



ENSURING THE EXPERTISE TO GROW SOUTH AFRICA

Overarching Code of Practice for the Performance of Engineering Work

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BOARD NOTICE ... OF 20...

ENGINEERING COUNCIL OF SOUTH AFRICA

Overarching Code of Practice for the Performance of Engineering Work


Engineering Profession Act, 2000

(Act 46 of 2000)

In terms of Section 27 of the Engineering Profession Act, 46 of 2000, the Engineering Council of South Africa makes known the Overarching Code of Practice for the Performance of Engineering Work in the Schedule.

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SCHEDULE

DEFINITIONS

Act means the Engineering Profession Act, 46 of 2000 “as revised”.

Appointment means a formal appointment of a practitioner by an employer or client to undertake and/or oversee and approve engineering work.

CBE means the Council for the Built Environment established by Section 2 of the Council for the Built Environment Act, 43 of 2000.

Code of Conduct means the Code of Conduct for Registered Persons: Engineering Profession Act, 46 of 2000, Board Notice 41 of 2017 – Government Gazette 142 No. 40691.

Competency means a combination of knowledge, training, experience and applicable qualifications that enables an individual to perform a task or an activity successfully.

Competent Person means a person who has the required knowledge, training, experience and, where applicable, qualifications, specific to the work or task being performed; provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 67 of 2008, those qualifications and that training are regarded as the required qualifications

Council means the Engineering Council of South Africa established by Section 2 of the Act.


Discipline means the disciplines of engineering as recognised by the Engineering Council of South Africa.

ECSA means the Engineering Council of South Africa established by Section 2 of the Act.

Engineering Work means the process of applying engineering and scientific principles, concepts, contextual and engineering knowledge to the research, planning, design, implementation, maintenance and management of work in the natural and built environments. It includes advisory services, assessment of engineering designs and determination of the risks posed by the design on workers, the public, and environment.

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Information means engineering documents and data produced or relied on in the performance of engineering work that form a material part of the project records, among others design calculations, drawings, contract agreements, minutes of meetings and reports, whether in electronic format or otherwise.

Practice means any engineering professional service, advisory service or creative work requiring engineering education, training and experience and the application of special knowledge of the mathematical, physical and engineering sciences, or creative work such as consultation, research, investigation, evaluation, planning, surveying, risk assessment and design, in connection with any public or private utility, structure, building, machine, equipment, process, work or project.

Practitioner (or engineering practitioner) means a person who performs engineering work or provides advisory services relating to engineering work. It includes both registered persons and unregistered persons.

Profession means Engineering Profession.

Professional Registration Category means a professional registration category as specified under Section 18(1) (a)–(c) of the Act, including Professional Engineer, Professional Engineering Technologist, Professional Certificated Engineer, Professional Engineering Technician, Candidate and Specified Category Practitioner.


Registered Person means a person registered under a category referred to in Section 18 of the Act.

Unregistered Person means any person undertaking engineering work who is not registered in terms of the Act. This does not include persons registered by other statutory bodies and are part of teams undertaking engineering work.

Works (or engineering works) means a process, structure, component, machine or similar that is carried out, constructed, erected, demolished, manufactured or maintained within the natural or built environment, typically in conformance with an engineering design.

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1. INTRODUCTION

In terms of Section 27(1) of the Act, the Council must draw up a Code of Conduct for Registered Persons and may draw up a Code of Practice in consultation with the Council for the Built Environment, Voluntary Associations and registered persons. The Council is also responsible for administering the Code of Conduct and the Code of Practice and ensuring that these codes are available to all members of the public at all reasonable times. This Code of Practice for the Performance of Engineering Work was developed in consultation with the relevant stakeholders as required by the Engineering Profession Act, 46 of 2000.

This Code of Practice applies to all engineering disciplines and is referred to as an “overarching” Code of Practice. Respective disciplines and sub-disciplines may develop their own codes of practice to complement this code. This Code of Practice should be read in conjunction with the Code of Conduct for Registered Persons and is not intended to duplicate the requirements thereof.

2. POLICY STATEMENT

This code is a statement of good practice for the performance of engineering work by Registered or Unregistered Persons. It is applicable to the entire engineering profession. Section 27(3) of the Act requires Registered Persons to adhere to the requirements of this code.


3. PURPOSE

The purpose of this Code of Practice is to ensure that any person undertaking engineering work meets the prescribed requirements when practising and executing engineering work within the jurisdiction of the Act. The Code also sets appropriate levels of competence, regulating the execution of engineering work and specifying technical standards and best practices. Among others, the Code of Practice ensures that:

- (a) Practitioners apply their specialised knowledge within their competence and skill in accordance with all relevant legislation;

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- (b) All Engineering Work is performed by a competent person and uniform competency and conduct standards apply to all practitioners;
- (c) Engineering Work is performed in accordance with generally accepted norms and standards of the engineering profession;
- (d) Practitioners apply innovation in a responsible and appropriate manner within their category and discipline of competence;
- (e) Registered Persons apply their specialised knowledge and skill within their respective disciplines and categories of registration to ensure that engineering practice is appropriate, applicable, acceptable, affordable and sustainable; and
- (f) Registered Persons encourage innovation, promote social upliftment where possible in all aspects of engineering works and set examples within the engineering profession.

4. APPLICABLE LEGISLATIVE FRAMEWORK

This Code of Practice should be read in conjunction with the Engineering Profession Act 46 of 2000, and the Code of Conduct for Registered Persons, Gazette no. 40691, dated 17 March 2017 as Board Notice 41 of 2017.

5. ETHICAL VALUES

Registered Persons must comply with Code of Conduct for Registered Persons.


6. ENGINEERING WORK

6.1 Nature of engineering work

- (a) The performance of Engineering Work requires solving engineering problems and engaging in engineering activities.
- (b) The broader context of Engineering Work encompasses a number of engineering disciplines and sub-disciplines, each dealing with a specific body of knowledge.

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- (c) Depending on the level of complexity, Engineering Work is carried out by practitioners possessing different levels of competence as typified by the various categories of registration given in Section 18(1) of the Act.
- (d) Due to a common grounding in the mathematical and physical sciences, there are areas of overlap among the various disciplines of engineering as well as overlaps with other professions within the built environment. These overlaps generally occur at a basic level and divergence increases with the degree of specialisation.

6.2 Range of engineering problems and engineering activities

For the purposes of this code:

- Engineering problems are classified as complex, broadly defined, well-defined and specifically defined problems. The basis of the classification of engineering problems is given in the **R-02-PE/PT/PCE/PN/SC** documents available on the ECSA website.
- Engineering activities are classified as complex, broadly defined, well-defined and specifically defined activities. The basis of the classification of engineering activities is given in the **R-02-PE/PT/PCE/PN/SC** documents available on the ECSA website.


6.3 Engineering disciplines

The Council recognises the following engineering disciplines:

- aeronautical
- agricultural
- chemical
- civil
- computer
- electrical
- industrial
- mechanical
- mechatronics
- metallurgical
- mining

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- specified categories.

Many of the engineering disciplines have sub-disciplines.

A Practitioner's engineering discipline is determined by tertiary education qualification and the discipline under which the Practitioner is registered by the Council.

6.4 Categories of registration

Engineering professionals' category of registration is determined by the category under which they are registered by the Council in terms of Section 18(1) of the Act.

The categories of registration include:

- Professional Engineer (PrEng) registered in terms of Section 18(1)(a)(i) of the Act
- Professional Engineering Technologist (PrTechEng) registered in terms of Section 18(1)(a)(ii) of the Act
- Professional Certificated Engineer (PrCertEng) registered in terms of Section 18(1)(a)(iii) of the Act
- Professional Engineering Technician (PrTechniEng) registered in terms of Section 18(1)(a)(iv) of the Act
- Specified Category Practitioner registered in terms of Section 18(1)(c) of the Act
- Candidate registered in terms of Section 18(1)(b) of the Act.


7. COMPETENCY REQUIREMENTS

7.1 General requirements

- All Engineering Work must be carried out by a competent engineering practitioner who is qualified by virtue of knowledge, training, experience and applicable qualifications to perform such work.
- All Practitioners must confine their performance of Engineering Work to the disciplines in which they are competent and / or registered by the Council, subject to the provisions of (a) above.

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- (c) All Practitioners must undertake continuing professional development (CPD) or independent learning activities sufficient to maintain and extend their competence in line with current good practice in the industry.
- (d) Practitioners' competence and the nature of the work they are competent to perform should be assessed in terms of the criteria applicable to Registered Persons.

7.2 Requirements for Registered Persons


- (a) Registered Persons must comply with the provisions of the Act.
- (b) Registered Persons must demonstrate competence in accordance with the latest revision of the applicable ECSA Competency Standards. The applicable competency standards are:
- Competency Standard for Registration in Professional Categories as PE/PT/PCE/PN **R-02-STA-PE/PT/PCE/PN**.
 - Specified Category Practitioner: Competency Standard for Registration in a Specific Category **R-02-SC**.
- (c) Registered Persons may not undertake Engineering Work involving engineering problems and/or engineering activities more complex than those applicable to their category of registration as set out in the above referenced competency standards.
- (d) Engineering Work performed by a person who is registered in the category of Candidate must be carried out under the supervision and control of a Registered Person in accordance with the provision of clause 8.2.
- (e) Registered Persons must comply with the Council's CPD requirements.

7.3 Overlaps

Persons registered in a particular discipline may perform Engineering Work in a different discipline if their knowledge, training, experience and applicable qualifications specifically render them competent to perform such work.

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Persons registered as professionals under a Professions' Act other than the Engineering Profession Act may perform Engineering Work if their knowledge, training, experience and applicable qualifications specifically render them competent to perform such work and the work is performed in accordance with the requirements of the Act under which they are registered. The assessment of competency should be in accordance with 7.1(d).

8. PRACTICE REQUIREMENTS

8.1 Adherence to legislation and recognised standards

In executing Engineering Work, Practitioners must comply with all relevant legislation and amendments thereto, among others:

- Engineering Profession Act 46 of 2000
- Occupational Health and Safety Act, 85 of 1993
- National Building Regulations and Building Standards Act, 103 of 1977
- National Environmental Management Act, 107 of 1998
- Employment Equity Act, 55 of 1998.

All Engineering Work must be carried out in accordance with the norms of the profession. Such norms are generally represented by national and international standards, industry standards, codes of practice and best practice guidelines.


Any deviation from recognised standards or work beyond the scope of such standards should be assessed in terms of sound engineering and scientific fundamentals by a Practitioner with the required competence.

8.2 Supervision of Candidates and Unregistered Persons

Engineering work by a Candidate or by an Unregistered Person acting on behalf of a Registered Person must be performed under the direction, control and supervision of a person registered in the appropriate category and discipline who must assume full professional responsibility for such work.

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Any decisions or instructions by a Candidate or an Unregistered Person acting on behalf of a Registered Person must be confirmed by a Registered Person in writing.

8.3 Checking of Engineering Work

All designs, drawings, reports and similar documentation must be reviewed by a competent person.


Note: The extent of the review depends on the nature or the work and the size of the organisation. Sole Practitioners should, as a minimum, re-read and self-check all documents, and/or repeat any calculations preferably using different methods or undertake independent third-party review.

8.4 Inspection and monitoring of works

- (a) Practitioners responsible for the design of works must carry out the necessary inspection and monitoring during and after the execution of the works to ensure that the design intent has been met, unless this is excluded from the Practitioner's scope or an independent person/ organisation is appointed for this purpose.
- (b) No approval or final certificate may be issued if the inspection and monitoring necessary for such approval or certification have not been carried out or the design intent has not been met.
- (c) Where such inspection and monitoring are carried out by a person other than the Registered Person issuing the approval or certification, the Registered Person must satisfy him- or herself of the competence of the other person and the adequacy of the inspection and monitoring, and must assume full responsibility for the correctness of the approval or certification.
- (d) A Registered Person responsible for inspection, certification or approval of works must take reasonable steps to ascertain the programme of works and when such inspections are required.

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- (e) Where a Registered Person responsible for certification or approval of works is unable to fulfil the above requirements, he or she must immediately inform the owner/client and, where appropriate, the relevant authority.

8.5 Records

All information produced during the performance of Engineering Work must be safely and securely stored for future reference for a minimum period of 10 years from the date of completion of the work, as specified in the Code of Conduct.


Where this information is stored in electronic format, reasonable steps must be taken to protect the data against unauthorised access, loss or deletion.

8.6 Signing of documents

- (a) The Practitioner's and reviewer's signatures must be affixed to all design calculations, drawings, reports, instructions, certificates and similar documents together with the names of the signatories and dates of signature. Authenticated or certified electronic signatures may be used.
- (b) Documents compiled by a Candidate must be signed both by the Candidate and by the Registered Person under whose supervision and control the document was compiled.
- (c) Practitioners may not:
- sign blank or incomplete documents
 - sign documents on behalf of another Practitioner without written consent of that Practitioner; or
 - permit the use of their signature by others without written consent.
- (d) On becoming aware of a document signed on their behalf without their consent, Practitioners must take all reasonable steps to withdraw the document. Failure to do so will be taken as consent by the Practitioner to the use of their signature.
- (e) Practitioners must take full responsibility for the content of any documents signed on their behalf with their consent.

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8.7 Quality and risk management

Practitioners must implement quality and risk management systems covering all aspects of their work, appropriate to the nature of the work and the size of the organisation.

Quality and risk management systems must be reviewed on a regular basis. Compliance with the system should be audited at least annually.

Organisations undertaking Engineering Work should consider external certification, such as ISO 9001 and ISO 14001.

9. GOOD PRACTICE GUIDELINES-INFORMATIVE

9.1 Appointments and contract agreements

- (a) Tenders or proposals for the performance of Engineering Work should be in writing clearly stating the scope of the work, deliverables, assumptions, exclusions, limitations, client-supply items, programme, basis of pricing and terms of contract. Where possible, standard forms of contract should be used.
- (b) All appointments should be in writing and should incorporate the information stipulated in 9.1(a), either expressly or by reference.
- (c) Variations to agreements should be recorded in writing and signed by all parties to the agreement.


9.2 Intellectual property rights and confidentiality

The ownership of intellectual property rights should be agreed between the parties. In the absence of such an agreement, the ownership of intellectual property remains with the party who created or supplied the intellectual property.

Practitioners must respect intellectual property rights and adhere to the terms of any confidentiality agreements between parties.

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9.3 Professional activities and responsibilities

Practitioners at all levels are encouraged to register with the Council and to engage in the activities of learned societies and Voluntary Associations.

Mentoring of young Practitioners should be a priority in any engineering organisation. Exchange programmes between employers can be considered where the necessary range of experience is not available in-house.

Leading Practitioners are encouraged to contribute actively to the advancement of the profession through professional organisations, standards authorities, Voluntary Associations, research institutions and learned societies. Interaction between Practitioners and institutions of higher education should also be encouraged.

10. INTERPRETATION AND COMPLIANCE

10.1 Interpretation

- (a) In this code, reference to the singular includes the plural and reference to one gender includes the other.
- (b) Any terms or words not defined have their normal meanings.
- (c) All Sections of this Code of Practice are normative unless marked "informative".


10.2 Compliance

In terms of Section 27(3) of the Act, all Registered Persons must comply with this Code of Practice.

This code serves as a statement of good practice within the industry and is intended to establish the norms of the profession with regard to the competence and conduct of all Practitioners, whether registered or not.

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11. ADMINISTRATION


11.1 General

This Code of Practice is subject to revision by the Council from time-to-time, in consultation with the Council for the Built Environment, Voluntary Associations and Registered Persons.

The Council is responsible for administering this Code of Practice and must ensure that the latest version of the code is posted on the Council's web site.

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12. REFERENCES

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