

Contraventions of ECSA's Rules of Conduct over the last ten years:

# Has there been any change in professional conduct?

## SYNOPSIS

The Engineering Council of South Africa's (ECSA) Rules of Conduct for registered persons in the engineering profession govern professional conduct and protect public interests. Contravention of these rules, which could involve a lowering of professional standards and increased public risk, must be investigated and acted upon by ECSA. This article reflects on transgressions of ECSA rules over the past decade and identifies perceived trends. It provides insight into how professional engineering conduct has developed or declined during the period under review and provides some significant portents for the future.

## INTRODUCTION

ECSA is a statutory body established in terms of the Engineering Profession Act 2000 (Act No 46 of 2000) (ECSA 2000). ECSA's predecessor was established by the Engineering Profession of South Africa Act 1990 (Act 114 of 1990).

ECSA promotes the interests of the profession, but always in the context of upholding public safety and health, and environmental regulations. This is done, *inter alia*, by prescribing Rules of Conduct for Registered Persons (Board Notice 256 of 2013 which was preceded by Board Notice 15 of 2006). It includes a code of professional conduct and codes of practice, which are enforced through an investigating committee and a disciplinary tribunal. ECSA investigates complaints from various sources about registered professionals, including engineers, technologists and technicians (hereafter referred to as the "registered person"). These complaints are submitted in the form of an affidavit, and ECSA initiates investigations if *prima facie* evidence exists that the Rules of Conduct have been transgressed.

Board Notice 106 of 1997 outlined a method of inquiry in alleged improper conduct. Prior to 2006 complaints against registered persons were limited and only tended to be investigated if the complaint had attracted the public's attention.

There was a spike in the complaints received by ECSA in 2004, 14 of which were lodged against a single regis-

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tered person. Nine of them were lodged by the National Homebuilders Registration Council (NHBRC). Complaints increased in the aftermath of South Africa's economic growth in the early 2000s, and a manager of legal services was appointed by ECSA, who, together with a committee member, proactively screen all complaints.

## THE RULES OF CONDUCT – WHAT ARE THEY?

ECSA's Rules of Conduct are statutory. They consist of a comprehensive set of "Do's" and "Don'ts" which the registered person must obey to ensure that his/her conduct meets the standards set for the engineering profession itself, and to ensure that public health, safety and the environment are incorporated in the execution of engineering work. The Rules of Conduct are revised from time to time and any amendments are published regularly in the Government Gazette. There are 34 rules, 25 ethical and nine administrative, and they are listed under Sections and

Subsections which are self-explanatory. These are: ETHICS (Competency, Integrity, Public Interest, Environment, Dignity of the Profession) and ADMINISTRATIVE.

When investigating complaints, ECSA's investigating committee must establish whether *prima facie* evidence exists as to whether one or more rules have been transgressed by the registered person. This does not always require a formal complaint. In the event of an engineering mishap, such as an accident or the collapse of a structure, ECSA will conduct the investigation itself. If there has been injury or loss of life, the investigation must be done in collaboration with the Department of Labour.

The author has served as a member on ECSA's Investigation Committee since 2004, and in his personal capacity gives a generic overview of the nature of complaints received over this period. Statistics to augment existing ECSA case studies, which are published from time to time, are cited. All complaints received are considered, and many are removed where no *prima facie* evidence exists.

## PAST INVESTIGATIONS – SOME HIGH PROFILE EXAMPLES

One of the first building collapses occurred in 1996 when the third floor of the North Park Mall in Pretoria North collapsed during construction. It resulted in the death of three people, and the engineer (registered person) was later disqualified from membership of ECSA.



Photograph 1: The collapsed warehouse roof in Midrand



Photograph 2: The collapsed Injaka Bridge in Mpumalanga

In November 2001, a roof in the southwest wing of Pretoria's Brooklyn Mall collapsed, resulting in the then Pretoria City Council closing a section of the mall. In December of the same year another roof collapsed at the Kolonnade shopping centre in Pretoria, trapping fifty people (ECSA case study 2012-4 refers).

Some other earlier complaints investigated by ECSA included a 16 000 m<sup>2</sup> warehouse roof that collapsed in Midrand in 2001. Although no one was injured, the author understands that this event resulted in South Africa's largest civil law suit, albeit with very little attendant publicity. A portion of the collapsed structural steel superstructure is shown in Photograph 1. Other types of structures that failed include bridges, such as the Injaka Bridge in Mpumalanga, which collapsed while under construction in 1998, killing 14 people. Photograph 2 shows the bridge after the collapse. In 2003 the Coega Bridge in the Eastern Cape collapsed, killing two workers and injuring 20 others. A similar incident occurred in 2004 at the Cleveland Interchange Bridge in Johannesburg.

The Strijdom Square in Pretoria collapsed on 31 May 2001, once again with little ensuing publicity. The sculptured head of the ex-prime minister, as well as a pre-stressed post-tensioned superstructure plunged through the suspended reinforced concrete slab into the underground parking basement.

During the late afternoon of 1 September 2004, a newly constructed segment of the southern parking deck at the Centurion shopping centre (Centurion Mall) collapsed, killing one person.

The Wits Technikon Great Hall roof collapsed in November 2004. Again the event went largely unnoticed. Fortunately the collapse took place over a weekend and there were no injuries.

A billboard erected on the roof of the Marble Towers, a 33-storey building in Johannesburg, collapsed during the evening of 4 October 2005. The erection of the sign as well as its design were found to be not fit-for-purpose. The only reason this collapse went seemingly unnoticed was that the sign collapsed inwards onto the roof and not onto the busy street below.

What was publicised was the collapse of a precast concrete slab in Glenhazel, Johannesburg on 7 November 2005. A supporting masonry pier collapsed crushing a labourer to death. Although a registered person was appointed to work on the project, construction proceeded without his knowledge. The Boom Street slab collapse in Pretoria on 16 July 2006 was similar to the Glenhazel collapse. In this instance a concentrated beam load caused the bearing failure of a supporting reinforced masonry column which had been cast a day earlier.

## INVESTIGATIONS OF COMPLAINTS OVER THE PAST TEN YEARS

### Introduction

The author has identified seven generic categories of transgression and discusses the complaints in this context. Some of them involve more than one registered person. All complaints received are on record and are incorporated in the statistics. They include complaints where unregistered persons are on record, and dismissed cases where no *prima facie* evidence existed. Complaints relating to the impersonation of registered persons and the activities of unregistered persons fall outside ECSA's jurisdiction, and criminal charges can be laid with the police.

### Categories of transgressions

Complaints lodged with ECSA are varied and are not easy to categorise. Based on the nature and frequency of the complaints the categories identified only involved three engineering disciplines, i.e. civil, mechanical and electrical, as well as the specialised categories found under the civil engineering categories of a structural and geotechnical nature. The other categories identified reflect, *inter alia*, the frequency of transgressions. The generic categories used by the author in no specific order are:

- **Civil:** Complaints relating to township services, flood lines and trench collapses.
  - **Structural:** Complaints of a structural nature or with a structural engineering bias.
  - **Geotechnical:** Complaints of a geotechnical nature, i.e. subsidence, inadequate geotechnical investigations and concrete block retaining (CBR) walls. Some geotechnical and structural complaints received are interdependent, especially in cases where the origin of the contravention is not clearly defined.
- **Mechanical:** Complaints of a mechanical nature.
- **Electrical:** Complaints of an electrical nature (there is a grey area between electrical and mechanical engineering work on fire protection, pumping systems and fire rational designs), and complaints against the specified categories of registered lift and lifting machinery. Inspectors are not included in this category, but are reflected in the statistics.

Under the subsection of Integrity of the Section Ethics of the Rules the author has apportioned the contraventions under the following headings:

- **Fees:** Complaints regarding exorbitant fees, bogus payments, cost overruns and of a commercial nature.
- **Certification:** Complaints relating to the standard and quality of engineering work, withdrawal of certificates, drive-by inspections, certification of incomplete or substandard work and the issuance of blank completion certificates.
- **Reporting:** Complaints relating to gaining an unfair advantage, false reporting and the issuance of incorrect payment certificates.
- **Improper conduct:** Complaints relating to disputes between registered persons or parties, slanderous statements, moonlighting, non-issuance of information, unfair labour practices, the review of someone else's work, endorsing another's work and misrepresenting the category of registration.

### Complaints received by ECSA in 2006

During this period 126 complaints were received. In one instance a single complaint identified several structural defects in proprietary timber roof structures at the same complex. Of the remaining 111 categorised cases, three related to mechanical engineering and one to an electrical engineering matter. The other cases are discussed under the categories of transgressions listed. Twelve notable collapses or failures took place during 2006, due either to structural or geotechnical reasons.

### Structural

Fifty structural cases were investigated, making up the majority of the complaints, i.e. 45%. These cases covered buildings, structures and bridges which were not fit-for-purpose, and some of them were caused by geotechnical oversights.



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One bridge failure is on record, i.e. the Cleveland Interchange Bridge. Building and structural complaints included structural failures and serviceability considerations, such as cracking (both superficial and structural) and excessive deflection of suspended reinforced concrete slabs. Other than two structural steel roof failures and five freestanding masonry boundary wall collapses, other failures involved suspended reinforced concrete slabs and timber roof structures. Proprietary precast rib and block (also referred to as lintel and block) slab systems, precast concrete slab systems and proprietary nail-plate timber trusses comprised the remainder.

- A number of rib-and-block suspended reinforced concrete slab systems were constructed without any supervision or engineering input. The importance of shear transfer between the rib (lintel) and the concrete to facilitate composite action of the slab, appears to be not well understood by registered persons and slab contractors alike. Moreover, poor concrete compaction also seems to contribute to these slab failures.
- There is a belief among some registered persons specialising in the design and supply of suspended reinforced concrete floor slabs (cast in situ, rib-and-block and precast) that contractual and professional responsibilities can be limited to the provision of the slab only, in total disregard of the overall stability of the structural system. This erroneous belief has led to the collapse of masonry walls and columns at bearing interface failures when subjected to concentrated loads at beam supports. It is evident that there is a lack of understanding of the structural and material behaviour of brittle, unreinforced load-bearing masonry walls and columns which are subjected to concentrated loads.
- The behaviour of composite multiple-ply large-span proprietary timber nail-plate roof girders designed and erected some 10–15 years ago have only recently been understood in the aftermath of excessive roof deflections.

**Geotechnical**

Ten geotechnical matters, constituting 9% of the complaints were investigated. The majority of these complaints related to foundation movement (subsidence), and resulted in superstructure cracks. The one noteworthy complaint related to 20 demolished dwelling units that were built in a rehabilitated quarry in Randburg.

**Fee-related**

Six fee-related matters, constituting 5% of the complaints were investigated. ECSA refrains from getting involved in contractual disputes. Cost overruns, the disappearance of the incumbent registered persons after payment has been received, fraudulent transactions and disgruntled NHBRC-enrolled home owners, constitute the complaints in this category.

**Completion certificates**

There were 21 cases which deal with the issuance of the National Building Regulations' A-19 engineering completion certificates, constituting 19% of the complaints.

The majority of these complaints relate to the issuance of an engineer's completion certificate prior to completion of a structure, or the issuance of a blank completion certificate. Other cases included withholding a certificate and the issuance of a certificate by unregistered persons. There was one instance where a certificate was withdrawn after being issued.

It appears as if some registered persons are oblivious of the moral and ethical foundation of their vocation and profession, and do not give sufficient weight to the public's safety, health and welfare. There were cases of signing off someone else's engineering work without compiling any drawings or conducting supporting calculations. Signing off proprietary nail-plate engineered timber roof structures (which were supposedly earmarked for persons registered with timber-roof industry monitoring bodies) by other registered persons has also resulted in a fair number of complaints.

**Reporting**

Eight reporting cases, constituting 7% of the complaints, are on record. They are varied and mostly revolve around NHBRC matters, inaccurate or questionable reporting and legal matters.

**Civil**

There are four cases, here constituting 4% of the complaints. Although varied, they mainly cover poor civil reticulation services and infrastructure, i.e. water provision and road deterioration.

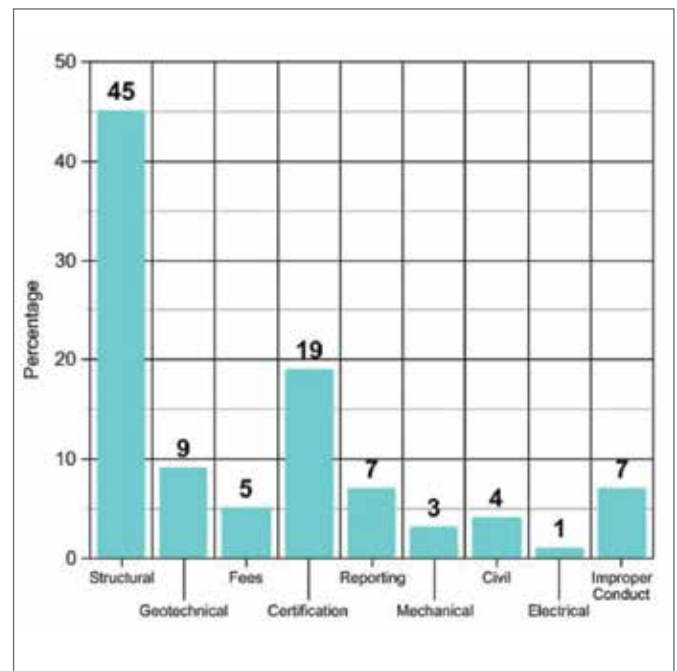


Figure 1: Weighting of complaint categories for 2006



Photograph 3: The masonry billboard prior to its collapse

**Improper conduct**

As outlined previously in this category, complaints cut across all engineering disciplines and comprise eight (7%) of the reported cases for this period.

The histogram depicted in Figure 1 indicates the weighting of the complaints in each category.

**Complaints received by ECSA in 2007**

During this period 103 complaints were lodged with ECSA, and these are similar to the varied nature of the complaints received during 2006. By contrast, though, not a single complaint relating to mechanical and electrical engineering matters was received in 2007. The complaints are summarised as follows:

**Structural**

Of the complaints 41% were of a structural nature, and related to buildings or building structures, and bar two bridge complaints, one bridge having been washed away. There were two collapsed buildings, while other complaints included defective masonry walls, timber roof structures and the collapse of a structural steel overhead gantry beam. Suspended reinforced concrete slab problems totalled two.

- A large masonry billboard close to the N1 highway in the Pierre van Ryneveld suburb of Pretoria caused a spectacular failure when it fell onto the building below causing R2,0 m of structural damage. The reinforced concrete structure was 21 m long x 6,4 m high, with a 220 mm thick masonry infill panel towering over a 6 m high building. Without commenting on the structural fitness-for-purpose of the masonry advertising board the failure of the structure was attributed to incorrect anchorage lengths of reinforcing bars. The extent of the advertising board on a very exposed site prior to the collapse is shown in Photograph 3.
- One complaint covered un-triangulated and unbraced roof trusses.

**Geotechnical**

Of the complaints 15% were geotechnically based and were of a similar nature to those in 2006. The failure (or total collapse) of concrete block retaining (CBR) walls located in coastal areas increased; these failures were attributed to the saturation of the backfill and the development of phreatic surfaces behind walls. It would appear that the theory of soil pressure distribution behind CBR walls is not well understood. An unauthorised raising of a CBR wall was also reported.

**Fee-related**

These constituted 6% of the complaints, with over-charging being prominent.

**Completion certificates**

At 13% of the total these complaints mostly covered the structural endorsement of unsatisfactory work and the refusal to issue completion certificates.

**Reporting**

These complaints constituted 6% of all complaints. They were varied, but failure to provide timeous feedback was the main concern.

**Civil**

Also at 6%, the main focus of these complaints was poor quality civil engineering services.



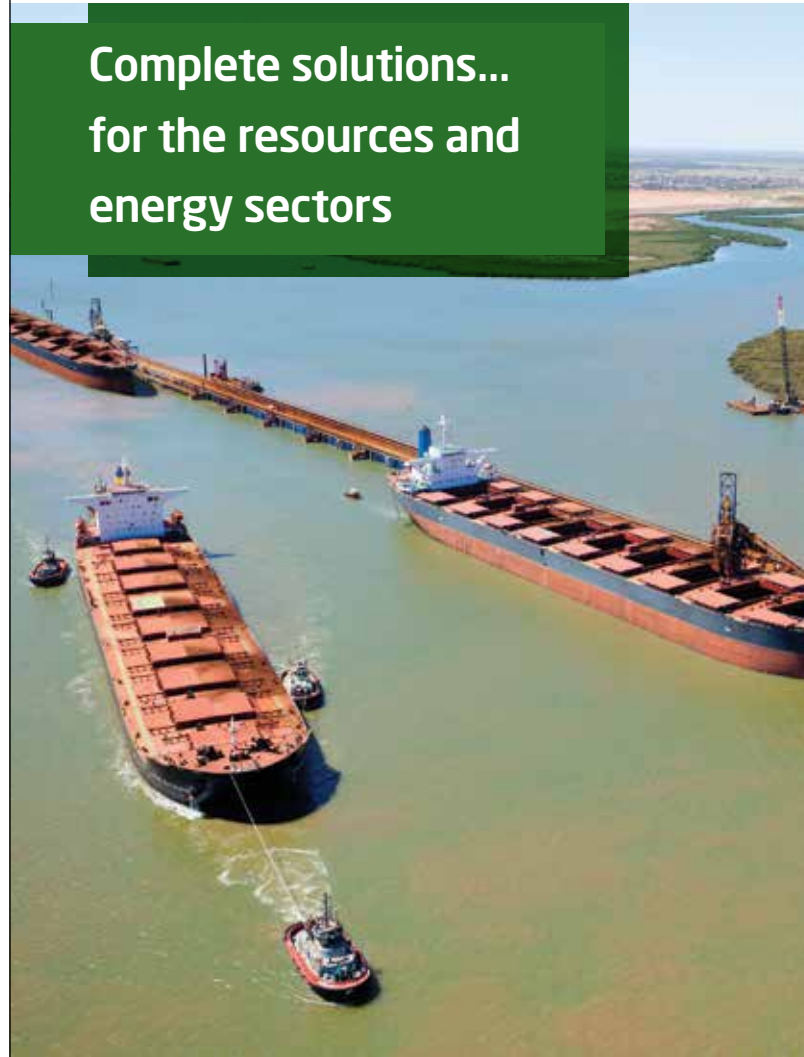
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### Complaints received by ECSA in 2008

Complaints during this period dropped to 44. One registered person was investigated for several transgressions. There were two mechanical engineering complaints, neither of which involved electrical engineering. The majority (34%) covered structural failures in which ten fatalities and many injuries were recorded. There was an increase in complaints relating to professional misconduct (25%) and there was a noteworthy increase in complaints relating to and failures of CBR walls.

#### Structural

In January three people were killed when a masonry parapet wall collapsed at a shopping mall in the East Rand. In June five people were killed and 12 injured during the renovation of an old cellar in Stellenbosch, due to the collapse of some falsework. During July a building under construction collapsed in Silver Lakes, Pretoria due to inadequate falsework; 12 people were trapped under the collapsed building, but there were no fatalities. The collapse of a three-storey building under construction in Little Falls, Roodepoort, on 16 October killed two workers and injured 14 others. Case study 2012-1 (“The consequences of the collapse of a portion of a three-storey office block”) summarises lessons to be learnt, and lists contraventions of the ECSA Rules of Conduct. It resulted in the cancellation of ECSA membership.

#### Geotechnical

These were similar to previous years and constituted 14% of the complaints received. In November, the Johannesburg Municipality issued an interdict for the demolition of a three-storey dwelling built against a steep hill in Quellerina. One corner of the dwelling was founded on five metres of un-compacted fill which was retained by an illegally built unreinforced masonry retaining wall. Photograph 4 shows the extent of the damage to the dwelling. The suspended reinforced concrete floor slabs were designed by a registered person, but no one was responsible for the overall stability of the dwelling due to a fragmented engineering appointment.

#### Fee-related

Three complaints were received, with overcharging being the main problem.



Photograph 4: Part of the north façade of a three-storey dwelling

### Completion certificates

Three complaints were received, the main problem being the certification of poorly erected timber roof structures.

#### Reporting

One complaint was received.

#### Civil

Three cases are on record. A complaint worth mentioning was one lodged against registered persons employed in the storm-water department of a local authority. They were allegedly ill-advised when implementing stormwater management by-laws.

#### Improper conduct

These complaints constituted 25% of the total and are similar to those of previous years. The only noteworthy complaint came from a developer who requested that the registered person submit a professional indemnity insurance claim for lost income when the project was not completed on time.

### Complaints received by ECSA in 2009

For this period 32 complaints were received. Structural engineering complaints totalled 31%, the most notable concerning a shopping mall in Pretoria East when a corner of the building collapsed, causing a fatality during falsework removal. Two ECSA case studies emanated from this year:

- Case study 2012-2: “The Design flaws leading to demolition of a reinforced concrete flat slab.” An experienced practical construction engineer unwittingly got involved in the design side of a complex structure and was found theoretically wanting.
- Case Study 2012-3: “Inadequate design and shoddy monitoring led to the collapse of a staircase.” Inexperience may well have been the underlying cause of this mishap.

Geotechnical engineering constituted 19% of the complaints, with CBR walling bearing the brunt of the objections. Fee-related complaints comprised 3% and certification of poor quality work, roof and geotechnical endorsements 9%. No complaints were received on reporting. Mechanical and electrical engineering-related complaints, however, totalled 16%, the bulk relating to fire regulation transgressions. Civil engineering-related complaints totalled one and involved the collapse of a pipe trench, causing a fatality. Three complaints were received for improper conduct.

### Complaints received by ECSA in 2010

Fifty complaints were received for this period. Structural engineering objections totalled 39% and included an increase in unsupervised suspended reinforced concrete slab collapses. Geotechnical engineering complaints, which included one CBR wall objection, constituted 11% and resulted from insufficient or no geotechnical investigations. Two trench collapses are on record and complaints relating to roof certification showed an increase. Biased and late reporting increased, and the first environmental engineering-related matter was investigated this year. Complaints relating to improper conduct increased to 21%, and inadequate site inspections also increased. One complaint involved the use of another person’s registration number. And the first money-laundering objection occurred during this period.

A landmark article by the NHBRC’s executive director in the October 2010 edition of *Civil Engineering*, titled “NHBRC calls for tough disciplinary measures against incompetent and neg-

ligent engineers”, claimed that “site inspections and experience on rectification of houses revealed several situations in which unacceptable construction quality, which affected the structural integrity of houses, was apparent. In some of the cases, the problems were due to poor workmanship. However, in a substantial number of cases the problems arose through poor engineering solutions or inadequate site supervision by the engineer”. The article furthermore suggested that “registered persons in other disciplines (e.g. electrical, mechanical, etc) sign off as the competent persons for geotechnical engineering matters”.

The author places on record that statistics in ECSA’s possession do not support these accusations. The NHBRC has only lodged one complaint against a registered person. It occurred in 2004 and involved multiple transgressions.

#### Complaints received by ECSA in 2011

During this period 56 complaints were received, with structural engineering accounting for 41% of the total. There was an increase in retaining wall collapses, the majority arising from reinforced concrete slab projects. Of particular concern were the problems experienced with the excessive deflection of suspended reinforced concrete slabs. Geotechnical engineering complaints constituted 11%, with two of the complaints alluding to the absence of geotechnical reports. There was one CBR wall complaint. Objections relating to certification comprised 9%, and those relating to improper conduct, such as slander, tarnishing others and misrepresentation, increased to 19%. There were no complaints of a mechanical or electrical engineering nature during this period.

#### Complaints received by ECSA in 2012

During this period 37 objections were received. Complaints of a structural engineering nature totalled 47% and there was an increase in masonry-related complaints, i.e. collapses of load-bearing and free-standing boundary walls. In one instance an embankment was washed away, causing damage to a culvert and resulting in 14 fatalities. In another, a woman died and several other concert-goers were injured after temporary scaffolding collapsed during high winds outside the Cape Town Green Point Stadium.

Geotechnical engineering complaints decreased to 3%. Complaints relating to fees, certification and reporting each constituted 8%. Civil engineering complaints involving transportation and the establishment of flood lines comprised 5%. Improper conduct involving misrepresentation, and an agricultural engineer doing work of a structural nature, constituted 22%. Not a single electrical or mechanical engineering complaint is on record for this period.

Case Study 2012-5 emanated during this period. It summarises a complaint involving a registered person who was in breach of contract by shielding the developer and not discharging his duties with integrity.

#### Complaints received by ECSA in 2013

During this year 45 complaints were received. Structural engineering totalled 24%, with free-standing masonry walls (boundary and retaining walls) being in the majority. Two structural steel superstructures collapsed and a temporary demountable scaffold structure blew over at the V&A Waterfront in Cape Town, injuring two people.

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The Tongaat Mall collapse was well publicised and one fatality is on record. Geotechnical engineering complaints constituted 9%, with inadequate geotechnical reports forming the bulk of these complaints. In one instance two neighbouring dwellings subsided in a rehabilitated quarry in Boksburg. Objections relating to reporting, fees and certification totalled 15%, the bulk concerning the withdrawal of completion certificates. Complaints relating to improper conduct increased to 42%, the majority pertaining to misrepresentation, conflict of interest and project cost overruns. There were no complaints of a mechanical nature, but civil and electrical objections comprised 4% each.

#### Complaints received by ECSA in 2014

Thirty complaints were received up until October 2014. Complaints of a structural engineering nature totalled 27% and included the collapse of a suspended timber floor in an office causing injury to 80 employees. Other complaints were varied, but were related to disgruntled NHBRC home owners who, in desperation, turned to ECSA. Complaints relating to improper conduct increased to 43% and were in similar vein to those in 2013. There was one complaint on tender rigging, one on the misappropriation of funds, and one where evidence used in an arbitration was based on hearsay. Another involved a professional engineering technologist who usurped the title of professional engineer, and another where a candidate engineer was placed on the NHBRC consultancy roll and was misrepresented as a registered person. In one case the majority of the incumbents were not suitably qualified for the work undertaken. Certification and civil engineering-related complaints were similar to previous years and comprised 7% and 10% respectively. All other categories accounted for 3% each, and there were no complaints relating to electrical engineering matters.

The Meyersdal slab collapse on 18 August received widespread news coverage when seven construction workers were killed and eight injured. This investigation is still *sub judice*.

#### SUMMING UP

All the complaints lodged with ECSA have been reflected in this article. Many of the complaints were vexatious, frivolous and commercially motivated, and were dismissed in the absence of sufficient evidence. Some complainants attempted to seek free legal advice. Complaints against deceased persons also occurred and some of the complaints included more than one respondent. In some instances, where there is an absence of conclusive evidence, ECSA issues a cautionary letter or arranges for peer counselling.

With regard to ECSA's registration categories, 70% of the complaints received were directed to professional engineers in all engineering categories, 22% went to professional engineering technologists, and 2% to candidate engineers and candidate engineering technologists. Six percent were allocated to the specified categories of registered lift and lifting machinery inspectors.

With regard to ECSA's nine engineering disciplines (aeronautical, agricultural, chemical, civil [including structural], electrical, industrial, mechanical, metallurgical, mining) the vast majority of complaints received arose from structural engineering projects, or construction and allied infrastructure. This merits a more detailed analysis as given below:

- Structural oversights – by rogue engineers who come up with structural solutions with very little or no engineering rationale, and who are very often seduced by the outcome of proprietary engineering software.



- Proprietary rib-and-block reinforced concrete suspended slabs are often erected without any structural engineering input and with very little understanding of the importance of horizontal shear transfer between the rib and freshly placed concrete to facilitate composite action. This applies to both the contractor and the registered person (structural engineer).
- Many registered persons have scant regard for the morality and ethics of the profession and seem to act with impunity until confronted by ECSA. Although there are only two cases on record where certification took place outside the engineering registration discipline, there are many where unsuitably qualified registered persons sign off work.
- Structural limitations of masonry walls (freestanding, retaining and partition) are often not identified by the architect or structural engineer. This is in contravention of the deem-to-satisfy rules of the National Building Regulations, very often not understood by structural engineers.
- CBR walls are often identified as the most cost-effective retaining wall solution, based on sensitive adjustments to material parameters and drainage provisions which are not achieved during construction.
- Falsework collapses have become commonplace during construction. Registered persons involved in design and inspection of suspended reinforced concrete slabs in whatever form should insist on the certification of the falsework by another competent person (if not part of their duties), as outlined in the Construction Regulations of the Occupational Health and Safety Act (OhsAct)
- All trench collapses on record did not involve registered persons. Fatalities would have been circumvented if the requirements in the OhsAct had been enforced, i.e. if shoring or bracing requirements had been identified by a competent person.
- It is surprising how many registered persons engage with clients in the absence of a written contract and without an indication of fees; many complaints only arise during a dispute between the registered person and the client.
- Complaints originating from disgruntled NHBRC home owners often result in the registered person being reported to ECSA in an attempt to redress the home builder's defective work. In some instances the incumbent engineer appointed for plan approval

is supplanted by the NHBRC's home builder. This often results in fragmented appointments where no one takes responsibility for the overall stability of the structure as required in SANS 10400-A, The South African National Standard for the application of the NBR, Part A: General Principles.

- A performance specification for structural concrete (pumped concrete mixes) in the absence of a durability specification often results in a high paste matrix concrete causing excessive long-term creep deflection of suspended reinforced concrete slabs and concomitant damage to finishes.
- To date there has only been one complaint involving a pole-constructed thatch roof structure. As in cases where professional indemnity insurance claims settle such disputes, these complaints escape the attention of ECSA and often are indicative of the extent to which pole-constructed roof structures are erected illegally.
- To date there has not been a single complaint received pertaining to services and structures on dolomite land.

### HAVE THINGS CHANGED OVER THE YEARS?

It is evident from the statistics that the number of complaints received by ECSA has decreased with the recent economic downturn. Based on the premise that there has been a reduction of unrealistic fast-track construction timeframes, one can infer that complaints under the Competency subsection of the Rules of Conduct have decreased and will continue to decrease. The belief that young and inexperienced registered persons are the main culprits is a fallacy, since the statistics clearly implicate older, experienced, registered persons as the main offenders. Based on the premise that the level of training of registered persons remains on par with that of the past, it is logical to assume that the level of professional misconduct should decrease for this subsection.

Figure 2 reflects the declining trend in structural complaints over the last five years, from 47% in 2012 to 27% in 2014. By contrast there was an increase in improper conduct rising to 43% for the same period. This indicates a potential future shift towards compromising the subsections on integrity and dignity of the Rules of Conduct.

Despite the legislation governing registered professionals (ECSA 2000) and the plethora of complaints received by ECSA over the last ten years, there are only two registration cancellations of professional persons on record. This poses the question as to whether any additional legislation such as the "Identification of Engineering Work" to further regulate the engineering profession would be of any benefit. The author thinks not. The question as to whether there has been any change in professional conduct should not only be gauged against the negative improper conduct trend shown in Figure 2, but should be evaluated against the (what the author perceives to be) cavalier approach to accountability of South Africans in key decision-making positions. Perhaps the time has come for the profession to self-regulate and move away from government intervention. This would result in a cost saving for all, and would prevent the unnecessary revisiting of engineering curricula.

ECSA is now embarking on further case studies, called practice notes, with future perceived portents based on the recent complaints received. Future practical notes will *inter alia* cover seismic activity.

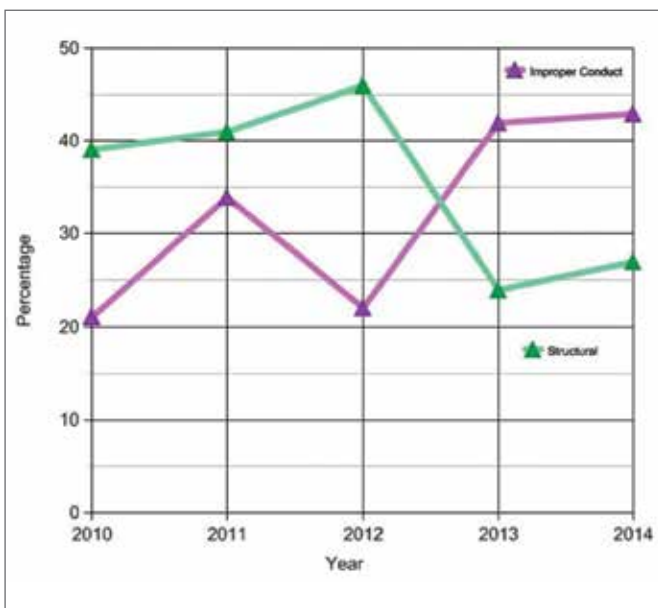


Figure 2: The trend for structural and improper conduct complaints received over the past five years

### REFERENCE

www.ecsa.co.za □