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YOUR NEXT BRANCH PRESENTATION

Tuesday, 5th April 2016

The Expanded Public Works Programme

*Balancing Production, Quality & Job Creation*

Presenter: Ms Nokwanda Mahaye Khumalo
Naidu Consulting

**VENUE:**
Garden Court Hotel
Kearsney Room
Marine Parade

**TIME:** 17h00

**DATE:** Tuesday 5th April
ENGINERS, TECHNOLOGISTS & TECHNICIANS

TOASTMASTERS, in association with

SAICE DURBAN BRANCH

Will be running the next Speechcraft Lecture Series in a friendly, non-intimidating forum, helping to build you up to a level which can be life-changing!

This 8 week course will help your “voice to be heard” and help improve your communications skills for:

- Management Meetings
- Presentation Skills
- Constructive Feedback
- Speaking off the cuff

COST

R3, 500.00 For Members
R4, 500.00 For Non-Members

The course will run over an 8 week period, on a Thursday evening starting Thursday, 14th April from 17h30 to 20h00.

VENUE: Kaytech
11 Livingston Road
Pinetown

BOOKINGS: Please email your registration details to:
Cindy Austen on cindy@saice.org.za

BOOK NOW! LIMITED SEATS AVAILABLE!!
The shortage of engineers in the country is no news to anyone and continues to be highlighted in the media for various reasons. Have universities stopped churning out graduates? The number of graduates coming out of universities is rising every year, however, the number of skilled engineers keeps going down. With the rising number of graduates, where then are we getting it wrong? Is the new stock untrainable? Is it the trainer or the trainee?

I would ask, how long does it take one graduate to become an engineering expert? Some believe they are experts as soon as they are professionally registered. It should be noted though that experts are like \textit{nurtured} hard woods. The older the wood the more defined the grains and the higher its value. Any growth process is long and painful punctuated by blood and sweat. This is food for thought for all young engineers.

For a start, a graduate needs role models. Are there enough role models and mentors to mould and groom these youngsters to value the profession so they can give it the dedication it deserves? Do the mentors give adequate time to this mentorship or is it simply done to fulfil requirements at the expense of the growth of the profession? Is skills transfer engrained in how we do business or is it accidental? In the fast world of difficult client requirements, tight deadlines, efficiency and profitability, do we stop to ponder the quality of the product that is the outcome of our actions? In my youth I recall my mentor telling me, “An engineering candidate is like a tree – to bear fruit it has to be trimmed, cultivated and endure droughts but still produce.” I have carried these words in my career and they have made the process less painful. I could therefore never have traded what I wanted most just because I wanted to avoid the pain then.

There are a lot of temptations that disturb the training focus of a growing lot of engineers most of whom are of the Y-generation of instant gratification. The expertise process does not happen overnight. Some lose hope while others take the risk of venturing beyond their capabilities in order to try and prove their competence or make it work for the love of a good, enviable lifestyle.

Technically, the shortage is of mature, skilled engineers. The shortage is in the number of engineers who have ample working practice to gain the title of ‘expert’. It is therefore not a shortage of engineers but a shortage of experts. The shortage reflects how graduates and recently registered engineers opt for the path of financial freedom / lifestyle transformation rather than the residual value of steadily gaining experience through practice. For the recently graduated, ask yourself what residual value you will have upon retirement – the answer I believe should direct the path of growth and development. For those retiring, what knowledge have you imparted to juniors to ensure the legacy and value of your expertise?

This article was not intended to be conclusive or prescriptive but to direct our thoughts towards how we see we impart knowledge, share experiences, gain expertise, value the ethics of the profession and selflessly contribute to the growth of the country.

\textit{Because CIVIL ENGINEERS literally build the world.}
Presidential Visit 2016

Want to meet the ASCE President?

Mark W. Woodson, P.E., L.S. D.WRE, F.ASCE
ASCE President 2016

Thomas W. Smith III, ENV SP CAE, F.ASCE
Executive Director

The American Society of Civil Engineers (ASCE)
Mark Woodson - ASCE President and
Tom Smith - ASCE Executive Director will be visiting
the Durban branch on
16 May 2016.

For more information contact
Cindy Austen:
e. cindy@saice.org.za
  079 294 5337
w. 031 260 1832
What would the world be like without civil engineers? The civil engineering profession plays a crucial role in the design, construction and maintenance of infrastructure. Government’s service delivery to society is fully dependent on the infrastructure that is built by civil engineers. In the State of the Nation Address (SONA) and the Budget Speech for 2016, government emphasised that infrastructure is the key to better lives for society. Government announced that billions of rands is set aside for infrastructure development in South Africa in line with the National Development Plan. The civil engineering industry is the key driver of infrastructure solutions and government is relying on engineers to advise and produce the best civil engineering solutions to challenges that communities are still facing.

South Africa was very fortunate to have hosted the 2010 FIFA World Cup as government got the opportunity to build the best infrastructure in a short space of time. Again it relied on engineers to design and construct those stadiums, roads and hotels for the event to take place, even beyond the World Cup. The problem remains that there are many communities in South Africa that are still drinking dirty water from streams with cattle in, who still cannot access health services because there are no roads, and children that are walking more than 10 km to schools because there are none in their communities. It is the responsibility of the civil engineering profession and government, together with all stakeholders who care for people and this country, to make sure that basic services reach all communities of South Africa.

Government has the funds to implement the infrastructure programme but the best sustainable, affordable and safe engineering solutions need to come from engineers. Are we doing the best to assist government? It is common these days that some of the roads that are built do not last because the thought behind the design was poor or there was poor supervision during construction. The poor execution of work from engineers again subsequently costs taxpayers money when the facility has to be maintained many times over without it even reaching its design period.

The problem of the shortage of engineering skills is going away because government is attempting to encourage engineers, technologists and technicians working in government to register as professionals with ECSA. I believe this will be a solution for government infrastructure projects as they will be undertaken professionally and fruitless expenditure should be minimised. Government is also encouraging more students to study engineering so there are engineers available to work in communities to solve engineering problems. However, it is also the role of senior engineers to transfer skills to young professionals to close the skills gap.

There is a lot that the civil engineering profession can do to ensure that our infrastructure projects are completed on time and within budget, and that the quality of the infrastructure we construct is acceptable to assist government in speeding up service delivery. It is everyone’s responsibility to play his part in ensuring that we leave the earth better than we found it. We owe it to our communities to provide sustainable engineering solutions.
CIVILUTION CONGRESS
ENGINEERING REVOLUTION
Date: 9-10 May 2016
Gallagher Estate, Midrand
www.civilutioncongress.com

WIND LOADS ON STRUCTURES
A practical seminar for structural engineers on the provisions of the latest revision of SANS 10160-3 (2011)

Stellenbosch
Devonvalley Hotel
Friday 15 April 2016

Durban
Premier Hotel Pinetown
Monday 16 May 2016

Johannesburg
The Aviator Hotel
Friday 27 May 2016

For Bookings contact: Celeste Viljoen
T: 021 - 808 4444
E: cbarnardo@sun.ac.za

Prof. Christina McLeod
T: 031 - 260 1059
E: mcleodc@ukzn.ac.za

1 CPD R 2800 CREDIT EARLY BIRD
Fostering sustainable relationships: Investing in the future of civil engineering

By Mr Munya Mutyora

On 10 March 2016, UWP Consulting, in collaboration with SAICE’s Pietermaritzburg Branch delivered a generous donation of engineering literature worth R5 000 to the Durban University of Technology Pietermaritzburg Campus. Over 20 copies of the “Sustainable Infrastructure Handbook” and recent issues of “The Project Manager” magazine were handed to DUT’s Civil Engineering Head of Department, Tom McKune, by Munya Mutyora of UWP Consulting, who is also the current Vice-chairperson of the SAICE PMB Branch. This was witnessed by fellow staff members and will certainly benefit the department and the student body as a whole.

SAICE and the university have enjoyed a fruitful symbiotic relationship for many years and this has benefited both parties significantly. The Durban University of Technology has its own SAICE Student Chapter which has given the students a platform to network with engineering professionals and learn from the wealth of experience they have.

Many initiatives undertaken by the DUT Civil Engineering Department in Pietermaritzburg have been successful and with the continued support of industry, this trend will continue for years to come. This will ensure that a lasting legacy will remain for the benefit of posterity. UWP Consulting is one of many firms that support the university’s Singakwenza Ndawonye Internship Programme which assists students in gaining relevant experience for their academic requirements.
NEWSLETTER

by Sinovuyo Gwaza

PAST EVENT

STRATEGIC MEETING

On the 13th of February 2016, the current SAICE-UKZN student chapter committee had their first meeting held at Ushaka Marine. The meeting was for discussion of the plans that the chapter has for this upcoming year, the session included the team building and trust within the committee members.

FIRST YEARS PRESENTATION

On the 24th February 2016 the chapter hosted the first year civil engineering students at unite building. The students were introduced to what SAICE is about.

2ND, 3RD AND 4TH YEARS PRESENTATION

After it was observed that a number of students in 2nd, 3rd and 4th level were not well informed about SAICE, a presentation to them was held on the 2nd February 2016 to encourage the students to join SAICE.

14TH JENNING MEMORIAL LECTURE

Final year civil engineering students were graced by the presence of Mark Randolph who gave a lecture on Design Issues for Open-ended Steel Piles. We thank the SAICE Geotechnical department for organizing the lecture.

UPCOMING EVENTS

• Fun day
• Recruitment day
• SAICE presidential visit
• ICE presidential visit
• Photo competition

Dates will be communicated via social media.
On 12 March 2016 we, the Mangosuthu University of Technology branch of SAICE, participated in our first event. The event was a mentor team building day, held by the university’s Teaching and Learning Development Centre at Dr. Seme Hall, MUT.

The whole purpose of the event was to assist student mentors and mentees with team building skills and to eliminate conflict within the teams. The students participated in various indoor and outdoor team building activities, which we (the student chapter) participated in as well.

The chairperson, Kassandra Buckley, was given an opportunity to address the engineering mentors on the importance of professional bodies. Here she elaborated on the benefits of being members of professional organizations like SAICE, transitioning from being a student to an engineering professional. There were three guest speakers present, representing other branches of engineering, who shared their experiences on “what comes after you graduate”, finding in-service training, as well as being members of relevant professional organizations.

“I strongly feel that we gained much from this experience. This was the first time we (SAICE- M.U.T) got to work as a team, ironically a team building event. We participated in the activities which were set out for the various teams of mentors, such as; making up a harmony and beat for a stanza of a poem and performing it as a collective. That might not seem like a difficult task, but it taught us as individuals to come together as a team, choosing a single idea and strategizing towards a final product. We also got to remind ourselves of our function as a student chapter, which is to build the bridge between the classroom and the civil engineering working world.” - Kassandra Buckley, Chairperson.

“The event was great fun, and also very enriching. Not only did we get to talk to students about SAICE, but we also encouraged academic achievers to apply for bursaries. Many membership forms were also distributed, which is great as this shows an early commitment to the profession for many young engineers in the making.”
Road safety on route N3 - are we winning

By Mr Malcolm Mitchell

The KZN branch of the South African Road Federation (SARF) congratulates the N3 toll road concessionaire on its efforts to improve the safety of road users on this most important national road.

The regional committee emphasises that attitudinal change, pro-active law enforcement and effective prosecution are necessary to reduce the carnage on our roads. Since the formation of the “Decade of Action for Road Safety” initiative, the N3 Toll Company has assiduously pursued the implementation of the five pillars road safety plan and in doing so has achieved an overall 43% reduction in road fatalities along the route during the past five years – much better than the national average.

However concerns still remain - about 70% of crashes on N3 are due to human behaviour and error of judgement. “Generally it seems drivers show little respect for other road users and the law. They seem to be proud of breaking the law and getting away with it”, says the N3Tc’s transport engineer. The three most common crashes for users of the N3 during 2015 were vehicles that rolled (28%), vehicles that left the road (22%) and head-on collisions (19). In all these situations the driver appears to have lost control, usually due to poor concentration, judgement and excessively dangerous speeds.

The toll company’s transport engineer suggests that “it would make a tangible difference on our roads if law enforcement officers are working 24 hours a day, 365 days a year, and that sufficient commitment and manpower were available to successfully prosecute offenders”. The SARF KZN regional committee agrees with this.

Also it is essential that road signs and markings are enhanced to improve the transfer of important information to motorists in an attempt to improve their reaction time to dangerous situations. These include:

- Increasing the use of “sharp curve” chevron signs
- Regular re-painting of yellow lines and regular cleaning, replacing and adding of road signs where necessary.
- Checking the reflectivity of road signs
- Placing of three rows of road studs at 12 metre intervals approaching narrowing sections of roads and at bridges
- Improving the night-time or wet weather road markings.

Drivers need to be made aware of how dangerous driving actually is. They are often not skilled enough for the speeds and conditions they encounter on the road. The SARF KZN regional committee emphasises that the co-operation of all road users and an overall behaviour change is essential to overcome our road safety challenges.
Pietermaritzburg Branch Water Competition

Attention all learners around Pietermaritzburg, and all Schools.

Get the word out that the annual Water competition will be taking place on the 23 April 2016. Those schools wanting to partake, please contact SAICE Pietermaritzburg to book your place.

RSVP: Shanley Hay
Email: hays@dut.ac.za

DURBAN BRANCH AWARDS
Date: 19 June 2016
Time: 18h00 for 18h30
Venue: Elangeni Hotel, Snel Parade, Durban
Dress: Traditional/Black Tie
Cost: R650.00 per person

For bookings contact Cindy Austen
cindy@saise.org.za / 0312601632

SAICE MARSH
Pietermaritzburg Branch
Bridge Building
Competition

Attention
all learners around Pietermaritzburg, and all Schools.

Get the word out that the annual Bridge building competition will be taking place on the 6 August 2016. Those schools wanting to partake, please contact SAICE Pietermaritzburg to book your place.

RSVP: Oliver Rowe
Email: oliver@dut.ac.za

BOOK THE DATE
Get Your Movember Team Together!

SAICE Durban Branch Annual Golf Day
In Support of Movember
Mount Edgecombe Country Club
4th November 2016

MOVEMBER
Knowledge is Power • Moustache is King
<table>
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<tr>
<th>CONSTRUCTION REGULATIONS COMPARISON</th>
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<tbody>
<tr>
<td>(a) the platform of every material hoist to be designed in such a manner that it shall safely contain the loads being conveyed and that the combined weight of the platform and the load does not exceed the designed lifting capacity of the hoist;</td>
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<tr>
<td>(b) the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and</td>
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<tr>
<td>(c) every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when the power is not being supplied to the hoisting machinery.</td>
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<tr>
<td>(4) No contractor shall require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person shall so convey trucks, barrows or material unless such articles are so secured or contained in such a manner that displacement thereof cannot take place during movement.</td>
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<tr>
<td>(5) A contractor shall cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.</td>
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<td>(6) A contractor of a material hoist shall not require or permit any person to operate such a hoist, unless the person is competent in the operation thereof.</td>
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<td>(7) No contractor shall require or permit any person to ride on a material hoist.</td>
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<td>(8) A contractor shall cause every material hoist to</td>
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<td>(a) be inspected on a daily basis by a competent person who has been appointed in writing and has the experience pertaining to the erection and maintenance of material hoists or similar machinery.</td>
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<tr>
<td>(b) inspection contemplated in paragraph (a), to include the determination of the serviceability of the entire material hoist including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices.</td>
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<tr>
<td>(c) inspection result to be entered and signed in a record book which shall be kept on the premises for that purpose.</td>
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<tr>
<td>(d) to be properly maintained and that the maintenance records in this regard are kept on site.</td>
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<tr>
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<td>(b) inspection contemplated in paragraph (a), includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;</td>
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<td>(c) Inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;</td>
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<td>(d) is properly maintained and the maintenance records in this regard are kept on site.</td>
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| 18. Batch Plants | 20. Bulk Mixing Plants |
CONSTRUCTION REGULATIONS COMPARISON

1. A contractor shall ensure that all batch plants are operated and supervised by a competent person who has been appointed in writing.
2. A contractor shall ensure that the placement and erection of a batch plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.
3. A contractor shall ensure that all devices to start and stop a batch plant are provided and that these devices are:
   (a) placed in an easily accessible position; and
   (b) constructed in such a manner as to prevent accidental starting.
4. The contractor shall ensure that the machinery and plant selected is suitable for the task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.
5. No person shall be permitted to remove or modify any guard or safety equipment relating to a batch plant, unless authorised to do so by the appointed person as contemplated in subregulation (1).
6. A contractor shall ensure that all persons authorised to operate the batch plant are fully:
   (a) aware of all the dangers involved in the operation thereof; and
   (b) conversant with the precautionary measures to be taken in the interest of health and safety.
7. No person supervising or operating a batch plant shall authorise any other person to operate the plant, unless such person is competent to operate such machinery.
8. A contractor shall ensure that all precautionary measures as stipulated for confined spaces in the General Safety Regulations promulgated by Government Notice No.R.1031 dated 30 May 1986, as amended, are adhered to when entering any silo.
9. A contractor shall ensure that a record is kept of any repairs or maintenance to a batch plant and that it is made available, on site, to an inspector, client, client’s agent or employee upon request.
10. A contractor shall ensure that all lifting machines and lifting tackle used in the operation of a batch plant complies with the requirements of the Driven Machinery Regulations promulgated by Government Notice No.R.295 dated 26 February 1988, as amended;
11. A contractor shall ensure that all precautionary measures are adhered to regarding the usage of electrical equipment in explosive atmospheres, when entering a silo, as contemplated in the Electrical Installation Regulations promulgated by Government Notice No.R. 2920 dated 23 October 1992, as amended.

1. A contractor must ensure that the operation of a bulk mixing plant is supervised by a competent person who has been appointed in writing and is—
   (a) aware of all the dangers involved in the operation thereof; and
   (b) conversant with the precautionary measures to be taken in the interest of health and safety.
2. No person supervising or operating a bulk mixing plant may authorise any other person to operate the plant, unless that person is competent to operate a bulk mixing plant.
3. A contractor must ensure that the placement and erection of a bulk mixing plant complies with the requirements set out by the manufacturer and that such plant is erected as designed.
4. A contractor must ensure that all devices to start and stop a bulk mixing plant are provided and that those devices are—
   (a) placed in an easily accessible position; and
   (b) constructed in a manner to prevent accidental starting.
5. A contractor must ensure that the machinery and plant selected is suitable for the mixing task and that all dangerous moving parts of a mixer are placed beyond the reach of persons by means of doors, covers or other similar means.
6. No person may remove or modify any guard or safety equipment relating to a bulk mixing plant, unless authorized to do so by the appointed person contemplated in subregulation (1).
7. A contractor must ensure that all precautionary measures stipulated for confined spaces as determined in the General Safety Regulations, 2003, are complied with when entering any silo.
8. A contractor must ensure that a record is kept of all repairs or maintenance to a bulk mixing plant and that the record is available on site to an inspector, the client, the client’s agent or any employee.
### Construction Regulations Comparison

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<td>(1) No contractor shall use or permit any person to use an explosive powered tool, unless— (a) it is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and (b) the firing mechanism is so designed that the explosive powered tool will not function unless— (i) it is held against the surface with a force of at least twice its weight; and (ii) the angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle. Provided that the provisions of this subregulation shall not apply to explosive powered tools in which the energy of the cartridge is transmitted to the bolts, nails or similar relevant objects by means of an intermediate piston which has a limited distance of travel.</td>
<td>(1) No contractor may use or permit any person to use an explosive actuated fastening device, unless— (a) the user is provided with and uses suitable protective equipment; (b) the user is trained in the operation, maintenance and use of such a device; (c) the explosive actuated fastening device is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and (d) the firing mechanism is so designed that the explosive actuated fastening device, will not function unless— (i) it is held against the surface with a force of at least twice its weight; and (ii) the angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle.</td>
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<td>(2) A contractor shall ensure that— (a) only cartridges suited for the explosive powered tool and the work to be performed are used; (b) the explosive powered tool is cleaned and examined daily before use and as often as may be necessary for its safe operation by a competent person who has been appointed; (c) that the safety devices are in proper working order prior to use; (d) when not in use, the explosive powered tool and the cartridges are locked up in a safe place, which is inaccessible to unauthorised persons; (e) the explosive powered tool is not stored in a loaded condition; (f) a warning notice is displayed in a conspicuous manner wherever the explosive powered tool is used; (g) the issuing and collection of cartridges and nails or studs is— (i) done in writing by a person having been appointed in writing; and (ii) recorded in a register and that the recipient has accordingly signed for the receipt thereof as well as the returning of any spent and unspent cartridges; (3) No contractor shall permit or require any person to use an explosive powered tool unless such person has been— (a) provided with and uses suitable protective equipment; and (b) trained in the operation, maintenance and use of such a tool.</td>
<td>(2) A contractor must ensure that— (a) only cartridges suited for the relevant explosive actuated fastening device, and the work to be performed, are used; (b) an explosive actuated fastening device is cleaned and examined daily before use and as often as may be necessary for its safe operation by a competent person who has been appointed for that purpose; (c) the safety devices of an explosive actuated fastening device are in good working order prior to use; (d) when not in use, an explosive actuated fastening device and its cartridges are locked up in a safe place, which is inaccessible to unauthorised persons; (e) an explosive actuated fastening device is not stored in a loaded condition; (f) a warning notice is displayed in a conspicuous manner in the immediate vicinity wherever an explosive actuated fastening device is used; and (g) the issuing and collection of cartridges and nails or studs of an explosive actuated fastening device are— (i) done in writing by a person having been appointed in writing for that purpose; and (ii) recorded in a register by a competent person and that the recipient has accordingly signed for the receipt thereof as well as the returning of any spent and unspent cartridges.</td>
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<th>20. Cranes</th>
<th>22. Cranes</th>
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<tr>
<td>Notwithstanding the provisions of the Driven Machinery Regulations promulgated by Government Notice No.R.295 of 26 February 1988, as amended, a contractor must, in addition to compliance with the Driven Machinery Regulations, ensure that where tower cranes are used—</td>
<td></td>
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</tbody>
</table>
### CONSTRUCTION REGULATIONS COMPARISON

- contractor shall ensure that where tower cranes are used:
  - (a) account is taken of the effects of wind forces on the structure;
  - (b) account is taken of the bearing capacity of the ground on which the tower crane is to stand;
  - (c) the bases for the tower cranes and tracks for rail-mounted tower cranes are firm and level;
  - (d) the tower cranes are erected at a safe distance from excavations;
  - (e) there is sufficient clear space available for erection, operation and dismantling;
  - (f) the tower crane operators are competent to carry out the work safely; and
  - (g) the tower crane operators are physically and psychologically fit to work in such an environment by being in possession of a medical certificate of fitness.

- (a) they are designed and erected under the supervision of a competent person;
- (b) a relevant risk assessment and method statement are developed and applied;
- (c) the effects of wind forces on the crane are taken into consideration and that a wind speed device is fitted that provides the operator with an audible warning when the wind speed exceeds the design engineer’s specification;
- (d) the bases for the tower cranes and tracks for rail-mounted tower cranes are firm, level and secured;
- (e) the tower crane operators are competent to carry out the work safely; and
- (f) the tower crane operators have a medical certificate of fitness to work in such an environment, issued by an occupational health practitioner in the form of Annexure 3.

#### 21. Construction vehicles and mobile plant

1. A contractor shall ensure that all construction vehicles and mobile plants—
   - (a) are of an acceptable design and construction;
   - (b) are maintained in a good working order;
   - (c) are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
   - (d) are operated by workers who—
     - (i) have received appropriate training and been certified competent and been authorised to operate such machinery; and
     - (ii) are physically and psychologically fit to operate such construction vehicles and mobile plant by being in possession of a medical certificate of fitness;
   - (e) have safe and suitable means of access;
   - (f) are properly organised and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
   - (g) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crush barriers;
   - (h) where appropriate, are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
   - (i) are equipped with an electrically operated acoustic signalling device and a reversing alarm; and
   - (j) are on a daily basis inspected prior to use, by a competent person who has been appointed in

#### 23. Construction vehicles and mobile plant

1. A contractor must ensure that all construction vehicles and mobile plant—
   - (a) are of an acceptable design and construction;
   - (b) are maintained in a good working order;
   - (c) are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
   - (d) are operated by a person who—
     - (i) has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant;
     - (ii) has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3;
   - (e) have safe and suitable means of access and egress;
   - (f) are properly organized and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
   - (g) are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crush barriers;
   - (h) are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
   - (i) are equipped with an acoustic warning device which can be activated by the operator;
   - (j) are equipped with an automatic acoustic reversing alarm; and
CONSTRUCTION REGULATIONS COMPARISON

writing and the findings of such inspection is recorded in a register.
(2) A Contractor shall furthermore ensure that—
(a) no person rides or is required or permitted to ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
(b) every construction site is organised in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
(c) the traffic routes are suitable for the persons using them, sufficient in number, in suitable positions and of sufficient size;
(d) every traffic route is, where necessary indicated by suitable signs for reasons of health or safety;
(e) all construction vehicles and mobile plant left unattended at night, adjacent to a freeway in normal use or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
(f) bulldozers, scrapers, loaders, and other similar mobile plant are, when being repaired or when not in use, fully lowered or blocked with controls in a neutral position, motors stopped and brakes set;
(g) whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
(h) tools and material are secured in order to prevent movement when transported in the same compartment with employees;
(i) vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
(j) when workers are working on or adjacent to public roads, reflective indicators are provided and worn by the workers.

(2) A contractor must ensure that—
(a) no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
(b) every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
(c) the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;
(d) every traffic route is, where necessary, indicated by suitable signs;
(e) all construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
(f) all construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set and ignition secured;
(g) whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
(h) tools, material and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees;
(i) vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
(j) all construction vehicles or mobile plant traveling, working or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.

22. Electrical installations and machinery on construction sites

Notwithstanding the provisions contained in the Electrical Installation Regulations promulgated by Government Notice No.R.2920 of 23 October 1992 and the Electrical Machinery Regulations promulgated by Government Notice No. R.1593 of 12 August

24. Electrical installations and machinery on construction sites

A contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations, 1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that—
CONSTRUCTION REGULATIONS COMPARISON

1988, respectively, as amended, a contractor shall ensure that:
(a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
(b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
(c) in working areas where the exact location of underground electric power lines is unknown, employees using jackhammers, shovels or other hand tools which may make contact with a power line, are provided with insulated protective gloves or otherwise that the handle of the tool being used is insulated;
(d) all temporary electrical installations are inspected at least once a week and electrical machinery on a daily basis before use on a construction site by competent persons and the records of these inspections are recorded in a register to be kept on site; and
(e) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing.

23. Use and temporary storage of flammable liquids on construction sites

Notwithstanding the provisions for the use and storage of flammable liquids as determined in the General Safety Regulations promulgated by Government Notice No.R1031 dated 30 May 1986, as amended, a contractor shall ensure that:
(a) where flammable liquids are being used, applied or stored at the workplace concerned, this is done in such a manner which would cause no fire or explosion hazard, and that the workplace is effectively ventilated: Provided that where the workplace cannot effectively be ventilated:
(i)every employee involved is provided with a respirator, mask or breathing apparatus of a type approved by the chief inspector, and
(ii)steps are taken to ensure that every such employee, while using or applying flammable liquid, uses the apparatus supplied to him or her;
(b)no person smokes in any place in which flammable liquid is used or stored, and such contractor shall affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;
(c)flammable liquids on a construction site is stored in a well-ventilated reasonably fire resistant container, cage or room and kept locked with proper access control measures in place;

25. Use and temporary storage of flammable liquids on construction sites

A contractor must, in addition to compliance with the provisions for the use and storage of flammable liquids in the General Safety Regulations, 2003, ensure that—
(a) where flammable liquids are being used, applied or stored at the workplace concerned, it is done in a manner that does not cause a fire or explosion hazard, and that the workplace is effectively ventilated;
(b) no person smokes in any place in which flammable liquid is used or stored, and the contractor must affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;
(c) an adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs;
(d) only the quantity of flammable liquid needed for work on one day is taken out of the store for use;
(e) all containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, are removed from the construction site and safely disposed of;
(f) where flammable liquids are decanted, the metal containers are bonded and earthed; and
CONSTRUCTION REGULATIONS COMPARISON

| (d) an adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognised symbolic signs; |
| (e) only the quantity of flammable liquid needed for work on one day is to be taken out of the store for use; |
| (f) all containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, to be removed from the construction site and safely disposed of; |
| (g) no flammable material, including cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids. |

24. Water Environments

(1) A contractor shall ensure that where construction work is done over or in close proximity to water, provision is made for—
   (a) preventing workers from falling into water; and
   (b) the rescuing of workers in danger of drowning.

(2) A contractor shall ensure that where a worker is exposed to the risk of drowning by falling into the water, a lifejacket is provided to and worn by the worker.

25. Housekeeping on construction sites

Notwithstanding the provisions of the Environmental Regulations for Workplaces promulgated by Government Notice No. R. 2281 dated 16 October 1987, as amended, a contractor shall ensure that—
(a) suitable housekeeping is continuously implemented on each construction site, including provisions for the—
   (i) proper storage of materials and equipment; and
   (ii) removal of scrap, waste and debris at appropriate intervals;
(b) loose materials required for use, are not placed or allowed to accumulate on the site so as to obstruct means of access to and egress from workplaces and passageways;
(c) waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out regulation 12(6); and
(d) construction sites in built-up areas, adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorised persons.
(e) a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fence off the danger.

26. Water Environments

(1) A contractor must ensure that where construction work is done over or in close proximity to water, provision is made for—
   (a) preventing persons from falling into water; and
   (b) the rescuing of persons in danger of drowning.

(2) A contractor must ensure that where a person is exposed to the risk of drowning by falling into the water, the person is provided with and wears a lifejacket.

27. Housekeeping and general safeguarding on construction sites

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987, ensure that suitable housekeeping is continuously implemented on each construction site, including—
(a) the proper storage of materials and equipment;
(b) the removal of scrap, waste and debris at appropriate intervals;
(c) ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
(d) ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
(e) ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in regulation 14(6);
(f) ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorised persons; and
(g) ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under, or fence off the danger.
DURBAN BRANCH MEETINGS 2016

Committee and Branch Meetings take place the FIRST Tuesday of every month at the
GARDEN COURT HOTEL • MARINE PARADE • DURBAN

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
<th>MEETING TIMES</th>
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<tbody>
<tr>
<td>February</td>
<td>Tuesday, 2nd</td>
<td>Committee Meeting : 4 to 5pm</td>
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<tr>
<td>March</td>
<td>Tuesday, 1st</td>
<td>Networking : 5 to 5:30pm</td>
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<tr>
<td>April</td>
<td>Tuesday, 5th</td>
<td>Branch Presentation : 5:30 to 6:30pm</td>
</tr>
<tr>
<td>May</td>
<td><strong>Monday, 16th</strong></td>
<td>DURBAN BRANCH CHAIRMAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mr Brian Kannigadu</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E: <a href="mailto:brian@bmkconsulting.co.za">brian@bmkconsulting.co.za</a></td>
</tr>
<tr>
<td>June</td>
<td>Tuesday, 7th</td>
<td>BRANCH EVENTS/ADMIN</td>
</tr>
<tr>
<td>August</td>
<td>Tuesday, 2nd</td>
<td>Cindy Austen</td>
</tr>
<tr>
<td>September</td>
<td>Tuesday, 6th</td>
<td>E: <a href="mailto:cindy@saice.org.za">cindy@saice.org.za</a></td>
</tr>
<tr>
<td>October</td>
<td>Tuesday, 4th</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>Tuesday, 1st</td>
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## DURBAN BRANCH EVENTS 2016

The following dates have been scheduled for Branch Events & Courses:

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
<th>EVENT</th>
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<tbody>
<tr>
<td>May</td>
<td>16th</td>
<td>ASCE Presidential Visit</td>
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<tr>
<td>June</td>
<td>10th</td>
<td>Annual Branch Awards Banquet</td>
</tr>
<tr>
<td>August</td>
<td>4th</td>
<td>Annual Schools Bridge Building Competition</td>
</tr>
<tr>
<td>August</td>
<td>4th</td>
<td>Annual Careers Expo</td>
</tr>
<tr>
<td>September</td>
<td>6th to 7th</td>
<td>2016 SAICE Presidential Visit</td>
</tr>
<tr>
<td>November</td>
<td>4th</td>
<td>Annual Golf Day</td>
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### COURSES

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
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<tbody>
<tr>
<td>April</td>
<td>14th</td>
<td>Speechcraft Lecture Series</td>
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<tr>
<td>June</td>
<td>22nd</td>
<td>Reinforced Steel Structure Design</td>
</tr>
<tr>
<td>June</td>
<td>23rd</td>
<td>Reinforced Concrete Design</td>
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</tbody>
</table>

## PIETERMARITZBURG BRANCH EVENTS 2016

The following dates have tentatively been scheduled for Branch Events:

<table>
<thead>
<tr>
<th>MONTH</th>
<th>DATE</th>
<th>EVENT</th>
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<tbody>
<tr>
<td>April</td>
<td>23rd</td>
<td>Water Competition</td>
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<tr>
<td>June</td>
<td>18th</td>
<td>Annual Branch Awards Banquet</td>
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<tr>
<td>August</td>
<td>6th</td>
<td>Annual Schools Bridge Building Competition</td>
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<tr>
<td>August</td>
<td>31st</td>
<td>Annual Golf Day</td>
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<tr>
<td>Month</td>
<td>Topic</td>
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<tr>
<td>February 2014</td>
<td>Turbo Roundabout</td>
<td>SAICEtr14/01475/15</td>
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<tr>
<td>March 2014</td>
<td>Cyber Crime</td>
<td>SAICEotr14/1478/18</td>
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<tr>
<td>April 2014</td>
<td>Geosynthetics in pavements</td>
<td>SAICEotr14/01517/15</td>
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<tr>
<td>May 2014</td>
<td>Taking civil engineering to the remote &amp; marginalized areas</td>
<td>SAICEotr15/01515/15</td>
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<td>June 2014</td>
<td>Road rehabilitation the green way</td>
<td>SAICEotr15/01518/15</td>
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<td>August 2014</td>
<td>The Umhlangane Rover Bridge, Queen Nandi Drive Phase 4</td>
<td>SAICEstr14/01596/15</td>
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<td>September 2014</td>
<td>Method of analysis using composite geogrid</td>
<td>SAICEstr14/01595/15</td>
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<tr>
<td>October 2014</td>
<td>New construction regulations</td>
<td>SAICEotr14/01652/15</td>
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<tr>
<td>November 2014</td>
<td>Wills, Trusts and Estate planning</td>
<td>SAICEotr14/01653/15</td>
</tr>
<tr>
<td>February 2015</td>
<td>Confidential reporting on structural safety</td>
<td>SAICEtr15/01654/16</td>
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<tr>
<td>March 2015</td>
<td>eThekwini Municipality freight plan</td>
<td>SAICEtr15/01672/16</td>
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<tr>
<td>April 2015</td>
<td>Sea level rise—implications for civil engineers</td>
<td>SAICEwat15/01697/16</td>
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<td>May 2015</td>
<td>Dingleton Project—relocation of Dingleton in Northern Cape by Kumba Iron Ore</td>
<td>SAICEotr15/01710/16</td>
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<tr>
<td>June 2015</td>
<td>Construction challenges on SANRAL projects</td>
<td>SAICEotr15/01731/16</td>
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<td>August 2015</td>
<td>Presidential Visit—Malcolm Pautz</td>
<td>SAICEtr15/01819/16</td>
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<td>August 2015</td>
<td>The use of a Winter Seal on the MR165</td>
<td>SAICEtr15/01818/16</td>
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<tr>
<td>September 2015</td>
<td>Rehabilitation of Mooi River Irrigation</td>
<td>SAICEwat15/01825/16</td>
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<tr>
<td>October 2015</td>
<td>SAICE Project Management &amp; Construction Division</td>
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<tr>
<td>November 2015</td>
<td>Reflections on implementing IRPTN C3 Corridor</td>
<td>SAICEotr15/01861/16</td>
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<tr>
<td>February 2016</td>
<td>Obtaining environmental approvals and water use licenses</td>
<td>SAICEenvl6/01872/17</td>
</tr>
<tr>
<td>March 2016</td>
<td>The State of Durban’s water supply going into the future</td>
<td>SAICEwat16/01898/17</td>
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</table>
SERVICES:
INFRASTRUCTURE ASSET MANAGEMENT  |  TRANSPORTATION
| STORMWATER DESIGN & MANAGEMENT
CIVIL & STRUCTURAL ENGINEERING  |  HUMAN SETTLEMENTS
| WATER & SANITATION
| PROGRAMME & PROJECT MANAGEMENT

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