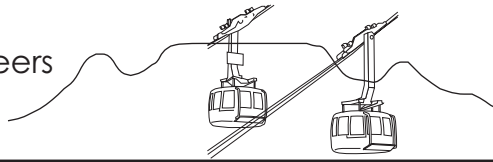


# WCB ENGINEERING BULLETIN

The Institution of Certificated  
Mechanical and Electrical Engineers  
Western Cape Branch (WCB)

P.O. Box 504, Rondebosch 7700



June 2002  
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MISSION STATEMENT: 1. To uphold the image & status of the Certified Engineer. 2. To represent the Certified Engineer at ECSA and other decision-making bodies concerning legislation, safety & health standards, the environment and machinery regulations. 3. To promote continued education & training of its members and future engineers. 4. Promote fellowship in the engineering profession

## Editorial

**The proposed Draft Construction Regulations under the OH&S Act makes an interesting read (See Safety Thought of the Day). It places a heavy duty on the “client” for whose benefit the construction work is being carried out. Here I would equate “client” with “employer” which lines him up with the “employer” of section 37 of the Act which embraces vicarious liability.**

**In that section the employer takes the rap for the irresponsibility of the employee, who may be seen as the servant of the master, and the master is responsible for the actions of the servant. In such a parable the architect or designer, engineer, contractor, and sub-contractor are the servants of the client who will be the end user of the building—the man who pays the piper calls the tune and the piper must pipe correctly—no false notes and no disharmony.**

**In the light of the event of a bridge and a building which collapsed in recent times it is understandable that the government should be concerned for the safety of its citizens. Why should the lives and fortunes of workers be at risk for the benefit of wealthy entrepreneurs who seek to enlarge their wealth? Construction work is dangerous work. The risk of instability, of being struck, of falling or being engulfed is always present. A miscalculation by a professional or a mistake by a technician could have serious effects.**

**Because of the expertise required in construction work, the Engineering Council of South Africa plays an important role in reducing the risk to public safety. By accrediting various categories of expertise ECSA is attempting to ensure that persons who have been trained to be competent are indeed competent. After ensuring competence the environment needs to be made safe. This is where the wealthy entrepreneur must be prepared to invest a significant amount of his money in safety equipment. And then there is the worker who actually does the work. He must know what he is supposed to do and know how to do it in a proper and safe manner. He is in the front line and exposed to real risks.**

**It is one thing to place a legal duty on a client, but if it is as exceptionally onerous as the proposed set of regulations appears to be, and expensive and complicated to carry out, then little will be**

## Local Branch News

Hello once again everybody.

Is there somebody out there? I sometimes ask myself this question, as we do not hear from our membership! Does this mean that we are doing things right or so badly that no one wants to comment? How about hearing from some of you out there. Please air your views.

In April we held a most interesting talk on Project Management given by one of our members who lectures on the subject at the Technikon. We had a fair attendance. The drinks and chat with fellow members and guests after the talk was very good.

On 30 May we held a most interesting talk on Holographic Non Destructive Testing by Professor Jason G of the Mechanical Engineering Department of UCT. This talk was exceptionally well attended!

The programme for the next few months is as follows (Please note that the subject and dates are subject to confirmation in the normal manner of Invitation):

- 18 June Talk on East Fort Gate Project by the Chairman of the Hout Bay & Llandudno Heritage Trust
- July Wind project talk – near Darling
- August Talk on Canal system at Waterfront & CBD

There is a discussion going on about the requirements for examination for the Competent Person for Testing of Boilers and Pressure Vessels. This discussion is being held via our Web site. Should you have a view on the current situation and the fact that a certificated Engineer has to undergo these examinations to be declared a Competent Person, please visit our web site and let us have your views. Should you not speak up, the status quo will remain the same! **SO PLEASE LET US HEAR YOUR VIEWS.**

Best regards to you all!

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*Continued on page 4*

# Safety Thought of the day

May 10, 2002

## Draft Construction Regulations

The long awaited Draft Construction Regulations were published for comments on 15 April 2002 in Government Gazette No. 23310.

The proposed regulations differs substantially from the current regulations pertaining to construction work in terms of the provisions of the OHS Act, 1993. The new proposed regulations is an attempt by the Department of Labour to place a responsibility on all parties involved in the construction process. The responsibilities start with the architect and ends with the end user of the building. The client or architect could be held liable if they required from the contractors to perform dangerous or unreasonable actions. By requiring the contractor to finish the work within an unreasonable timeframe could result in the client being held accountable for any accident caused by these unreasonable requests.

The proposed changes will bring about that:

1. All construction related regulations are grouped together and not scattered throughout the Act and regulations as per the current provisions; and
2. Specific duties are imposed on the designer or architect, client, and contractor,

Construction work is defined as the erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar engineering structure. The definition is very wide and would result in clients having to comply with certain duties even when alterations are made to an existing building. Although alterations to a building will normally not be regarded as reportable construction work, the client must still comply with the requirements imposed on him.

Clients are required to:

1. Provide the contractor with a document in which all the health and safety specifications of the proposed construction work is specified;
2. Appoint a principal contractor in writing;
3. Ensure that the principal contractor implement and maintain a health and safety programme on site. The client would be able to require of the contractor to do regular audits at intervals not exceeding three (3) months;
4. Stop the contractor when found that they don't work in accordance with their own health and safety programme.
5. Provide contractors with the necessary health and safety information when they are required to make changes to the original design. The client is also required to ensure that the contractor has the necessary resources to perform the work safely;
6. Ensure that the contractors is registered with COIDA; and
7. Ensure that the tenders submitted to him make provision for the cost of the health and safety measures necessary during the construction process. Contractors in turn are required to:

1. Develop and use a documented health and safety programme for every type of work performed on site;
2. Conduct a risk assessment prior to the commencement of the construction work; and
3. Ensure that all sub-contractors are instructed, informed and trained by a competent person on all the hazards, dangers and work procedures prior to the commencement of the work.

It is clear from above extracts from the regulations that if promulgated the client will have far more responsibilities than at present. To protect himself the client will have to ensure that the contractors work in accordance with acceptable health and safety standards. Failure to do this will mean that the responsibility will revert back to the client. The Gazette is available from the Government Printers or can be obtained from the Department of Labour's web site: [www.labour.gov.za](http://www.labour.gov.za). Comments should reach the Department of Labour before 15 July 2002.

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Apply Editor

## Kan dit waar wees!

Actual news excerpts from the African press!!!

The Cape Times (Cape Town):

"I have promised to keep his identity confidential," said Jack Maxim, spokesman for the Sandton Sun Hotel, Johannesburg. "But, I can confirm that he is no longer in our employment. We asked him to clean the lifts, and he spent four days on the job. When I asked him why, he replied, 'Well, there are forty of them, two on each floor, and sometimes some of them aren't there.' Eventually, we realised that he thought each floor had a different lift, and he'd cleaned the same two lifts twelve times. We had to let him go. It seemed best all round. I understand he is now working for Woolworths."

# Brickmaking fatality

Brickmaking on a small scale often occurs at the quarry where the clay is mined. The machinery is often of a crude construction and not properly guarded for various reasons which might include economy and indifference. This incident illustrates the dangers to which the employee is exposed in this type of industry.

On 16 October 1986 at about 14:00 an accident occurred in which a worker, whom we shall call Daniel, was killed, when a machine was set in motion by another employee, whom we shall call Henry, while Daniel was greasing large gear wheels.

The incident occurred on the panmill, which consists of two large, heavy rotating wheels which crush the lumps of clay used in the fabrication of bricks. The panmill is fed by a conveyor which carries the excavated lumps of clay.

Daniel, an employee of 15 years with the company (7 or 8 years minding the panmill), was responsible for the starting and stopping of the conveyor belt, while Henry, an employee of two years and who had been working with Daniel for about 4 months, was responsible for the panmill. The panmill grinds the clay fine. As a rule the panmill is started before the conveyor belt is set in motion, to prevent a pile up of material.

In addition to shovelling clay onto the conveyor belt Daniel also minded the conveyor belt, switching it off and on as necessary. Henry would clean up around the panmill and shovel fallen clay into the panmill.

On the day of the accident the whole line of machines was stopped for the purpose of carrying out a small repair on a vacuum pump. The work was done by the Manager Director. It is not clear if he was present at the scene at the moment of the event.

Greasing of machines is done either before or after a production run and only once a week either on a Friday after work or Monday before production begins. On this occasion while the process was halted Daniel took the opportunity to grease the gearwheel drive of the panmill.

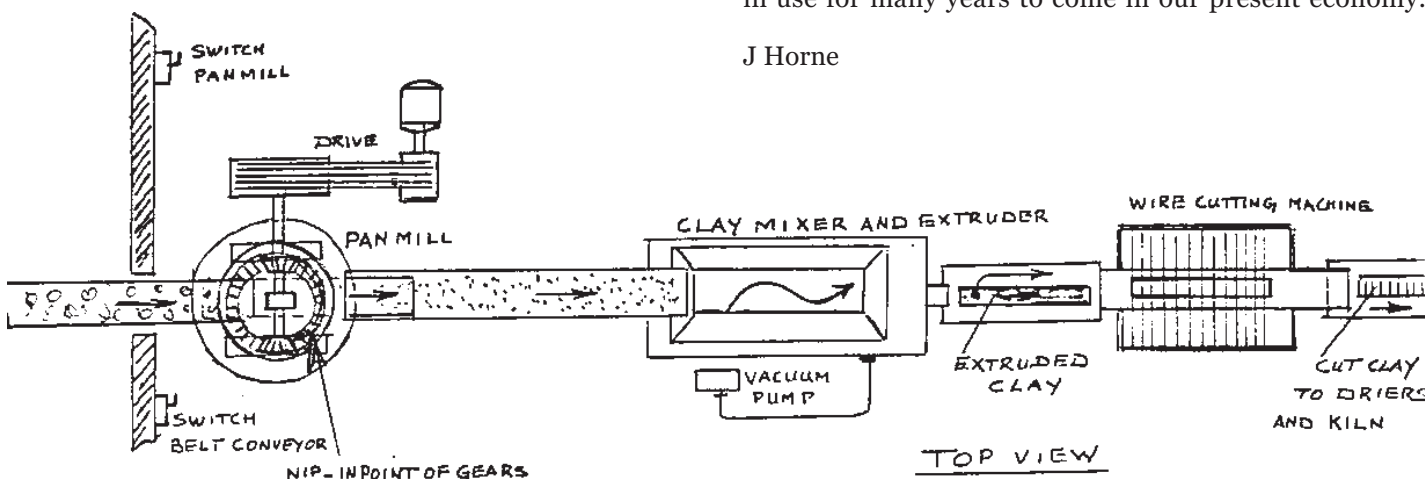
Thirty minutes after the stoppage Henry received a hand signal from the man at the mixer signifying that the panmill and conveyor were to be started. He started the panmill at its switch which was 8m away from the panmill and almost immediately he heard a shouted order from the man at the mixer to stop the machine, which he did. Daniel had been caught up in the gearwheel drive of the panmill.

Daniel was sitting on top of the gear wheel assembly at a height of 3,5m greasing the gears and was out of sight of Henry. He fell onto the gears and was crushed. He didn't have a chance.

## Comment:

1. The greasing of the panmill normally was done only before or after a production run, once a week on Friday afternoons or Monday mornings. Daniel, however, decided without consultation to grease while the machine was temporarily stopped.
2. Henry obeyed the signal as usually given by the man at the mixer. He could not see the panmill because of other obstructions. As an assistant he was probably unaware of his legal duty to ensure that no one could be endangered by his switching on a machine. The signal was effectively to him an order which had to be obeyed.
3. The duties of the two assistants were to clean around the machines when the machinery was stopped. Henry would clean the inside of the panmill and David would grease the gear wheel once a week. They were under orders and not expected to act on their own. Henry was authorised to switch the panmill and David was authorised to switch the conveyor when instructed to do so. The unauthorised action of David interrupted the normal procedure and this led to his death.
4. General Machinery Regulation 4(5) places a serious duty on a person starting a machine. It states: "Any person intending to set ..... machinery in motion.....shall take all reasonable precautionary measures in order to ensure that the safety of a person is not threatened.....". Only a person with a sense of responsibility should be permitted to perform this important function.
5. This incident illustrates the need for proper training of persons working with machinery, be it operation or maintenance. Modern machinery is well guarded but numerous old installations are still in existence and will be in use for many years to come in our present economy.

J Horne



# How do you plead: Guilty or not guilty?

**QUESTION:** Discuss and explain, in terms of South African Law and Management practice the following terms:  
(a) vicarious liability  
(b) diligens paterfamilias

**ANSWER:** (a) Generally the employer of a person may be sued for damages which results from acts and omissions committed by the employee, in the course of that employee's normal, intended employment. This is known as vicarious liability - the employer is made liable for the wrong committed by the employee. This is of particular importance in the law of delict.

Section 37 of the OHS Act states, in the "normal" course of events, that an employer, as represented by the chain of command, is held liable for the acts and omissions of the employees. Certain provisos are put in place to deal with an irregular or a course of events which is not "normal". Where acts or omissions have been committed without the knowledge or connivance of the employer or are outside the scope and authority of the allocated duties of the employee, the employer shall not be held liable for such acts or omissions on the part of an employee.

(b) "Diligens Paterfamilias" is Latin for "careful father" or "careful head of the family" and is the term used to describe the way the law expects people to behave towards one another. This expectation is tempered by the exigencies of the circumstances surrounding the event under court review.

Where a person is employed in an environment his education, training, knowledge and experience are those features which form the backdrop and yard-stick against which his actions and omissions are measured by the court. The prescriptions of Section 8 of the OHS Act are of great importance here.

The diligens paterfamilias recognises danger and the risk of danger and damage and takes reasonable steps to guard against that danger and the risk of damage, according to what can be reasonably expected in the light of his expertise. Failure to measure up to the diligens paterfamilias standard, set up by the court according to the details of the specific occurrence, implies that culpa, meaning guilt in the form of negligence, is present. Thus, in severe cases, conviction of culpable homicide, is entirely possible.

(Thanks to Ian Noble-Jack for the question and answer.)

*Continued from page 1*

**achieved. Who wants to be regulated? But if the regulations are what a reasonable man would be expected to do and if guidelines are provided to show the less informed how things should be done then a goodly result may be achieved. And what about law enforcement? I suggest that what we need is an inspectorate that can interpret the regulations and show how they can be practically applied or provide explanatory information. Not tot up the contraventions and drag the offender to court.**

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## PRESS RELEASE

issued by the Engineering Council of South Africa (ECSA)

14 February 2002

### **Pretoria engineer first person to be scrapped from ECSA professional register for misconduct**

For the first time in history, ECSA, the South African engineering watchdog, approved a recommendation by a Committee of Inquiry to disqualify a professional engineer permanently from registration due to gross misconduct. The full ECSA council at its meeting today (14 February 2002) confirmed this punishment imposed on Mr. Christiaan Hattingh. The cancellation of Hattingh's registration with ECSA followed an incident in October 1996 in Pretoria North when during construction, the 3rd floor of the Northpark Mall collapsed, killing four people and seriously injuring many more. The floor collapsed, in the process bringing down several of the lower levels as well.

Hattingh, the engineer who designed the Northpark Mall, has been found guilty of improper conduct by transgressing the Code of Professional Conduct prescribed for persons registered with ECSA. The severity of Hattingh's misdemeanor was aggravated by a previous conviction involving similar conduct on his part. The committee of inquiry recommended the severest sentence (permanent disqualification from registration) because it considered Hattingh's conduct to be the worst that ECSA ever had to deal with.

The Committee of Inquiry, consisting of former Judge President Frikkie Eloff (Chair) and two senior professional engineers, found that one or more of the engineer's deficient construction techniques and in particular his failure to exercise proper supervision and to maintain records, contributed to the collapse. In his judgement, Eloff said Hattingh neglected to make comprehensive and proper calculations. The Committee rejected Hattingh's defence that the collapse was due to substandard concrete delivered to him.

Mr. A.M. McKay, another professional engineer who was subsequently commissioned to complete the Northpark Mall, testified that Hattingh's calculations were of no help to him and that he had to recalculate the structure from scratch. His calculations ended up filling three files compared to Hattingh's that comprised only four and a half pages of hand-written calculations.

More background on this case can be viewed on ECSA's Website: [www.ecsa.co.za](http://www.ecsa.co.za)