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Week ending 13 September 2019

# Welcome to **ELPA NEWS**

We bring you the latest news and updates on events in the Earthing & Lightning Protection Industry.



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# Why join ELPA?

The Earthing and Lightning Protection Association (ELPA) has been formed to bring the industry together, to protect the consumer and to establish a uniform interpretation of the codes of practice by aligning the codes of practice in regulations, standards and legislation to effective protection of lives and property. To ensure that the industry has a recognisable framework within which to operate.

## We do...

- ✓ Form an important addition to the safety standard in the South African Lightning Protection Industry.
- ✓ Offer certification of qualified designers, installers and inspectors.
- ✓ Support tertiary education through coordination to develop training apprenticeship at all levels.
- ✓ Support Architects, Structural, Consulting and Electrical Engineers through their representative bodies.

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# Our Services



## CERTIFICATION

- To Installers, Designers and Inspectors
- For SETA/SAQA/QCTO registration
- For Installations with ISR and Maintenance Report of SANS 10142



## RECORD KEEPING

- All ELPA Member exams
- Free Industrial Safety Review formats for Installers and Designers
- Industrial Safety Reviews
  - Drawings



## MEMBERSHIP

- Five levels of Membership
- Reduced Training Fees
- Reduced Training Manual fees
  - Weekly Newsletter
- Reduced Advertising rates



## EVENTS

SAIEE ST-TALKS  
Lightning  
26 September  
Johannesburg

Nigeria Lightning Seminar  
Date TBC

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## LETTER FROM NATIONAL DIRECTOR

Greetings as we walk into a new Spring season with the full lightning season soon to be upon us.

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## FEEDBACK ON LIGHTNING SEMINARS

The first seminars co-hosted by ELPA (The Earthing and Lightning Protection Association) and AREP (Association for Renewable Energy Practitioners) showed great support from the industry with numerous sponsors.

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## LIGHTNING PROTECTION AND COCS AND THE SOUTH AFRICAN STANDARDS

Our headline section in the newsletter under certification – for installations with ISR and Maintenance report of SANS 10142 has had a few people hot under the collar. Why? Because the ISR and the MC (Maintenance Certificate) are addendums in the SANS 10313 standard.

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## HOW LIGHTNING COULD PROTECT AGAINST CYBER-CRIMINALS

Side channel signals and bolts of lightning from distant storms could one day help prevent hackers from sabotaging electric power substations and other critical infrastructure, according to a new study.

[Read more](#)

Please send your stories for possible inclusion in our weekly ELPA News to [info@elpasa.org.za](mailto:info@elpasa.org.za).



# FROM THE NATIONAL DIRECTOR

Greetings as we walk into a new Spring season with the full lightning season soon to be upon us.

No newsletter was published last week as our editor was hospitalized with a fractured spine. She is healing well, and we wish her a speedy recovery.

The South African Weather Service provides national lightning data as it happens. This means you can track damage as it happens and can quantify when your lightning protection is working or if it was just not adequate – if damage occurs.

The two collaborative seminars on protection of solar PV Plant were successful with a key outcome being the support from the Department of Labour to support our skills development program and the potential to appoint AIA personnel through the ELPA structures.

Now that the razzmatazz is over, it's time to do the hard work and face the hard facts.

ELPA stands by certified lightning protection systems installers, designers and inspectors. The programs for installers and designers have been in place since August 2017 and February 2018 respectively.

Both programs were exploratory efforts to create a framework. Both have limitations with the installer certification at one level seemingly authorizing installers to be fully competent in all aspects of installations including reading and creating a bill of materials from design drawings but is never covered in the materials. The designer's certification assignments are complicated and time-consuming (months to complete), making the certification process untenable for most designers. Hence we have had only one successful attempt in the past 18 months. The inspector's program was never launched.

There are thus two primary tasks that lie before us: Amend the certification structure that meets the industry needs – multi-levels of installer in accordance with the scope of work required, levels of designers according to the specific design areas required (examples are thatch, PV systems and hazardous sites), and - qualify the knowledge needed to be trained in these new levels.

A task force to address certification and inspections will start this work in earnest in October under the direct guidance of specialist Nick du Plessis integrating our skills requirements, SETA ownership, SAQA qualifications levels and QCTO adoption including consideration of SANAS capacity to verify and accredit training centres to provide the much-needed training.

The timescales are three-fold:

**1. Short term**

- a. certification renewals – notices have been issued to existing ELPA qualified personnel;
- b. Online examinations – new questions data set has been completed, with QA finalized, will recommence from 23 September – more info in the newsletter next week.

**2. Medium-term** – 3 to 6 months – SETA and SAQA structures, matching existing unit standards and QCTO modules, identifying what is not covered already, documenting the scope of work, compiling new drafts for SAQA to consider and integrate, circulate and publish details, formalize the structures for training and examinations, empower the training centres with materials, engage with SANAS on the accreditation requirements and enable the processes to make them valid. Start the new examinations processes and transfer existing certified personnel to the equivalent levels of the new structures, notifying staff of additional certification where applicable to upgrade based on the business objectives of each ELPA member company

**3. Long term** – 2 to 4 years – QCTO registration – integration to the level of registration of all certification levels with SANAS listed training centres. That is, this task is not a quick fix. It is a validation of the principles and the hard work to implement an apprenticeship program never before active in South Africa or Africa.

The USA has equally embarked on a similar program, and we recognize this is not a small or menial task but an effort that will require both patience and cooperation between bodies who are impacted by, or contributors to the process.

In the previous newsletter, I mentioned a series of responsibilities that ELPA is taking up – if you missed it, please read the summary elsewhere in the newsletter. It is a mouthful and understanding it can be tedious. Bear with me and please reread it. I summarized those responsibilities with *"ELPA has a long way to go to being a sustainable Association with deep roots making significant inroads."*

For your certification to have value, ELPA must be successful. Your certification is a reference of your skills, and it is ELPA who are providing that reference. Therefore, ELPA must be accountable for your actions and as such, you have to be an ELPA member.

Being an ELPA member company means you are accountable and committing to quality service. As we move into the next phase, approved by the new Board of Directors, your voice must be heard.



## Richard Evert

**HIGH PRIORITY:**

1. Renew your certification now;
2. Membership is compulsory for certifications to be valid – all certified personnel have been informed this past two weeks. If you still need to register as an ELPA member, please do so urgently. If you have questions, you have been given the contact details – please contact us urgently. Don't delay.

The Board of Directors has approved an extended sliding scale discount of the initiation fees until December 2019. Please don't squander the opportunity.

Wishing you all a good September in preparation for the storm season. 

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# LIGHTNING PROTECTION & COCs

## LIGHTNING PROTECTION AND COCS AND THE SOUTH AFRICAN STANDARDS

Our headline section in the newsletter under certification – for installations with ISR and Maintenance report of SANS 10142 has had a few people hot under the collar. Why? Because the ISR and the MC (Maintenance Certificate) are addendums in the SANS 10313 standard.

There has been an underlying conflict and confusion concerning authority to proceed or authority to stop the commissioning of an installation:

1. The Electrical COC is legislated compliance that applies to every building in South Africa. That is, every structure in South Africa requires one;
2. The electrical COC must be signed off by a registered electrician;
3. The Electrical COC is mandated out of the SANS 10142 and is a health and safety requirement and therefore enforceable by the Department of Labour;
4. Non-compliance will bring the wrath of the Chief Inspector down on the property owner and if the policing structures are in place, the persons/entities responsible for the non-compliance;
5. The lightning Protection System (LPS) is a separate electrical system that is bonded to the structure earthing, and therefore the LPS changes the electrical scheme of the building;
6. Every electrical alteration of the building must be captured with an amendment to the COC for that building also signed off by a registered electrician;
7. The application of the provisions of the LPS as a compliant installation has been contentious because 10142 does not make the provisions of 10313 compulsory;
8. The requirements of 10142 consider the advent that an SPD (Surge Protection Device) has been installed and if so, imposes strict parameters of how that SPD must be installed;
9. The provision for SPD is counter-productive where such an installation requires more work and more costs. Thus, the natural progression will be to omit it;
10. The implementation of an LPS where necessary is compulsory in the National Building Standards where the regulations are enforceable by municipal bodies;
11. Municipal bodies have lost their strength to audit installations and as such the

principles of the process have deteriorated to the point where implementation in the industry has become desperate – attempting to create a form of “lightning protection system COC”;

12. The current SABS SANS10313 working group has confirmed the following:
  - a. There will be no “COC” for LPS;
  - b. The Installation Safety Report (ISR) is the defining commissioning compliance document for the LPS and must be linked to the electrical COC of that building;
  - c. The Maintenance Certificate (MC) is the routine operations inspection report required to ensure the sustainable effectiveness of the LPS and must be linked to the electrical COC of that building;
  - d. The ISR in its present form is complex, ambiguous and could be more productive;
  - e. The MC in its current form needs to be amended to become more fluid and relevant to the installations and genuine routine maintenance system checks;
  - f. The ISR and the MC are being revised following the new amendments to 10313 itself.
13. What is compulsory? An LPS or a risk assessment?

There are instances where an LPS is not required. The conclusion that no LPS is required has become the default “Get-out-jail” card because the processes do not make such an assessment compulsory nor do we elaborate on how such a risk assessment must be done for it to be declared as compliant – a legitimate understanding of what threat lightning poses to the building, its assets and the people inside the structure.

Thus, the critical key here is to understand the SANS 10142 standard and that it appears to have a loophole:

- “if you have an SPD installed”?
- The standards are supposed to dictate that decision, but it appears only to enter the fray after someone else has committed to such a decisive action;
- Where and who is the “someone else”?

This section will expand week by week with the latest news from the SABS working groups and developments with the Department of Labour – breakthroughs are being achieved with collaboration possible and supported by our electrical bodies.

For now:

- Every new LPS installation must be signed off with an ISR – have you issued an ISR on your most recent installations?
- Every LPS inspected must be signed off with an MC – have you issued an MC on your most recent inspections?
- An earth resistance test report is NOT an ISR, nor is it a COC. As a client, have you looked at the content of the document given to you by your contractor? Is it an ISR, an MC, a COC or an earth resistance test report?
- An earth resistance test report is only one item required in an ISR and an MC.

Going forward, we will publish the ISR and MC on our web site with news of the changes proposed by the SABS working group as the details are sanctioned for us to release.

So, Standard 10142 holds the registered electrician accountable for the delivery of the ISR and MC for the LPS which is dictated in the 10313.

ELPA will work with the ECA to advance training support to electricians registered with the ECA through the ECA infrastructure such that this message is conveyed to all registered electricians. Another reason why membership is essential.

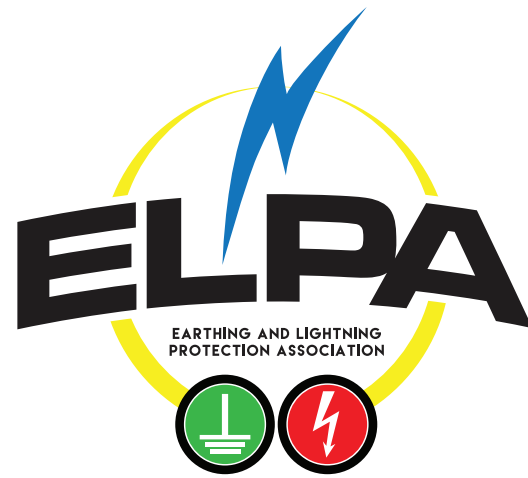
These developments will provide structure to Insurance compliance and thereby start reducing the unnecessary losses we are experiencing every year.

Submission: Richard Evert

Future submissions will be requested from a variety of specialists in our industry, so stay tuned.



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# EARTHING & LIGHTNING SEMINARS

The first seminars co-hosted by ELPA (The Earthing and Lightning Protection Association) and AREP (Association for Renewable Energy Practitioners) showed great support from the industry with numerous sponsors, knowledgeable presenters and more than 150 candidates attending both the Johannesburg and Western Cape Seminars.

Solar PV plants are subjected to surges, and exposed equipment may be vulnerable if not adequately protected. Due to the growing concern around the protection of solar PV related equipment, two seminars were arranged to inform the industry on the importance, processes and available methods to protect equipment and human life. The seminars intended to share information with industry on the design, installation and risk analysis for Lightning, earthing and surge protection systems for solar PV plants. The first commercially operated floating solar PV system on the continent producing 60kW of power and installed by New Southern Energy (NSE) on the Marlenique farm's dam, made the farm, the ideal venue for a surge protection event focusing on solar PV Plants.

Read more about the floating solar system at Marlenique [here](#).

Carel Ballack (President of AREP) gave the key-note addresses for both events, highlighting statistics that affirmed the growth of renewable energies in South Africa, the number of products available locally as well as an estimate to the number of installers in South Africa. During the presentation, many other aspects covered, confirmed solar PV as being an essential contributor to the future of energy security solutions. **Building a sustainable energy sector** could only be realized if driven by industry, and therefore, it was necessary to unite as a sector to ensure that we adequately implement the standards.

NSE (Chief Technical Officer), Ryno Jordaan gave a rundown of the floating solar plant's design and installation.

Alexis Barwise presented on **effective and safe lightning protection system design** with many vital parameters that we needed to take into account. Case studies across South Africa were discussed, and examples are given of how the process behind design could be simplified.

Nick Roche of Rubicon focused on **surge protection for communication devices** by highlighting how complex solar PV plants have become owing to control and monitoring devices.

Gary Thoresson of Testing Guys gave presentations on **early warning system devices** raising alarms due to changing atmospheric conditions. A lightning prediction system determines when atmospheric conditions are likely to produce lightning strikes and sounds an alarm, warning those nearby that Lightning is imminent before a storm arrives in a specific region.

Dr Pieter H Pretorius detailed factors of the SANS and IEC standards and **how risk analysis could be interpreted and understood when designing lightning protection systems for solar PV plants**. He gave a detailed breakdown of what risk was and the purpose or outcome of what the risk analysis aimed to achieve by considering the number of lightning strikes in a given area, the probability of damage and amount of loss.

Prof. Chandima Gomes of Wits University shared experience gained through his international exposure with surge protection and presented a lecturer's rendition of **forward and reverse bias for solar module circuits**. He highlighted how solar PV circuits could be damaged by lightning strikes when not adequately protected by surge and lightning protection devices.

Johan Hoolsema from Expert System Solutions presented a controversial topic that covered Early Streamer Emission devices. This issue stirred vibrant debate.


We ended both days with a panel discussion where Director Jake (Jacob) Malatse – Head of the Department of Labour (DoL) Electrical and Mechanical Engineering Directorate fielded important questions and affirmed the drive of the Department of Labour to engage with industry on matters related to regulations and enforcement of standards.

In JHB a similar panel discussion included Pieter Laubscher and Patrick Mmapheto both from the Department of Labour and John Dlamini from the SABS. They discussed the requirements needed to operate as an electrical contractor. Our attendees post numerous questions which were dealt with by the SABS and DOL representatives.

We want to take this opportunity to thank our Sponsors.

They are:

- HHK
- CDAA
- Rubicon
- E-S-S
- Testing Guys
- LPC
- Terratech
- SAIEE, and
- PQRS

We look forward to hosting more information seminars in the near future to promote renewable energy off-take in South Africa. 

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