured at Powerstar's international headquarters in Sheffield in the UK, the solutions are designed to deliver significant, guaranteed energy savings for clients. The range includes the latest innovation, Virtue – an energy storage system that can be

integrated with any Powerstar Max or HV Max voltage optimisation system.

### Case studies

Used internationally by a wide range of industries and top brands such as the ASDA supermarket chain, Hilton hotel group and London Stock Exchange, successful Powerstar installations in South Africa include major food retailers, government departments, and hotel industry players – including Woolworths and Investec. The most recent installation was completed at a leading alloy wheel manufac-

turing company in Port Elizabeth.

While the energy cost saving varies according to the project site, client type, nature of the business and power usage patterns, savings in excess of 25% have been documented. At the Manhattan Boutique Hotel in Pretoria, savings of 20.71% have been achieved following the installation of a Powerstar unit. In retail store installations energy savings have ranged between 7.7% and 12.8%.

At Woolworths Melrose Arch, for example, independent measurement and verification specialists Energy Cybernetics recorded an 8.27% energy saving over the period of a week following the installation of a Powerstar unit. Another verified energy saving of 12.3% was achieved on the load for the air-conditioning system following installation at the Investec headquarters in Johannesburg.

"Our company's vision focuses on helping clients make their organisations more energy efficient using cutting edge-technology. A partnership with Rhino Lighting is ideal as we share the same vision," says Powerstar South Africa's owner, Edgar Antezana.

Enquiries: +27 41 451 3197

## LIGHT IS FREEDOM OF DESIGN



## Light is freedom of design

### LINEARlight FLEX® Tunable White

Enjoy full flexibility in lighting design. Integrate light smoothly into architecture and lifestyle objects. Even select the color when you switch on the light. Pair the new LINEARlight FLEX® Tunable White range of modules with the EASY color control system for hassle free installation and simple handling.

#### Key Features & Benefits

- High-intensity linear LED light source
- Tunable white 2700K – 6500K for dynamic white applications
- Flexible & cuttable module to support design freedom
- Long operational length per single power feed possible
- High efficiency for luminaire designs
- Extra strong self-adhesive backside for easy mounting
- 24V technology for easy dimensioning.

#### Recommended in system use with OPTOTRONIC®

- Increased reliability due to single piece reel-to-reel technology
- Extra-long lifetime – 60,000 h (L70B50)
- Dimmable with PWM technology

Light is OSRAM

**OSRAM**

**N**ow you can enjoy full flexibility in lighting design and integrate light smoothly into architecture and lifestyle objects when you pair the new OSRAM LINEARlight FLEX tunable white range of modules with the easy colour control system for hassle-free installation and simple handling. You can even select the colour when you switch on the light.

The key features of the LINEARlight Flex tunable range include:

- High-intensity linear LED light source.
- Tunable white 2 700 K – 6 500 K for dynamic white applications.
- Flexible and cuttable module to support design freedom.
- Long operational length per single power feed possible.
- High efficiency for luminaire designs.
- Extra strong self-adhesive backside for easy mounting.
- 24 V technology for easy dimensioning.

Recommended in system use with OPTOTRONIC:

- Increased reliability due to single piece reel-to-reel technology.
- Extra-long lifetime – 60 000 h (L70B50).
- Dimmable with PWM technology.

Possible applications include individual and customised luminaires; organic shaped luminaires; architectural integration, for example coves, walls; handrails; and signage applications.

Enquiries: +2710 221 4000



## TAKING NATURAL LIGHTING TO A WHOLE NEW LEVEL

In South Africa, the annual 24-hour global solar radiation average is about 220 W/m<sup>2</sup> and – when compared with about 150 W/m<sup>2</sup> for parts of the USA, and about 100 W/m<sup>2</sup> for Europe and the United Kingdom, it makes perfect sense to use solar lighting as a cost-effective and energy-efficient way of generating light.

Solar lighting technology has improved significantly in recent years making it a more reliable light source. Solar lights are a perfect choice to use outside and, when strategically positioned, they work as a functional addition to your outdoor space while, as a decorative element, they highlight key features and accents.

Eurolux's new 'Functional Solar' range of solar lights offers a variety of outdoor lights in various shapes, sizes and styles. They are all fitted with the latest in solar lighting technology for longer lasting light. In fact, the lamp in each of these lights has a lifetime of 50 000 hours.

The charging time for the lights in this collection ranges from seven to 11 hours, depending on the individual light. There is no wiring required and they all turn on automatically when it gets dark, although there is an on/off switch to manually control the lights.

With the fittings made of aluminium, aluminium alloy, ABS, or a combination of these, the lights are all extremely durable and are weather-resistant.

Eurolux's Functional Solar range comprises 10 different lights: floodlights, wall lights and mini pole lights.

### Solar Motion wall light

The Solar Motion wall light comes with a white satin chrome fitting and a clear plastic lens. It has a 3 W solar panel and a dim/bright function selector. The light includes a 3.7 V 4 000 mAh rechargeable battery, with luminous flux of 700 lm, a colour temperature of 2 700 K to 2 900 K and a beam angle of 120 °.

### Solar Motion floodlight

The Solar Motion floodlight is ideal for mounting on an outside wall, with a 120° beam angle that is perfect for illuminating specific areas. This floodlight has a 5 W solar panel and comes with one 3.7 V, 8 000 mAh rechargeable battery. The luminous flux on this light is 1 000 lm with colour temperature of 4 000 K.

### Solar wall light

With its modern design and 180° beam angle, the solar wall light is perfect for any outdoor entertainment space. This wall light has a 1 W, 5.5 V solar panel and comes with a 3.7 V, 2 000 mAh rechargeable battery. The luminous flux on this product is 400 lm and the colour temperature is 2 700 K to 2 900 K.

### Solar foot light

Ideal for lighting stairs, pathways and other similar spaces where floor light is needed, the Solar foot light is functional and its subtle, modern design is appealing. The foot light has a 1 W, 5.5 V solar panel and comes with a 3.7 V, 2 000 mAh rechargeable battery. The light has a beam angle of 120°, a luminous flux of 20 lm and colour temperature of 2 700 K to 2 900 K.

### Solar bollard

Bollard lights make for a great feature in flowerbeds or along pathways and are an attractive and practical choice. The solar bollard in the Functional Solar range has a 5 W solar panel and a 3.7 V, 8 000 mAh rechargeable battery. The 360° beam angle adds to the light's appeal and functionality. The luminous flux on this product is 100 lm and the colour temperature 2 700 K to 2 900 K.

### Solar Motion mini-bollard

Small and discreet, the mini-bollard is a solar light with multiple applications for outdoor spaces. The bollard has a 1.6 W solar panel, includes a 3.7 V, 2 000 mAh rechargeable battery, has luminous flux of 200 lm, colour temperature of 2 700 K and a 360° beam angle.

### Solar post light

The classic design of the solar post light makes it the perfect choice for most gardens and outdoor spaces. The post light is fitted with a 1.6 W, 5.5 V solar panel

and includes a 3.7 V, 2 000 mAh rechargeable battery. The luminous flux on this light is 100 lm, the colour temperature ranges from 2 700 K to 2 900 K and it has a beam angle of 360°.

### Solar pole light (PR473)

This solar pole light is mounted to a wall and this allows it to illuminate very specific spaces with its 120° beam angle. The solar pole light is functional, yet it scores well on aesthetics, too. The light is fitted with a 7 W, 5.5 V solar panel and a 3.7 V, 13 000 mAh rechargeable battery. The luminous flux on the solar pole light is 1 000 lm and the colour temperature ranges between 2 700 K and 6 500 K.

### Solar pole light (PR474)

The black fitting and polycarbonate lens give the solar pole light a

modern look and feel. The light has a 15.6 W, 5.5 V solar panel and includes one 3.7 V, 26 000 mAh rechargeable battery. With 9 W power, luminous flux of 900 lm, a colour temperature of 2 700 K to 6 500 K and with its beam angle of 360°, this solar pole light can be used in a multitude of ways around the garden.

### Solar pole light (PR472)

This 35 W solar pole light is all about efficiency and illumination and a few of these lights around the garden will provide security and ambient light. The light comes with a 22.2 V, 230.88 Wh rechargeable battery. It has a luminous flux of 1 500 lm, a colour temperature of 2 700 K to 6 500 K and a 360° beam angle.

For more information, visit [www.eurolux.co.za](http://www.eurolux.co.za)

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## WIRELESS LIGHTING CONTROL SYSTEM FOR COMMERCIAL AND WAREHOUSE APPLICATIONS



Before and after images show how Magnet's wireless Lite-C system controls lighting by ensuring lighting is turned off when aisles of this warehouse are not occupied.



Magnet's locally designed and manufactured wireless lighting control system – Lite-C – has been developed for installations in commercial buildings, warehouses and distribution centres, as well as parkades.

"This new wireless control system, which is easily integrated into light fittings for automation purposes, offers a reduction in electricity bills of up to 43%," says Ryan Groger, head of projects, Magnet Energy. "Lite-C sensors operate efficiently, using radio frequency (RF) technology that allows input devices to communicate with and control output devices up to 200 m, without the need for cabling over long distances.

"Occupancy sensors are coupled with these wireless controllers, which are particularly well suited for operation at heights, to detect movement of an object at floor level (for example, a forklift truck in a warehouse) and communicate with other devices. At this point, the first bank of lights automatically switches on. Motion of the object is then detected by the second sensor, triggering the next set of lights to turn on, while the previous lights remain active.

"If no movement is detected by the sensor after a certain time period, the lights are automatically switched off. The 'Minimum Lux' sequence – a software option for the control of lights that are left on for enhanced safety – then becomes active."

With this plug and play system, the input signal can be from various sources, but most commonly from an occupancy sensor. The addressing of the input vs output is done via a 10 channel dip switch which allows the unit to be pre-programmed off-site or at ground level prior to installation.

There are two options available – a self-configurable system for manual set up and a software configurable system, with a real time clock, which is completely programmable and adjustable. Modifications to the set-up can be made without the need for re-wiring or using access equipment at height.

Magnet's team of lighting specialists has extensive experience in identifying energy saving opportunities and implementing appropriate eco-friendly solutions to reduce wasted electricity. The new Lite-C lighting management system forms part of the company's range of energy saving solutions.

This new wireless control system, which is easily integrated into light fittings for automation purposes, offers a reduction in electricity bills of up to 43%.

Before and after images show how Magnet's wireless Lite-C system controls lighting by ensuring lighting is turned off when aisles of this warehouse are not occupied.

Enquiries: +27 31 274 1998

## LED FOR CORROSIVE ENVIRONMENTS

The Vapourline LED from BEKA Schröder, a leading local manufacturer of LED luminaires, has been especially designed for use in industrial corrosive or damp environments. The luminaire consists of a robust corrosion-resistant housing and diffuser with stainless steel latches. "It incorporates highly efficient LEDs (4 000 K, CRI >70) with a minimum of 50 000 hours useful lifetime (L70)," says BEKA's Sibusiso Skosana.

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## MORE INNOVATION, MORE BENEFITS, MORE LIGHT

Whether T8 or T5, the future of the fluorescent tube is unquestionably the LED, says James Clifford, marketing and communications at LEDVANCE. "This is why LEDVANCE has introduced the OSRAM SubstiTUBE range – a tailored LED portfolio for the simple replacement of fluorescent tubes."

The new OSRAM SubstiTUBE range includes the following segments:

- Value for cost-optimised lighting tasks.
- Advanced for standard lighting applications.
- Advanced UO (Ultra Output) for sophisticated lighting demands requiring a particularly high luminous flux.
- Advanced Universal and Advanced Connected.

Thanks to rigorous quality standards, LEDVANCE is able to offer a five-year guarantee for the entire Advanced product family, and a three-year guarantee for the Value family.

Also included in the range for the first time are T8 tube replacements with a particularly high luminous flux of up to 3 600 lumens, making them ideal for use in high rooms.

Clifford says that all the Advanced models in the new portfolio yield up to 150 lumens per watt. "This new generation, therefore, brings significantly greater efficiency plus up to 67% energy savings in comparison with traditional fluorescent lamps. Replacing old tubes is a matter of simple plug-and-play, with no rewiring required."

He explains that the Advanced Universal models can be used with conventional or electronic control gear, so enhancing their flexibility. "This cuts warehousing costs and brings greater economies of scale."

The flagship model of the SubstiTUBE range, the Advance Connected, is particularly efficient – through wireless connection of LED tubes and sensors, this T8 replacement boasts energy savings of up to 90% compared with traditional fluorescent lamps.

In response to detected levels of daylight and movement, the SubstiTUBE Connected System

provides continuous dimming control from 0% to 100%. Installation requires a screwdriver only, with no need for software or an additional app.

"The SubstiTUBE Connected LED tubes will be available at the end of 2016," advises Clifford.

### Small tubes, big benefits – Osram SubstiTube Advanced T5/T5 UO

"The SubstiTUBE portfolio contains further highlights in the T5 area. With the Advanced T5 and T5 UO, LEDVANCE now offers an innovative LED retrofit replacement for T5 fluorescent tubes with 49 W or 80 W – the changeover is simple, fast, safe and requires no rewiring.

"The T5 models feature impressive luminous flux values of 3 920 lumens (Advanced) or up to 5 600 lumens (Advanced UO). And, thanks to their glass bodies, the LED tubes are deceptively similar to

traditional fluorescent lamps in look and feel," he explains.

"The OSRAM SubstiTUBE Advanced T5, for example, is ideal for use in warehouses, corridors, parking decks or sales floors. Ultra-Output variants are well-suited to environments with higher lighting demands, such as offices or high bay areas," he adds.

"In the T5 segment as well, the focus is on boosting performance and cutting costs. Conversion to LED lighting can slash power consumption by as much as 50% compared with traditional fluorescent lamps. Depending on the individual project, it may even take as little as two years to reach the payback point. Both T5 replacement models have a rated lifespan of up to 60 000 hours and 200 000 switching cycles," says Clifford, adding that these are "ideal reasons for switching over to LED technology in the T5 segment as well".

Enquiries: +27 11 207 5600

## Lighting 'specials' for the silly season



Major Tech's sales manager, Werner Grobbelaar, says the company has 'amped' its year-end specials and is offering "great deals on LED and energy saving lamps".

"Major Tech has great specials available from 15 November 2016 until 28 February 2017," he says.

"On special are LED filament bulbs, which look just like their traditional incandescent counterparts thanks to a unique new LED technology that allows for very small LED emitters to be arranged in a linear filament style package," he says. "These emitters are powered using a traditional glass-insulated circuit similar to those found in traditional incandescent bulb. The end-result is a bulb that functions and looks virtually identical to an incandescent," he explains.

The LED filament bulbs come in all shapes and sizes "just like an incandescent".

"The filament LEDs are available in warm white 3 000 K colour temperatures. These are ideal for restaurants, high-end retail stores and homes," he says, adding that a typical application would be to "show off" a fixture where a typical LED would not be suitable.

"They are also perfect for chandeliers, ornamental lights, commercial light strings, decorative light strands or for any decorative application that accepts E27, E14 and B22 bases."

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## OUT WITH THE OLD, IN WITH THE NEW – T8S MAKE WAY FOR LED BATTENS

The first fluorescent lamp was introduced in 1939, and for decades it was hailed as an almost universal solution to lighting spaces efficiently and economically. In 1981, the 32 W T8 lamp was introduced in the United States, providing further improvements in four-foot fluorescent lamps, and it became the standard for new construction. Available in a variety of linear and U-shaped configurations, millions were installed across the globe in

a countless number of applications from basements to bathrooms.

However, since advancements in LED technology, this valiant workhorse has been superseded for two reasons; it is energy hungry and its lighting efficacy can't compete with modern alternatives.

South Africa faces particular challenges. "All businesses are under pressure to attain energy savings but this costs money," says Warwick Webber, managing director of Aurora in South Africa, "so it's our job as a manufacturer to provide solutions that can pay for themselves in the short term, offer ongoing energy savings thereafter while improving

the quality of lighting for end-users in and around their buildings."

Two IP65 rated robust fittings from the Enlite range of linear anti-corrosive LED battens have been engineered with energy saving and longevity in mind. Both are suitable for interior and exterior usage and in the most challenging of environments. They enable T8 fluorescent fittings to be replaced with LED as budgets permit on a one-for-one basis, providing the wiring is still in good condition. The anti-corrosive UniPac range is vandal-resistant as it's formed from a single polycarbonate body and uses high lumen LED chips and an opal diffuser to provide smooth even light distribution with no 'hot spots'.

The UniPac is an IP65 sealed linear fitting with a three-year warranty. Push-fit terminals at both ends

make for easy and quick installation.

The LinearPac LED anti-corrosive is popular for car parks, service areas, warehouses and retail applications and comes with a five-year warranty. With an efficacy of up to 100 lm/W, it creates the necessary lighting levels while providing the desired energy savings. The vandal-resistant polycarbonate body comes supplied with anti-tamper stainless steel clips and the diffuser is permanently attached for ease of installation. Both fittings offer a microwave sensor detector option which works up to 12 m, has an IK08 impact rating and the all-important 1.5 kV surge protection is built in.

For more information visit [www.enlitemlighting.com](http://www.enlitemlighting.com)

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## Decorative LED lighting solution for the Anglo-Boer War Museum

BEKA Schröder, a leading local manufacturer of LED luminaires, has supplied a decorative LED lighting solution to the Anglo-Boer War Museum in Bloemfontein and the Garden of Remembrance, which was recently added to the outdoor exhibit area.

The Garden of Remembrance was established to specifically honour the women and children who died in concentration camps – and in the field – during the Anglo-Boer War between 1899 and 1902. The names of the deceased are inscribed in alphabetical order on the walls, which are lit with BEKA's linear LED luminaires, creating an appropriately dramatic effect to the memorial.

As part of this addition, new walkways linking the Garden of Remembrance to the National Women's Memorial were built. The walkways are illuminated with BEKA Schröder's LEDpost LED bollard luminaires that provide elegant low-level orientation lighting that welcomes visitors from across the globe.

The lighting was installed not only to improve visibility, security, and aesthetics but to highlight the value of the museum for generations to come. The War Museum's seven display halls with their unique exhibits and dioramas, as well as the numerous outside exhibits,

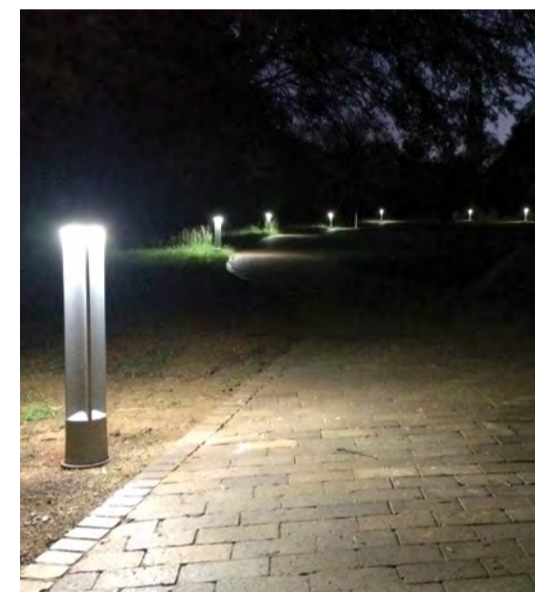
provide the visitor with an overview of the background, course, impact and suffering caused by the Anglo-Boer War that was fought between the two Boer Republics of the Transvaal and the Orange Free State and Great Britain from 1899 to 1902. The War Museum has the largest collection of Anglo-Boer War related objects and memorabilia in the world.

Museums are a communication link to fill the gap between generations by sharing knowledge with different communities. They serve as a mediator to help current and future generations embrace history and acknowledge the existence of those who came before them. Museums play a huge role in ensuring understanding and appreciation for various cultures while preserving heritage by protecting, conserving and displaying artifacts from the past.

There is more to a museum than what it displays. It is an institution where research is conducted, collections are stored. It is a forum in which aspirational and educational experience takes place. It therefore needs an appealing and interesting appearance and that is where lighting plays an important role. Lighting enhances the impact of items on display creating a connection between generations.

BEKA Schröder locally develops and manufactures LED lighting products, designed and suitable for local conditions. BEKA Schröder is proud to be associated with FCE Consulting Engineers in providing a successful LED lighting solution for this project.

For further enquiries, contact Cameron Roberts at +27 51 430 5371 or [c.roberts@beka-schreder.co.za](mailto:c.roberts@beka-schreder.co.za)



BEKA LEDpost LED bollards illuminating the new walkways.



Linear LED luminaires light up the façade of the walls in the Garden of Remembrance.

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Legrand's lighting and motion management systems encompass a wide range of sensors designed to make buildings more energy efficient by automatically reducing the amount of time lighting is left on unnecessarily.

"Reduced lighting consumption not only lowers operating costs, but also reduces lamp replacement and maintenance requirements and helps decrease Green House Gas (GHG) emissions," says Sonja Leibbrandt, marketing and pricing manager, Legrand South Africa.

Lighting management sensors are suitable for areas of a building with or without natural light, including passages, corridors, hallways, staircases and restrooms and also for offices, storage rooms and warehouses. These sensors are also available with advanced features for installation outdoors and in humid

areas of domestic, commercial and industrial buildings.

### Sensors

Sensors for controlling a single circuit in outdoor and damp areas with natural light, have an IP55 index protection rating to guard against the ingress of dust and water. These sensors, with three wires and neutral, have an automatic switch on/off occupancy mode setting and switch off automatically when there is sufficient natural light in the area. There is an adjustable time delay between 5 s and 59 minutes and a light level threshold from 5 to 1275 lux.

Lighting sensors for controlling a single circuit in outdoor and damp areas without natural light are fitted with automatic on/off controls, manual adjustment of the light level threshold and time delay via a potentiometer.

Legrand's lighting management



solutions for outdoor areas and humid areas also includes sensors for managing multiple circuits.

For more information about this product, visit [www.legrand.co.za](http://www.legrand.co.za)

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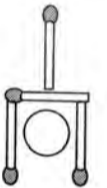
**WALKING ON WATER**

Wimpish walked on water to work on Tuesday. At midday, he found himself on an island, although he had not gone to any island that day he did not live on an island, so he got a boat to the mainland. Later, he was just in time to get the boat back to the island, and after work he walked home. How was this possible?

**NOVEMBER SOLUTION**

**A MIXED COLLECTION**

This feat can be achieved by moving one match by picking it up and moving the order by sliding it, as shown, so that the cherry appears inside the glass.



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