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BOARD NOTICE 21 OF 2021

BOARD NOTICE

IDENTIFICATION OF ENGINEERING WORK REGULATIONS

ENGINEERING COUNCIL OF SOUTH AFRICA
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ECSA

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ENGINEERING COUNCIL OF SOUTH AFRICA

NOTICE IN TERMS OF THE ENGINEERING PROFESSION ACT, 2000 (ACT NO. 46 OF 2000)

The Council for the Built Environment has under section 20(2) of the Council for the Built Environment Act , 2000 , (Act No. 43 of 2000), read with regulation 2 of the Identification of Work Regulations, 2013, and in accordance with the Council for the Built Environment Policy with Regard to the Identification of Work for the Built Environment Professions determined by the Council for the Built Environment under section 20(1)(a) of the Council for the Built Environment Act, 2000, identified the scope of work for the Engineering Council of South Africa set out in the Schedule.

SCHEDULE

DEFINITIONS

1. In this notice, unless the context otherwise indicates, every word takes the meaning as defined in the Engineering Profession Act and the Built Environment Act, 2000, and

"**categories of registration**" means the categories in which a person is registered in terms of section 18(1(a) of the Engineering Profession Act;

"**construction works**" means the provision of a combination of goods and services arranged for the development, extension, installation, repair, maintenance, renewal, removal, renovation, alteration, dismantling or demolition of a fixed asset including buildings;

"**construction works project**" means a project of which the scope comprises construction works:

"**core service**" means a service referred to in item 4;

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"discipline" means the demarcation of the specific body of knowledge within a profession which is applied in a specific context;

"ECSA" means the Engineering Council of South Africa established under section 2 of the Engineering Profession Act;

"**engineering discipline**" means the body of knowledge which is applied in one of the following contexts-

(a) aeronautical;
(b) agricultural;
(c) chemical;
(d) civil;
(e) electrical or electronic;
(f) industrial;
(g) mechanical;
(h) metallurgical; or mining;

"engineering infrastructure" means infrastructure comprising engineering works including transport, water, energy, communications and waste management infrastructure;

"Engineering Profession Act" means the Engineering Profession Act, 2000 (Act No. 46 of 2000) and any regulations issued in terms thereof;

"engineering project" means a project of which the scope comprises engineering work including engineering infrastructure;

"engineering work" means the process of applying engineering and scientific principles, concepts, contextual and engineering knowledge to the research, planning, design, implementation and management of work in both the natural and built environments;

"principal consultant" means the person or entity appointed by the client to manage and administer the services of all other consultants;

"principal agent" means the person or entity appointed by the client and who has full authority and obligation to act in terms of the construction contract;

"profession" means any of the professions regulated by the professions' Acts ,

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"professional certificated engineer" means a person registered in that category in terms of section 18(1)(a)(iii) of the Engineering Profession Act;

"professional engineer" means a person registered in that category in terms of section 18(1)(a)(i) of the Engineering Profession Act;

"professional engineering technician" means a person registered in that category in terms of section 18(1)(a)(iv) of the Engineering Profession Act;

"professional engineering technologist" means a person registered in that category in terms of section 18(1)(a)(ii) of the Engineering Profession Act;

"service" means a core service or a specialised service;

"specialised service" means a service which falls outside the standard competencies of a registered person who is a professional and which requires an additional qualification, experience, skill and/or registration with any other applicable council for the professions; and

"specified category practitioner" means a person registered in terms of section 18(1)(c) of the Engineering Profession Act as a registered lift inspector, registered lifting machinery inspector, medical equipment maintainer, fire protection systems inspector or any other category specified by ECSA.

IDENTIFIED ENGINEERING WORK

2. (1) For the purposes of this Notice, identified engineering work is work that-

(a) entails the engineering activities performed by a person registered in one of the categories of registration to differentiate the one category of registration from another;

(b) requires for its performance the core competencies within the competency areas that a registered person must possess to perform engineering work in the appropriate category of registration;

(c) includes the core services performed by a registered person in any of the categories of registration in a particular engineering discipline;

(d) includes the practise areas of a particular engineering discipline within which a registered person performs engineering work; and

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(e) involves performing core services in any of the practise areas of an engineering discipline in accordance with the scope of services, if applicable.

(2) The elements of identified engineering work contemplated in sub-item (1) are referred to in-

(a) item 3 which contains the criteria for category differentiation that is used to determine the engineering activities performed by a person registered in one of the categories of registration;

(b) item 4 which contains the core competencies required for each competency area;

(c) items 6 to 15 which contain the core services and practice areas for each of the engineering disciplines; and

(d) item 16 which contain the scope of services for specific engineering work.

CATEGORY DIFFERENTIATION AND ENGINEERING ACTIVITIES

3. (1) The criteria for category differentiation is based on a distinction between -

a) a complex, broadly-defined, well-defined and specifically-defined engineering problem; and

b) a complex, broadly-defined, well-defined and specifically-defined engineering activity.

(2) A complex engineering problem is a problem that-

a) requires in-depth fundamental and specialised engineering knowledge and at least one of the following attributes:

(i) Is ill-posed, under- or over specified and requires identification and refinement;

(ii) is high-level and includes component parts or sub-problems;

(iii) is unfamiliar or involves infrequently encountered issues; and

b) possesses, in addition to he attributes referred to in paragraph (a), at least one of the following attributes:

(i) The solution is not obvious and requires originality or analysis based on fundamentals;

(ii) is outside the scope of standards and codes;

(iii) requires information from a variety of sources that is complex, abstract or incomplete;

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(iv) involves wide-ranging or conflicting issues of a technical or engineering nature and involves wide-ranging interested or affected parties with wide-ranging or conflicting opinions; and

c) possesses, in addition to the attributes referred to in paragraphs (a) and (b), at least one of the following attributes:

(i) The problem requires judgement in decision making in uncertain contexts;

(ii) has significant consequences in a range of contexts.

(3) A broadly-defined engineering problem is a problem that-

(a) requires coherent and detailed engineering knowledge underpinning the applicable technology area and at least one of the following attributes;

(i) Is ill-posed, under- or over specified, requiring identification and interpretation into the technology area;

(ii) encompass systems within broadly-defined engineering systems;

(iii) belong to families of problems which are solved in well-accepted but innovative ways;

(b) possesses, in addition to the attributes referred to in paragraph (a), at least one of the following attributes:

(i) Can be solved by structured analysis techniques;

(ii) may be partially outside standards and codes but must provide justification to operate outside;

(iii) requires information from a practice area and sources interfacing with a practice area that is broadly-defined or incomplete;

(iv) involves a variety of issues which may impose conflicting constraints: technical , engineering and interested or affected parties;

(c) possesses, in addition to the attributes referred to in paragraphs (a) and (b), at least one of the following attributes:

(i) requires judgement in decision making in a practice area, considering interfaces to other areas

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(ii) has significant consequences which are important in a practice area, but may extend more widely.

(4) A well-defined engineering problem is a problem that-

(a) can be solved mainly by practical engineering knowledge, underpinned by related theory;

(b) possesses, in addition to the attributes referred to in paragraph (a), at least one of the following attributes:

(i) Is largely defined but may require clarification;

(ii) requires discrete, focused tasks within engineering systems;

(iii) is routine, frequently encountered and may be unfamiliar but in familiar context;

(c) possesses, in addition to the attributes referred to in paragraphs (a) and (b), at least one of the following attributes:

(i) Can be solved in standardised or prescribed ways;

(ii) is encompassed by standards, codes and documented procedures and requires authorisation to work outside limits;

(iii) the information is concrete and largely complete, but requires checking and possible supplementation;

(iv) involves several issues but with few of these imposing conflicting constraints and a limited range of interested and affected parties;

(d) possesses, in addition to the attributes referred to in paragraphs (a), (b) and (c), at least one of the following attributes:

(i) requires practical judgement in a practice area in evaluating solutions, considering interfaces to other role-players;

(ii) has consequences which are locally important but not far reaching.

(5) A specifically-defined engineering problem is a problem that-

(a) can be solved primarily by specific practical engineering knowledge, underpinned by related theory and at least one of the following attributes:

(i) Is fully defined but require feedback;

(ii) is discrete, specifically focused tasks within engineering systems;

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(iii) is routine, frequently encountered, may be unfamiliar but in a familiar specified context;

(b) possesses, in addition to the attributes referred to in paragraph (a), at least one of the following attributes:

(i) Can be solved by standardised or prescribed ways;

(ii) is encompassed by specific standards, codes and documented procedures and requires authorisation to work outside limits;

(iii) the information is concrete, specific and largely complete, but requires checking and possible supplementation;

(iv) involves specific issues but few of these imposing conflicting constraints and a specific range of interested and affected parties;

(c) possesses, in addition to the characteristics referred to in paragraphs (a) and (b), at least one of the following attributes:

(i) Requires practical judgement in a specific practice area in evaluating solutions, considering interfaces to other role players;

(ii) has consequences which are locally important but within a specified category and its wider impact are dealt with by others.

(6) For the purpose of this item, a complex engineering activity means an activity that has two or more of the following characteristics:

(a) The scope of activities may encompass entire complex engineering systems or complex subsystems;

(b) it has a context that is complex and varying, is multidisciplinary, requires teamwork, unpredictable, may need to be identified;

(c) it requires diverse and significant resources: including people, money, equipment, materials and technologies;

(d) significant interactions exist between wide- ranging or conflicting technical, engineering or other issues;

(e) it is constrained by time, finance, infrastructure, resources, facilities, standards and codes and applicable laws;

(f) it has significant risks and consequences in a range of contexts;

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(g) it includes but is not limited to design; planning; investigation and problem resolution; improvement of materials, components, systems or processes; implementation, manufacture or construction; engineering operations; maintenance; closure or disposal; project management; research, development and commercialisation.

(7) For the purpose of this item, a broadly-defined engineering activity means an activity that has two or more of the following characteristics:

(a) The scope of the practice area i linked to technologies used and changes by adoption of new technology into current practice;

(b) the practice area is located within a wider, complex context, requires teamwork, has interfaces to other parties and disciplines;

(c) it involves the use of a variety resources, including people, money, equipment, materials, technologies;

(d) it requires resolution of occasional problems arising from interactions between wide-ranging or conflicting technical, engineering and other issues;

(e) it is constrained by available technology, time, finance, infrastructure, resources, facilities, standards and codes and applicable laws;

(f) it has significant risks and consequences in a practice area and related areas.

(g) it includes but is not limited to design; planning; investigation and problem resolution; improvement of materials, components, systems or processes; implementation, manufacture or construction; engineering operations; maintenance; closure or disposal; project management; research, development and commercialisation.

(8) For the purpose of this item, a well-defined engineering activity means an activity that has two or more of the following characteristics:

(a) The scope of the practice area is defined by techniques applied; change by adopting new techniques into current practice;

(b) the practice area is located within a wider, complex or broadly-defined context, with well-defined working relationships with other parties and disciplines;

(c) the work involves familiar, defined range of resources (including people, money, equipment, materials and technologies);

(d) it requires resolution of interactions manifested between specific technical factors with limited impact on wider issues;

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(e) it is constrained by operational context, defined work package, time, finance, infrastructure, resources, facilities, standards and codes and applicable laws;

(f) it has risks and consequences that are locally important but generally not far reaching;

(g) it includes but is not limited to design; planning; investigation and problem resolution; improvement of materials, components, systems or processes; implementation, manufacture or construction; engineering operations; maintenance; closure or disposal; project management; research, development and commercialisation.

(9) For the purpose of this item, a specifically-defined engineering activity means an activity or task that has two or more of the following characteristics:

(a) The scope of the specific practice area is defined by specific techniques applied, change by adopting new specific techniques into current narrow practice;

(b) the practice area is located within a wider, complex context, with specifically-defined working relationships with other parties and disciplines;

(c) the work involves specific familiar resources, including people, money, equipment, materials and technologies;

(d) it requires resolution of interactions manifested between specific technical factors with limited impact on wider issues;

(e) it is constrained by operational context, defined work package, time, finance, infrastructure, resources, facilities, standards and codes and applicable laws;

(f) it has risks and consequences that are locally important but are specifically-defined;

(g) it includes but is not limited to: planning; investigation and problem resolution; improvement of materials, components, systems or processes, engineering operations, maintenance, project management, development and commercialisation.

(10) For the purpose of this Notice, a professional engineer is expected to demonstrate and apply the core competencies referred to in Table 1 of item 4 at the complex level described in sub-items (2) and (5).

(11) For the purpose of this Notice, a professional engineering technologist and a professional certificated engineer is expected to demonstrate and apply the core competencies referred to in Table 1 of item 4 at the broadly-defined level described in sub-items (3) and (6).

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(12) For the purpose of this Notice, a professional engineering technician is expected to demonstrate and apply the core competencies referred to in Table 1 of item 4 at the well-defined level described in sub- items (4) and (7).

(13) For the purpose of this Notice, a specified category practitioner is expected to demonstrate and apply the core competencies referred to in Table 1 of item 4 at the specifically-defined level described in sub-items
(5) and (9).

(14) ECSA must develop guidelines using the complex, broadly-defined, well-defined and specifically-defined criteria contemplated in this item, to enable a client or employer to establish which category of registered person is required to perform the work of a specific nature.

CORE COMPETENCIES REQUIRED TO PERFORM IDENTIFIED ENGINEERING WORK

4 (1) A person who performs any identified engineering work in a particular engineering discipline must, in addition to any other requirement contemplated in the Engineering Profession Act-

(a) be suitably qualified;

(b) be registered by ECSA in the appropriate category applicable to the level of service performed; and

(c) possess the necessary core competency in the competency areas referred to in this item to perform such core service as a professional engineer, professional engineering technologist, professional certificated engineer, professional engineering technician or a specified category practitioner.

(2) For the purpose of sub-item (1) "suitably qualified" means being in possession of a qualification that is recognised or accredited by ECSA for purposes of registering a person in any of the categories referred to in section 18(1)(a), (b) and (c) of the Engineering Profession Act.

(3) The competency areas referred to in sub-item (1)(c) for a professional engineer, professional engineering technologist, professional certificated engineer, professional engineering technician and a specified category practitioner are:

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(a) Define, investigate and analyse engineering problems;

(b) design or develop solutions to engineering problems;

(c) comprehend and apply engineering, technological, technical and specific knowledge in the practice area;

(d) manage part or all of one or more engineering activities;

(e) communicate clearly with others in the course of the engineering activity;

(f) recognise and address, if applicable, the foreseeable social, cultural and environmental impact of engineering activities generally;

(g) meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her engineering activity;

(h) conduct engineering activities ethically;

(i) exercise sound judgement in the course of engineering activities;

(j) be responsible for making decisions on part or all of one or more engineering activities; and

(k) undertake professional development or independent learning activities sufficient to maintain and extend his or her competence.

(4) The core competencies referred to in sub-item (1)(c) that a person registered as a professional engineer, professional engineering technologist, certificated engineer and professional engineering technician or specified category practitioner must possess when he or she performs any core service in a particular engineering discipline referred to in item 5 are as indicated by the competency area in Table 1 below.

(5) The purpose of a competency area is to limit the applicable knowledge required for each category of registration.

(6) The core competencies must be assessed by utilising the competency indicators for each competency area referred to in Table 2 below.

(7) The competency indicators in Table 2 below are only typifying and other competency indicators may be used provided such other competency indicators are clear indicators of competence

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Table 1: Competency areas required of a person registered as a professional engineer, professional engineering technologist, certificated engineer, professional engineering technician and a specified category practitioner to perform the core services

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner Note: The tenn *specifically-defined engineering* below may be interchanged with the specific category designation, i.e. Lift Inspector, Lifting Machinery Inspector, Medical Equipment Maintainer, Fire Protection Systems Inspector, or any future specified category prescribed by the Council.
2. Demonstration of Competence Competence must be demonstrated within *complex engineering activities,* defined below, by integrated perfonnance of the Competency areas defined in item 3(6) above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of *Complex engineering problems* are indicated in item 3(2) above.	2. Demonstration of Competence Competence must be demonstrated within *broadly-defined engineering activities,* defined below, by integrated perfonnance of the Competency areas defined in item 3(7) above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of *Broadly-defined engineering problems* are indicated in item 3(3) above.	2. Demonstration of Competence Competence must be demonstrated within we*l/- defined engineering activities,* defined below, by integrated perfonnance of the Competency areas defined in item 3(8) above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of *Well-defined engineering problems* are indicated in item 3(4) above.	2. Demonstration of Competence Competence must be demonstrated within *specifically-defined engineering* activities, defined below, by integrated perfonnance of the Competency areas defined in item 3(9) above at the level defined for each Competency area. Required contexts and functions may be specified in the applicable Discipline Specific Training Guidelines. Characteristics of *Specifically-defined engineering problems* are indicated in item 3(5) above
Competence Area 1: Define, investigate and analyse complex engineering problems.	**Competence Area 1:** Define, investigate and analyse broadly-defined engineering problems.	**Competence Area 1:** Define, investigate and analyse well-defined engineering problems	**Competence Area 1:** Define, investigate and analyse specifically-defined engineering problems (tasks)
Level Descriptor: *Complex engineering problems have the characteristics indicated in item 3(2) above.*	Level Descriptor: *Broadly-defined engineering problems have the characteristics indicated in item 3(3) above.*	Level Descriptor: *Well-defined engineering problems have the characteristics indicated in item 3(4) above.*	Level Descriptor: *Specifically-defined engineering problems have the characteristics indicated in item 3(5) above.*

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Range Statement: The problem may be the design of a component, system or process or a recommendation of the remedy to a problematic situation.	Range Statement: The problem may be a design requirement, an applied R&D requirement or a problematic situation in an existing component, system or process. The problem is one amenable to solution by technologies known. This competency area is concerned with the understanding of a problem: competency area 2 is concerned with the solution.	Range Statement: The problem may be part of a larger engineering activity or may stand alone. The design problem is amenable to solution by established techniques practiced regularly. This competency area is concerned with the understanding of a problem: competency area 2 is concerned with the solution .	Range Statement: The problem (task) may be part of a larger engineering activity or may be stand alone. The design (planning) problem is amenable to solution l by established specific techniques practiced regularly. This competency area is concerned with thel understanding of a problem: competency area 2 is concerned with the solution.
Professional Engineer	**Professional Engineering Technologist and Professional Certificated Engineer**	**Professional Engineering Technician**	**Specified Category Practitioner**
Competency Area 2: Design or develop solutions to complex engineering problems	**Competency Area 2:** Design or develop solutions to broadly-defined engineering problems	**Competency Area 2:** Design or develop solutions to well-defined engineering problems .	**Competency Area 2:** Design or develop (plan) solutions to specifically- defined engineering problems (tasks).
Range Statement: The solutions may be the design of a component, system or process or a recommendation of the remedy to a problematic situation.	**Range Statement:** Solutions are those enabled by the technologies in the broadly-defined practice area.	**Range Statement:** The solution is amenable to established methods, techniques or procedures within the well-defined practice area.	**Range Statement:** The solution conforms to specific established methods, techniques or procedures within the specifically-defined practice area.
Competency Area 3: Comprehend and apply advanced knowledge: principles, specialist knowledge, jurisdictional and local knowledge	**Competency Area 3:** Comprehend and apply advanced knowledge embodied in widely accepted and applied engineering procedures processes, systems or methodologies and those specific to the jurisdiction in wich he or she practices	**Competency Area 3:** Comprehend and apply knowledge embodied in established engineering practices and knowledge specific to the jurisdiction in which he or she practices	**Competency Area 3:** Comprehend and apply knowledge embodied in established specific engineering practices and knowledge specific to the field in which he or she practices
Range Statement: Applicable knowledge includes: (a) specialist knowledge has depth in the practice area and is underpinned by the fundamental knowledge of an engineering discipline or cross disciplinary area allowing a fundamentals-based, first principle analytical approach building models as required (b) A working knowledge of interacting disciplines (engineering and other) to underpin teamwork.	**Range Statement:** Applicable knowledge includes: (a) Technological knowledge that is well established and applicable to the practice area irrespective of location, supplemented by locally relevant knowledge, for example, established properties of local materials. Emerging technologies are adopted from form (b) A working knowledge of interacting disciplines (engineering and other) to underpin team work.	**Range Statement:** Applicable knowledge includes: (a) Technical knowledge that is applicable to the practice area irrespective of location, supplemented by locally relevant knowledge, for example established properties of local materials (b) A working knowledge of interacting disciplines. Codified knowledge in related areas: financial, statutory, safety, management	**Range Statement:** Applicable knowledge includes: (a) Technical knowledge that is applicable to the specific practice area irrespective of location, supplemented by locally relevant knowledge, for example established properties of local materials. (b) A working knowledge of interacting disciplines. Codified knowledge in related areas: financ ial statutory, safety, management.

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(c) Jurisdictional knowledge includes legal and regulatory requirements as well as locally relevant codes of practice, as required for practice area : law of contract , contract administration, health and safety environmental, intellectual property, quality management, risk management, maintenance management, regulation, project management or construction management.	(c) Jurisdictional knowledge includes legal and regulatory requirements as well as locally relevant codes of practice, as required for practice area: law of contract, contract administration, health and safety, environmental, intellectual property, quality management, risk management, maintenance management, regulation, project management or construction managemen	(c) Jurisdictional knowledge includes legal and regulatory requirements as well as prescribed codes of practice	(c) Jurisdictional knowledge includes legal and regulatory requirements as well as prescribed codes of practice.
Professional Engineer	**Professional Engineering Technologist** **Professional Certificated Engineer**	**Professional Engineering Technician**	**Specified Category Practitioner**
Competency Area 4: Manage part or all of one or more complex engineering activities.	**Competency Area 4:** Manage part or all of one or more broadly-defined engineering activities.	**Competency Area 4:** Manage part or all of one or more well-defined engineering activities	**Competency Area 4:** Manage part or all of one or more specifically-defined engineering activities
Competency Area 5: Communicate clearly with others in the course of his or her engineering activities	**Competency Area 5:** Communicate clearly with others in the course of his or her broadly-defined engineering activities.	**Competency Area 5:** Communicate clearly with others in the course of his or her well-defined engineering activities	**Competency Area 5:** Communicate clearly with others in the course of his or her ***specifically-defined engineering*** activities
Range Statement: Management and communication in complex engineering involves: • Planning activities; • Organising activities; • Leading activities and • Controlling activities. Communication relates to technical aspects and wider impacts of professional work. Audience includes peers, other disciplines, client and stakeholders audiences. Appropriate modes of communication must be selected.	**Range Statement:** Management and communication in broadly-defined engineering involves: • Planning activities; • Organising activities; • Leading activities and • Controlling activities. Communication relates to technical aspects and wider impacts of professional work. Audience includes peers, other disciplines, client and stake- holders audiences. Appropriate modes of communication must be selected. The engineering technologist is expected to perform the communication functions reliably and repeatedly.	**Range Statement:** Management and communication in well-defined engineering involves: • Planning activities; • Organising activities; • Leading activities and • Controlling activities. Communication relates to technical aspects and wider impacts of professional work. Audience includes peers, other disciplines, client and stakeholders audiences. Appropriate modes of communication must be selected. The Engineering Technician is expected to perform the communication functions reliably and repeatedly	**Range Statement:** Management and communication in specifically-defined engineering involves: • Planning activities • Organising activities • Leading activities • Implementing activities • Controlling activities. Communication relates to technical aspects and wider impacts of work. Audience includes peers, other disciplines, client and stake-holders audiences. Appropriate modes of communication must be selected. The Specified Category practitioner Is expected to perform the communication functions reliably and repeatedly

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Competency Area 6: Recognise and address the reasonably foreseeable social, cultural and environmental effects of complex engineering activities.	**Competency Area 6:** Recognise and address the foreseeable social, cultural and environmental effects of broadly- defined engineering activities generally.	**Competency Area 6:** Recognise the foreseeable social, cultural and environmental effects of well-defined engineering activities generally	**Competency Area 6:** Recognise the foreseeable social, cultural and environmental effects of specifically-defined engineering activities generally
Competency Area 7: Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her complex engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her broadly-defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her well-defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her specifically-defined engineering activities.
Professional Engineer	**Professional Engineering Technologist and Professional Certificated Engineer**	**Professional Engineering Technician**	**Specified Category Practitioner**
Range Statement: Impacts and regulatory requirements include: • Direct and indirect, immediate and long- term effects of engineering solutions; • Application of principles of sustainability; • Regulatory requirements that are explicit for the context and are generally applicable; • Persons whose health and safety are to be protected are both inside and outside the workplace.	**Range Statement:** Impacts and regulatory requirements include: • Requirements include both explicit regulated factors and those that arise in the course of particular work; • Impacts considered extend over the lifecycle of the project and include the consequences of the technologies applied; • Effects to be considered include direct and indirect, immediate and long-term related to the technology used; • Safe and sustainable materials, components and systems; • Regulatory requirements are explicit for the context in general; • Persons whose health and safety are to be protected are both inside and outside the workplace.	**Range Statement:** Impacts and regulatory requirements include: • Impacts to be considered are generally those identified within the established methods, techniques or procedures used in the practice area; • Regulatory requirements are prescribed; • Apply prescribed risk management strategies; • Effects to be considered and methods used are defined; • Prescribed safe and sustainable materials, components and systems; • Persons whose health and safety are to be protected are both inside and outside the workplace.	**Range Statement:** Impacts and regulatory requirements include: • Impacts to be considered are generally those identified within the established methods, techniques or procedures used in the specific practice area; • Regulatory requirements are prescribed; • Apply prescribed risk management strategies; • Effects to be considered and methods used are defined; • Prescribed safe and sustainable materials, components and systems; • Prescribed maintenance protocols; • Persons whose health and safety are to be protected are both inside and outside the workplace.

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Competency Area 8: Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically
Competency Area 9: Exercise sound judgement in the course of complex engineering activities.	**Competency Area 9:** Exercise sound judgement in the course of broadly- defined engineering activities.	**Competency Area 9:** Exercise sound judgement in the course of well- defined engineering activities	**Competency Area 9:** Exercise sound judgement in the course of specifically-defined engineering activities

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Range Statement: Situations in which judgement must be applied involve interactions between wide- ranging or conflicting technical, engineering or other issues. Judgement in decision making involves: • taking diverse, wide ranging risk factors into account; or • significant consequences in a range of contexts; or • wide ranges of interested and affected parties with widely varying needs.	**Range Statement:** Judgement is expected both within the application of technologies, in their wider impacts and when dealing with interfaces to other disciplines and technologies. Judgement in decision making involves : • taking several risk factors into account;or • significant consequences in technology application and related contexts; or • ranges of Interested and affected parties with widely varying needs.	**Range Statement:** Judgement is expected both within the application of methods, techniques and procedures and in assessing their immediate impacts. Judgement in decision making involves: • taking limited risk factors into account some of which may be ill-defined; or • consequences are in the immediate work context; or • identified set of interested and affected parties with defined needs to be taken into account.	**Range Statement:** Judgement is expected both within the application of category specific methods, techniques and specific procedures and in assessing their immediate impacts. Judgement in decision making involves: • taking specific category risk factors into account some of which may be ill-defined; or • consequences are in the immediate work context; or • identified set of interested and affected parties with defined needs to be taken into account. •
Competency Area 10: Be responsible for making decisions on part or all of complex engineering activities.	**Competency Area 10:** Be responsible for making decisions on part or all of one or more broadly-defined engineering activities	**Competency Area 10:** Be responsible for making decisions on part or all of all of one or more well-defined engineering activities.	**Competency Area 10:** Be responsible for making decisions on part or all of one or more specifically-defined engineering activities
Range Statement: Responsibility exercised for competency areas of significant parts of a one or more complex engineering activity	**Range Statement:** Responsibility must be discharged for significant parts of one or more broadly-defined engineering activity.	**Range Statement:** Responsibility must be discharged for significant parts of a one or more well-defined engineering activity	**Range Statement:** Responsibility must be discharged for significant parts of one or more specifically-defined engineering *activity*.
Note 1: While actual responsibility for the work may not have been taken, due to statutory or other requirements, for a Professional Engineer to take the responsibility, evidence must be shown of responsible recommendations and luc!gement.	**Note 1:** Demonstrating responsibility would work under the supervision of a competent engineering practitioner who takes the actual responsibility but is expected to perform as if he/she is in a responsible position	**Note 1:** Demonstrating responsibility would be under supervision of a competent engineering practitioner but is expected to perform as if he/she is in a responsible position.	**Note 1:** Responsible for the evaluation of work output in a supervisory capacity .

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner Technologist
Competency Area 11: Undertake professional development activities sufficient to maintain and extend his or her competence	**Competency Area 11:** Undertake professional development activities sufficient to maintain and extend his or her competence	**Competency Area 11:** Undertake independent learning activities sufficient to maintain and extend his or her competence	**Competency Area 11:** Undertake independent learning activities sufficient to maintain and extend his or her competence
Range Statement: Professional development involves: • Taking ownership of own professional development • Planning own professional development strategy • Selecting appropriate professional development activities and • Recording professional development strategy and activities learning ability s; while displaying independent	**Range Statement:** Professional development involves: • Taking ownership of own professional development; • Planning own professional development strategy • Selecting appropriate professional development activities; and • Recording professional development strategy and activities learning ability s; while displaying independent	**Range Statement:** Professional development involves: • Taking ownership of own professional development; • Planning own professional development strategy • Selecting appropriate professional development activities; and • Recording professional development strategy and activities learning ability s; while displaying independent	**Range Statement:** Development involves: • Taking ownership of own development; • Planning own development strategy; • Selecting appropriate development activities: and • Recording development strategy and activities ; displaying independent learning ability

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Table 2: The competency indicators to determine the competency in each of the competency areas required of a person registered as a professional engineer, professional engineering technologist, certificated engineer, professional engineering technician and a specified category practitioner

Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category
Competency Area 1: Define, investigate and analyse complex engineering problems.	**Competency Area 1:** Define, investigate and analyse broadly-defined engineering problems.	**Competency Area 1:** Define, investigate and analyse well-defined engineering problems	**Competency Area 1:** Define, investigate and analyse *specifically-defined engineering* problems (tasks)
Competency Indicator: A creative, systematic analysis of complex problems typified by the following performances is expected: 1. Define, investigate or analyse complex engineering problems; 2. Perform/assist in defining or formulating engineering problems, leading to an agreed definition to the problem to be addressed; 3. Perform/assist in investigating engineering problems including; i. Collecting; ii. Organising; and, iii. Evaluating information; 4. Perform/assist in analysing engineering problems: i. Use conceptualisation, abstraction, modelling; ii. Identify and justify assumptions, limitations, constraints, premises; using analytical methods both mathematical and non-mathematical; iii. Evaluate result of analysis, using judgement; iv. Express an understanding emerging from the analysis.	**Competency Indicator:** A structured analysis of broadly-defined problems typified by the following performances is expected: 1. Identify and formulate the problem agreeing with client on a problem statement. Analyse and evaluate information. 2. Use conceptualisation, abstraction and modelling. Justify judgement and assumptions made. Express understanding emerging from analysis.	**Competency Indicator:** A structured analysis of well-defined problems typified by the following performances is expected: 1. Identify and interpret the activity agreeing with client on a problem statement. 2. Analyse and clarify information, drawings, codes, procedures, etc. Revise and agree on acceptance criteria if necessary.	**Competency Indicator**: An analysis of specifically- defined engineering problems (tasks) typified by the following performances is expected: 1. Understand the activity agreeing with the client. 2. Analyse and clarify information, drawings, codes, procedures, etc.

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 2: Design or develop solutions to complex engineering problems	**Competency Area 2:** Design or develop solutions to broadly-defined engineering problems	**Competency Area 2:** Design or develop solutions to well-defined engineering problems.	**Competency Area 2:** Design or develop (plan) solutions to specifically- defined engineering problems (tasks).
Competency Indicator: This competency area is normally demonstrated after a problem analysis as defined in competency area 1. Working systematically to synthesise a solution to a complex problem, typified by the following performances is expected : 1. Analyse the design/ planning /solution requirement and draw up detailed requirements specification; 2. Synthesise a range of potential solutions to problem or approaches to developing a solution; 3. Evaluate the potential approaches against requirements, including cost, and impacts outside requirements; 4. Present reasoned arguments and proposal for preferred option; 5. Fully develop design of selected option; 6. Evaluate resulting solution; 7. Produce design documentation for implementation.	**Competency Indicator:** This competency area is normally demonstrated after a problem analysis as defined in competency area 1. Working systematically to synthesise a solution to a broadly-defined problem, typified by the following performances is expected: 1. Analyse the requirement drawing up a design specification. 2. Synthesise potential solutions or approaches and evaluate; 3. Select the best complete solution and develop fully. Present reasoned arguments and proposal. Agree with client and produce design documentation for implementation;	**Competency Indicator:** This competency area is normally demonstrated after a problem analysis as defined in competency area 1.Working systematically to synthesise a solution to a well- defined problem, typified by the following performances is expected: 1. Develop and analyse alternative approaches to meeting the problem specification. Check impacts; 2. Select the best complete solution, seeking advice on aspects of the proposal or design process that fall outside established practice or standards. Agree with client;	**Competency Indicator:** This competency area is normally demonstrated after a problem (task) analysis as defined in competency area 1. Working systematically to reach a solution to a specifically- defined problem (task), typified by the following performances is expected: 1. Develop and analyse alternative approaches to do the task. Check impacts; 2. Select the best complete plan, seeking advice on aspects of the proposal or plan that fall outside established practice or standards. Agree with client;
Competency Area 3: Comprehend and apply advanced knowledge: principles, specialist knowledge , jurisdictional and local knowledge.	**Competency Area 3:** Comprehend and apply the knowledge embodied in widely accepted and applied engineering procedures, processes, systems or methodologies and he/she practices those specific to the jurisdiction in which.	**Competency Area 3:** Comprehend and apply knowledge embodied in established engineering practices and knowledge specific to the jurisdiction in which he/she practices	**Competency Area 3:** Comprehend and apply knowledge embodied in established specific engineering practices and knowledge specific to the field in which he/she practices.

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category
Competency Indicator: This competency area is normally demonstrated in the course of design, investigation or operations. 1. Display mastery of understanding of engineering principles, practice and technologies in the practice area; 2. Apply general and underpinning engineering knowledge to support analysis and provide insight; 3. Use a fundamentals-based, first principles analytical, approach building models as required; 4. Display working knowledge of areas that interact with the practice area 5. Display a working knowledge of interacting disciplines (engineering and other) to underpin teamwork; 6. Apply related knowledge: financial, statutory, safety, management	**Competency Indicator:** This competency area is normally demonstrated in the course of design, investigation or operations. 1. The thorough understanding and application of engineering principles to support analysis; 2. The use of specialised knowledge in an analytical approach and application of related knowledge in broadly-defined engineering activities	**Competency Indicator:** This competency area is normally demonstrated in the course of design, investigation or operations. 1. The use of codified underpinning educational knowledge in practical well-defined activities; 2. The understanding of knowledge expressed in well-defined procedures and techniques.	**Competency Indicator:** This competency area is normally demonstrated in the course of planning investigation or operations 1. The use of codified underpinning educational knowledge in practical specifically-defined engineering activities; 2. The understanding of knowledge expressed in specifically-defined procedures and techniques
Competency Area 4: Manage part or all of one or more complex engineering activities	**Competency Area 4:** Manage part or all of one or more broadly-defined engineering activities	**Competency Area 4:** Manage part or all of one or more well-defined engineering activities	**Competency Area 4:** Manage part or all of one or more specifically-defined engineering activities
Competency Indicator: The display of personal and work process management abilities are expected: 1. Manage complex engineering activities 2. Pian, organise, lead and control complex engineering activities; 3. Manage him- or herself; 4. Participate effectively in a team environment; 5. Manage people, and/or work priorities, and/or work processes and/or resources; 6. Demonstrate knowledge of finance as it is applied in engineering; 7. Demonstrate knowledge of the conditions and operations of contract 8. Demonstrate the ability to establish and maintain professional and business thinking	**Competency Indicator:** The display of personal and work process management abilities are expected: 1. Manage broadly-defined engineering activities 2. Participate effectively in a team environment 3. Manage self-people, and/or work priorities, and/or work processes and/or resources; 4. Demonstrate knowledge of finance as it is applied to engineering 5. Demonstrate knowledge of the conditions and operations of contract; 6. Demonstrate the ability to establish and maintain professional and business relationships .	**Competency Indicator:** The display of personal and work process management abilities are expected 1. Manage self, work priorities, processes & resources 2. Participate effectively in a team environment	**Competency Indicator:** The display of personal and work process management abilities are expected: 1. Manage self, work priorities, processes and resources; 2. Participate effectively in a team environment.

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category
Competency Area 5: Communicate clearly with others in the course of his or her engineering activities	**Competency Area 5:** Communicate clearly with others in the course of his or her broadly-defined engineering activities.	**Competency Area 5:** Communicate clearly with others in the course of his or her well-defined engineering activities	**Competency Area 5:** Communicate clearly with others in the course of his or her specifically-defined engineering activities
Competency Indicator: Demonstrates effective communicated by: 1. Writing clear, concise, effective, technically correct reports using a structure and style which meets communication objectives and user/audience requirements; 2. Reading and evaluating technical and legal matters relevant to the function of a Prof engineer 3. Receiving instructions, ensuring correct interpretation 4. Issuing clear instructions to subordinates using appropriate language and communication aids, ensuring that language and other communication barriers are overcome; 5. Making oral presentations using structure style, language, visual aids and supporting documents appropriate to the audience and purpose.	**Competency Indicator:** Demonstrates effective communication by: 1. Writing clear, concise, effective, technically correct reports using a structure and style which meets communication objectives and user/audience requirements; 2. Reading and evaluating technical and legal matters relevant to the function of a Prof Engineering Technologist 3. Receiving instructions, ensuring correct interpretation; 4. Issuing clear instructions to subordinates using appropriate language and communication aids, ensuring that language and other communication barriers are overcome 5. Making oral presentations using structure, style, language, visual aids and supporting documents appropriate to the audience and purpose	**Competency Indicator:** Demonstrates effective communication by: 1. Writing clear, concise, effective, technically correct reports 2. Issuing clear instructions to subordinates and present point of view effectively	**Competency Indicator:** Demonstrates effective communication by: 1. Writing clear, concise, effective, technically correct reports. 2. Issuing clear instructions to subordinates and present point of view effectively.

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category
Competency Area 6: Recognise and address the reasonably foreseeable social, cultural and environmental effects of complex engineering activities.	**Competency Area 6:** Recognise and address the foreseeable socia defined engineering activities generally I cultural and environmental effects of broadly-defined engineering activities generally	**Competency Area 6:** Recognise the foreseeable social, cultural and environmental effects of well-defined engineering activities generally	**Competency Area 6:** Recognise the foreseeable social, cultural and environmental effects of specifically-defined engineering activities generally
Competency Indicator: This competency area is normally displayed in the course of analysis and solution of problems, by typically: 1. Identifying interested and affected parties and their expectations; 2. Identifying interactions between technical and social cultural and environmental factors 3. Identifying environmental impacts of the engineering activity; 4. Identifying sustainability issues; 5. Proposing and evaluating measures to mitigate negative effects of engineering activity 6. Communicating with stakeholders	**Competency Indicator:** This competency area is normally displayed in the course of analysis and solution of problems, by typically: 1. Identifying interested and affected parties and their expectations; 2. Identifying interactions between technical and social cultural and environmental factors; 3. Identifying environmental impacts of the engineering activity 4. Identifying sustainability issues; 5. Proposing and evaluating measures to mitigate negative effects of engineering activity; 6. Communicating with stakeholders	**Competency Indicator:** This competency area is normally displayed in the course of analysis and solution of problems, by typically: 1. Identifying affected parties and environmental impacts of the engineering activity; 2. Proposing mitigating measures and communicating with stakeholders	**Competency Indicator:** This competency area is normally displayed in the course of evaluating and planning tasks, by typically 1. Identifying affected parties and environmental impacts of the engineering activity; 2. Proposing mitigating measures and communicating on measures with stakeholders
Competency Area 7: Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her complex engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her broadly-defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her well-defined engineering activities.	**Competency Area 7:** Meet all legal and regulatory requirements and protect the health and safety of persons in the course of his or her specifically-defined engineering activities.
Competency Indicator: 1. Identifying applicable legal, regulatory and health and safety requirements for the engineering activity; 2. Identifying health and safety requirements applicable for the engineering activity 3. Assistance or awareness of the selection of safe and sustainable materials, components and systems; 4. Assistance or awareness of recognising and identifying risk and applying accepted risk management strategies	**Competency Indicator:** 1. .Identifying applicable legal, regulatory and health and safety requirements for the engineering activity; 2. Identifying health and safety requirements applicable for the engineering activity 3. Assistance or awareness of the selection of safe and sustainable materials, components and systems; 4. Assistance or awareness of recognising and identifying risk and applying accepted risk management strategies.	**Competency Indicator:** 1. Identifying applicable legal, regulatory and health and safety requirements for the engineering activity 2. Managing risks and use safe and sustainable materials, components and systems, seeking advice when necessary	**Competency Indicator:** 1. Identifying applicable legal, regulatory and health and safety requirements for the specifically- defined engineering activity 2. Managing risks and use safe and sustainable materials, components and systems, seeking advice when necessary

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category Practitioner
Competency Area 8: Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically	**Competency Area 8:** Conduct engineering activities ethically
Competency Indicator: A professional approach must be demonstrated at all times by: i. Knowledge of ECSA Code of Conduct; ii. Member/active participation in activities of a recognised VA; ii. Understanding of Professional Society structures/Network/! nteraction Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by: 1. Identifying the central ethical problem 2. Identifying affected parties and their interest 3. Searching for possible solutions for the dilemma; 4. Evaluating each solution using the interests of those involved, accorded suitable priority; 5. Selecting and justifying the solution that best resolves the dilemma	**Competency Indicator:** A professional approach must be demonstrated at all times by: i. Knowledge of ECSA Code of Conduct; i. Member/active participation in activities of a recognised VA; i. Understanding of Professional Society structures/Network/! nteraction Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by: 1. Identifying the central ethical problem 2. Identifying affected parties and their interest 3. Searching for possible solutions for the dilemma; 4. Evaluating each solution using the interests of those involved, accorded suitable priority 5. Selecting and justifying the solution that best resolves the dilemma	**Competency Indicator:** Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by: 1. Identifying ethical problems and affected parties and their interests; 2. Compliance with ECSA's Code of Conduct.	**Competency Indicator:** Sensitivity to ethical issues and the adoption of a systematic approach to resolving these issues is expected, typified by 1. Awareness of ethical problems and affected parties and their interests; 2. Compliance with ECSA's Code of Conduct
Competency Area 9: Exercise sound judgement in the course of complex engineering activities.	**Competency Area 9:** Exercise sound judgement in the course of broadly defined engineering activities.	**Competency Area 9:** Exercise sound judgement in the course of well- defined engineering activities	**Competency Area 9:** Exercise sound judgement in the course of specifically-defined engineering activities
Competency Indicator: Exhibition of sound engineering judgement is expected by: 1. Considering several factors, some of which may not be well-defined or unknown; 2. Considering the interdependence interactions, and relative importance of factors 3. Foreseeing consequences of actions 4. Evaluating a situation in the absence of full evidence 5. Drawing on experience and knowledge	**Competency Indicator:** Exhibition of judgement is expected by: 1. Considering several factors, some of which may not be well-defined or unknown; 2. Considering the interdependence interactions, and relative importance of factors 3. Foreseeing consequences of actions 4. Evaluating a situation in the absence of full evidence 5. Drawing on experience and knowledge	**Competency Indicator:** Exhibition of judgement is expected by: 1. Considering a limited number of factors and their independence 2. Foreseeing consequences of actions , evaluating a situation in the absence of full evidence	**Competency Indicator:** Exhibition of judgement is expected by: 1. Considering specific factors applicable to the category and how they are interrelated; 2. Foreseeing consequences of actions , evaluating a situation in the absence of full evidence

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Professional Engineer	Professional Engineering Technologist and Professional Certificated Engineer	Professional Engineering Technician	Specified Category
Competency Area 10: Be responsible for making decisions on part or all of complex engineering activities.	**Competency Area 10:** Be responsible for making decisions on part or all of one or more broadly-defined engineering activities	**Competency Area 10:** Be responsible for making decisions on part or all of all of one or more well-defined engineering activities	**Competency Area 10:** Be responsible for making decisions on part or all of one or more specifically-defined engineering activities
Competency Indicator: Responsibility is displayed by the following performance: 1. Having due regard to technical social, environmental and sustainable development consideration 2. Seeking advice from a responsible authority on any matter considered to be outside area of competence 3. Making decisions on and take responsibility for one or more complex engineering activity	**Competency Indicator:** Responsibility is displayed by the following performance: 1. Having due regard to technical social, environmental and sustainable development consideration 2. Seeking advice from a responsible authority on any matter considered to be outside area of competence 3. Making decisions on and take responsibility for one or more broadly-defined engineering activity	**Competency Indicator:** Responsibility is displayed by the following performance Demonstrating a professional approach at all times by applying theory to justify solutions Taking advice from a responsible authority on any matter considered to be outside applicable standards and codes; Evaluating work output, revising as required and taking responsibility' for this work output	**Competency Indicator:** Responsibility is displayed by the following performance: 1. Demonstrating a professional approach at all times by applying knowledge to justify actions; 2. Taking advice from a responsible authority on any matter considered to be outside applicable standards and codes 3. Evaluating work output, revising as required and taking responsibility' for this work output
Competency Area 11: Undertake professional development activities sufficient to maintain and extend his or her competence	**Competency Area 11:** Undertake professional development activities sufficient to maintain and extend his or her competence	**Competency Area 11:** Undertake independent learning activities sufficient to maintain and extend his or her competence	**Competency Area 11:** Undertake independent learning activities sufficient to maintain and extend his or her competence
Competency Indicator: Self-development managed by typically; 1. Planning own professional development strategy 2. Selecting appropriate professional development activities 3. Keeping record of professional development strategy and activities 4. Displaying independent learning ability 5. Completing professional development	**Competency Indicator:** Self-development managed by typically; 1. Planning own professional development strategy selecting appropriate professional developmental activities 2. Keeping record of professional development displaying independent learning ability	**Competency Indicator:** Self-development managed by typically: 1. Planning own professional development strategy selecting appropriate professional development activities 2. Keeping record of professional development displaying independent learning ability	**Competency Indicator:** Self-development is managed by typically 1. Planning own development strategy selecting appropriate development activities; 2. Keeping record of development displaying independent learning ability

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PERFORMANCE OF CORE SERVICE IN PRACTISE AREA

5 (1) Identified engineering work in any engineering discipline consists of core services in certain practise areas.

(2) For the purposes of section 26(3)(a) of the Engineering Profession Act, work identified for persons registered in one of the categories in section 18(1)(a) or (c) of the Engineering Profession Act includes the core services for the practice areas referred to in in Items 6 to 15

(3) The core services and practise areas listed in items 6 to 15 are not exhaustive and any similar activity that is undertaken in order to perform a core service in compliance with an agreement to provide engineering work in an engineering discipline which work is not identified in items 6 to 15 is deemed to be a core service identified in items 6 to 15.

IDENTIFIED ENGINEERING WORK IN AERONAUTICAL ENGINEERING DISCIPLINE

6 (1) The core services in the aeronautical engineering discipline consist of the analysis, planning, design and development, manufacture, construction, operation and maintenance of all types of flight vehicles including fixed wing aircraft, helicopters, sail planes, airships, spacecraft and missiles, based on engineering sciences underlying flight dynamics, aerospace structures and propulsion systems.

(2) The core services in the aeronautical engineering discipline are performed in the following practise areas:

(a) Aircraft design;

(b) aircraft structures;

(c) aircraft propulsion systems;

(d) aerodynamics;

(e) avionics;

(f) aero-elasticity;

(g) stability and control;

(h) aircraft systems including hydraulic, pneumatic and avionic systems;

(i) wind tunnel testing;

U) flight testing;

(k) aircraft performance monitoring;

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(l) airport/airfield management; and

(m) certification and safety programmes.

IDENTIFIED ENGINEERING WORK IN AGRICULTURAL ENGINEERING DISCIPLINE

7 (1) The core services in the agricultural engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, operation and maintenance of agricultural machinery, mechanisation, production and processing and natural resource management through the application of engineering sciences.

(2) The core services in the agricultural engineering discipline are performed in the following practise areas:

(a) Agricultural energy engineering;

(b) agricultural renewable energy engineering;

(c) agricultural product processing engineering;

(d) agricultural structures and facilities engineering;

(e) agricultural waste handling and management;

(f) aquaculture engineering;

(g) mechanisation engineering;

(h) irrigation engineering;

(i) hydrology and agricultural water use management;

U) natural resources engineering;

(k) food engineering;

(l) environmental engineering; and

(m) rural infrastructure engineering

IDENTIFIED ENGINEERING WORK IN CHEMICAL ENGINEERING DISCIPLINE

8 (1) The core services in the chemical engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, operation and maintenance of industrial-scale processes to convert raw and recycled materials to products through chemical and physical processes.

(2) The core services in the chemical engineering discipline are performed in the following practise areas:

(a) Processes where hazardous substances are present in significant quantities;

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(b) processes where chemical reactions present particular hazards;

(c) processes involving advanced water treatment for potable water;

(d) advanced process control; and

(e) process simulation.

IDENTIFIED ENGINEERING WORK IN CIVIL ENGINEERING DISCIPLINE

9 (1) The core services in the civil engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, maintenance and operation of works comprising –

(a) a structure such as a building, dam, bridge, road, railway, runway or pipeline;

(b) a transportation, water supply and treatment, drainage and sewerage system;

(c) the result of an operation such as dredging, earthworks and a geotechnical process;

(d) waste disposal; and

(e) sea defenses and coastal protection; through the application of civil engineering sciences.

(2) The core services in the civil engineering discipline are performed in the following practise areas:

a) Structural engineering work;

b) geotechnical engineering work;

c) transportation engineering work;

d) environmental engineering work;

e) hydraulic engineering work;

f) municipal engineering work.

(3) Structural engineering work is the buildings, dams bridges, roads, highways runways, harbours, railways, relating to the structural safety and serviceability of both the temporary and permanent works associated with structures that provide shelter, carry loads or retain materials and fluids.

(4) Geotechnical engineering work is foundations, earthworks, excavations, ground improvement and geotechnical processes, subsurface investigation and sampling.

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(5) Transportation engineering work is the transportation systems, including roads, railways, waterways, ports, harbours, airports, and all associated works such asyards, docks, lighthouses, rolling stock, and traffic engineering, geometric design- horizontal curves, vertical curves and sight distance.

(6) Environmental engineering work is solid waste disposal, soil conservation works, contaminated land remediation.

(7) Hydraulic engineering work is hydraulic systems including water resources and supply, pipelines, canals, water treatment and supply, stormwater and drainage works, sewerage systems; sanitation, waste disposal and coastal engineering.

(8) Municipal engineering work is services such as water treatment and supply – demands, hydraulic loading, storages (raw and treated water), sewerage works, transport building services, and urban development as indicated above

IDENTIFIED ENGINEERING WORK IN ELECTRICAL ENGINEERING DISCIPLINE

10 (1) The core services in the electrical engineering discipline consist of the analysis, planning, design, manufacture, construction, management, operation and maintenance of materials, components, plant and systems for generating, transmitting, distributing and utilising-

a) electrical energy;

b) electronic devices, apparatus and control systems for industrial systems, bio-medical and consumer products and processes; and

c) computing, communication and software for critical applications instrumentation and control of processes, through the application of electrical, electromagnetic and information engineering sciences.

(2) The core services in the electrical engineering discipline are performed in the following primary practise areas:

a) Electrical power engineering work;

b) electronic engineering work;

c) telecommunications engineering work;

d) computer and software engineering work.

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(3) Electrical power engineering work includes the following practise areas:

(a) Conducting research and developing new or improved theories and methods related to electrical power engineering;

(b) advising on and designing power stations and systems which generate, transmit and distribute electrical power;

(c) specifying Instrumentation, measurement and control of equipment for the monitoring and control of electrical generation , transmission and distribution systems;

(d) supervising, controlling, developing and monitoring the operation and maintenance of electrical generation, transmission and distribution systems;

(e) advising on and designing systems for electrical motors, electrical traction and other equipment or electrical domestic appliances;

(f) specifying electrical installation and application in industrial and other buildings and objects;

(g) establishing control standards and procedures to monitor performance and safety of electrical generating and distribution systems, motors and equipment;

(h) determining manufacturing methods for electrical systems as well as the maintenance and repair of existing electrical systems, motors and equipment;

(i) design and development of electrical apparatus.

(4) Electronic engineering work includes the following practise areas:

(a) Conducting research and developing new or improved theories and methods related to electronics engineering;

(b) advising on and designing electronic devices or components, circuits, semi-conductors and systems;

(c) specifying production or installation methods, materials and quality standards and directing production or installation work of electronic products and systems;

(d) supervising, controlling, developing and monitoring the operation and maintenance of electronic equipment and systems ;

(e) establishing control standards and procedures to ensure efficient functioning and safety of electronic systems and equipment ;

(f) organising and directing maintenance and repair of existing electronic systems

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and equipment;

(g) designing electronic circuits and components for use in fields such as aeronautical guidance and propulsion control, acoustics or instruments and control;

(h) determining manufacturing methods for electronic systems as well as the maintenance and repair of existing electronic systems and equipment;

(i) researching and advising on radar, telemetry and remote control systems, microwaves and other electronic equipment;

U) designing and developing signal processing algorithms and implementing these through appropriate choice of hardware and software;

(k) developing apparatus and procedures to test electronic components, circuits and systems;

(l) designing, specifying and implementing Control and Instrumentation of plant and processes;

(m) designing, specifying, control and monitoring of equipment for fire and safety in plant and factories;

(n) robotics and process control of manufacturing plant;

(o) energy efficiency PV.

(5) Telecommunications engineering work is a broad specialisation of electrical engineering encompassing the design, construction and management of systems that carry out the transmission, processing and storage of information as electrical or optical signals and the control services based on this capability and includes the following practice areas:

(a) Conducting research and developing new or improved theories and methods related to telecommunications engineering;

(b) advising on and designing telecommunications devices or components, systems, equipment and distribution centres;

(c) specifying production or installation methods, materials, quality and safety standards and directing production or installation work of telecommunications products and systems;

(d) supervising, controlling, developing and monitoring the operation and maintenance of telecommunication systems. networks and equipment;

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(e) determining manufacturing methods for telecommunication systems as well as the maintenance and repair of existing telecommunication systems, networks and equipment;

(f) organising and directing maintenance and repair of existing telecommunication systems, networks and equipment;

(g) researching and advising on telecommunications equipment;

(h) planning and designing communications networks based on wired, fibre optical and wireless communication media;

(i) designing and developing signal processing algorithms and implementing these through appropriate choice of hardware and software;

(j)) designing telecommunications networks and radio and television distribution systems including both cable and over the air.

(6) Computer and software engineering work includes the following practice areas:

(a) Conducting research and developing new or improved theories and methods related to computer and software engineering;

(b) advising on and designing computer-based systems or components, systems equipment, software and distribution centres;

(c) specifying production or installation methods, materials, quality and safety standards and directing production or installation work of computer-based products, software and systems;

(d) supervising, controlling, developing and monitoring the operation and maintenance of computer- based systems, software, networks and equipment;

(e) organizing and directing maintenance and repair of existing computer-based systems, programmes and equipment;

(f) researching and advising on computer-based equipment and software;

(g) planning and designing computer-based communications networks based on wired, fibre optical and wireless communication media and ultra-high speed data networks;

(h) system Analysis, designing and developing complex computer-based systems and implementing these through appropriate choice of hardware and managing the development the necessary software;

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(i) determining manufacturing methods for computer-based systems as well as the maintenance and repair of existing computer-based systems, networks and equipment.

IDENTIFIED ENGINEERING WORK IN INDUSTRIAL ENGINEERING DISCIPLINE

11 (1) The core services in the industrial engineering discipline consist of the analysis, design, planning, manufacture, construction, management, maintenance, operation, improvement and installation of integrated systems of processes, people, materials, information, equipment and energy, to ensure the effective and efficient delivery of quality goods and services through the application of industrial engineering sciences.

(2) A registered person who performs work in the industrial engineering discipline investigates and reviews the utilisation of personnel, facilities, equipment and materials, current operational processes and established practices, to recommend improvement in the efficiency of operations in a variety of commercial, industrial and production environments.

(3) The core services in the industrial engineering discipline are performed in the following practice areas:

(a) Agri produce process engineering;
(b) automation and control engineering;
(c) clinical engineering;
(d) enterprise resource management engineering;
(e) fabrication engineering;
(f) industrial efficiency engineering;
(g) industrial machinery engineering;
(h) manufacturing logistics engineering;
(i) manufacturing technology engineering;
(j) operations research engineering;
(k) plant engineering;
(l) process design engineering;
(m) process engineering;
(n) production engineering;

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(o) quality management engineering;

(p) robotics and production automation engineering;

(q) safety engineering;

(r) supply chain management engineering; and

(s) value engineering,

IDENTIFIED ENGINEERING WORK IN MECHANICAL ENGINEERING DISCIPLINE

12 (1) The core services in the mechanical engineering discipline consist of the analysis, planning, design, manufacture, construction, management, operation and maintenance of materials, steel structures, components, machines plant and systems for

(a) lifting, hoisting and materials handling. turbines, pumps and fluid power, heating, cooling, ventilating and air conditioning,

(b) fuels, combustion, engines, steam plant, turbines,

(c) automobiles, trucks and special vehicles,

(d) fire protection;

(e) nuclear energy generation;

(f) steel structures, through the application of engineering sciences: mechanics, solid mechanics, thermodynamics, fluid mechanics.

(2) The core services in the mechanical engineering discipline are performed in the following practice areas:

(a) Advising on and designing machinery and tools for manufacturing, mining, construction,
agricultural and other purposes;

(b) advising on and designing steam, internal combustion and other non-electric motors and engines used in propulsion of railway locomotives, road vehicles or aircraft or for driving industrial or other machinery

(c) advising on and designing hulls, superstructures and propulsion systems of ships; mechanical plant and equipment for the release, control and utilisation of energy, heating, ventilation and refrigeration systems, steering gear, pumps and other mechanical equipment

(d) advising on and designing airframes, undercarriages and other equipment for

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aircraft as well as suspension systems, brakes, vehicle bodies and other components of road vehicles

(e) advising on and designing non-electrical parts of apparatus or products such as word processors, computers, precision instruments, cameras and projectors;

(f) establishing control standards and procedures to ensure efficient functioning and safety of machines, machinery, tools, motors, engines, industrial plant, equipment or systems;

(g) ensuring that equipment, operation and maintenance comply with design specifications and safety standards.

IDENTIFIED ENGINEERING WORK IN METALLURGICAL ENGINEERING DISCIPLINE

13 (1) The core services in the metallurgical engineering discipline consist of either-

(a) physical metallurgical engineering which is the analysis, design, production, characterisation, failure analysis and application of materials, including metals, for engineering applications based on an understanding of the properties of matter and engineering requirements; or

(b) extractive metallurgical engineering which is the research, planning, design, developing and operating commercial-scale processes for the extraction of metals or intermediate compounds from ores by chemical or physical processes, including those at high temperatures, the operation and optimisation of process plants, through the application of metallurgical engineering sciences.

(2) The core services of a physical metallurgical engineer in the metallurgical engineering discipline are performed in the following practice areas:

(a) Develop, control and advise on processes used for casting, alloying, heat treating or welding of metals, alloys and other materials to produce commercial metal products or develop new alloys, materials and processes, evaluate and specify materials for engineering applications, and do quality control and failure analyses;

(b) investigate properties of metals and alloys, develop new alloys and advise on and supervise technical aspects of metal and alloy manufacture, processing, use and manufacturing;

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(c) do residual life evaluations and predictions, failure analyses, and prescribe remedial actions to avoid material failures.

IDENTIFIED ENGINEERING WORK IN MINING ENGINEERING DISCIPLINE

14 (1) The core services in the mining engineering discipline consist of the analysis, planning, design and development, manufacture, construction, management, operation, maintenance and rehabilitation of works for the extraction of minerals from natural deposits on the earth's surface underground or under water through the application of mining engineering science.

(2) The core services in the mining engineering discipline are performed in the following practice areas:

(a) Conducting fundamental or operational research and advising on occupational health and safety and environmentally responsible mineral excavation methodology, processes and systems;

(b) designing and specifying mineral excavation processes, application of mining resources and mining technical support services required, occupational health, safety and environmental considerations and quality assurance;

(c) establish production and operational control standards and procedures to ensure compliance with legislation and site-specific requirements;

(d) manage occupational health, safety and environmentally-related hazards and accompanying risks;

(e) performing tests throughout the life-cycle stages and mineral excavation processes to determine the degree of control over variables identified during the strategic and tactical mine design and planning processes;

(f) develop appropriate site-specific risk management policies, procedures and standards;

(g) prepare pre-feasibility and feasibility reports and life-of-mine exploitation strategies and plans, business plans and bankable documents based on site-specific assumptions, premises, constrains and best practice standards;

(h) converting mineral resources into mineable reserves;

(i) performing mineral asset valuations;

(j) managing mineral assets; and

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(k) education and training of candidate mining engineering practitioners.

IDENTIFIED ENGINEERING WORK FOR PROFESSIONAL CERTIFICATED ENGINEER

15 (1) For the purposes of section 26(3)(a) of the Engineering Profession Act, work identified for persons registered in terms of section 18(1)(a)(iii) of the Engineering Profession Act includes the core services for the practice areas referred to in sub-item (3)provided that the person so registered holds a statutory certificate of competency issued in terms of the Mines Health and Safety Act 1996, the Occupational Health and Safety Act 1993 or the Merchant Shipping Act 1951.

(2) The list of activities identified sub-item (3) is not exhaustive and any similar activity that is undertaken in order to perform a core service in compliance with an agreement to provide engineering work which is not listed in sub-item (3) below is deemed to be an activity listed in sub-item (3).

(3) Engineering work performed by a Professional Certificated Engineer includes-

(a) the application of current engineering technology

(b) the management and operation of technology based engineering solutions and processes;

(c) the introduction of known engineering services and management methods;

(d) the management of the implementation of broadly-defined engineering projects and the routine maintenance of engineering infrastructure;

(e) the management of moderate to high level of risks associated with engineering processes, systems, equipment and infrastructure; and

the specify operational and safety requirements to ensure inherently safe working conditions; within the specific context relating to persons working in factories, mines and on ships as certificated persons appointed in terms of the Occupational Health and Safety Act, 1993, the Mines Health and Safety Act, 1996 and the Merchant Shipping Act, 19517

(4) A person may perform work identified in this item if he or she is in possession of any one or more of the following government certificates of competency:

(a) Electrical Engineer's Certificate of Competency issued in terms of the Mines

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Health and Safety Act, 1996;

(b) Mechanical Engineer's Certificate of Competency issued in terms of the Mines Health and Safety Act, 1996;

(c) Electrical Engineer's Certificate of Competency issued in terms of the Occupational Health and Safety Act, 1993;

(d) Mechanical Engineer's Certificate of Competency issued in terms of the Occupational Health and Safety Act, 1993;

(e) Manager's Certificate of Competency (Metalliferous) issued in terms of the Mines Health and Safety Act, 1996;

(f) Manager's Certificate of Competency (Coal) issued in terms of Mines Health and Safety Act, 1996; and

(g) Chief Engineer Officer- Foreign Going Certificate of Competency issued in terms of the Merchant Shipping Act, 1951.

SCOPE OF SERVICES

16 The standard services performed by a person registered in any category referred to in section 18(1)(a) of the Engineering Profession Act who performs identified engineering work in the applicable stages of an engineering project or construction works project are given in Table A in Annexure A.

WORK BY PERSON WHO OVERSEES PLANNING, DESIGN AND DELIVERY OF EDUCATION AND TRAINING PROGRAMME AND EMPLOYEE OF ORGAN OF STATE DEEMED IDENTIFIED WORK

17 (1) Any person who oversees the planning, design and delivery of education and training programmes accredited by ECSA and assessment of students at the engineering exit level at a higher education institution that is established, deemed to be established or declared as a public or private higher education institution under the Higher Education Act, 1997 (Act No 101 of 1997) or at a public college as defined in the Further Education and Training Colleges Act, 2006 (Act No. 16 of 2006), is deemed to be a person who performs identified work contemplated in item 2 of this Notice.

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(2) Any person who is employed by an organ of state and whose conditions of service require of that person to manage the delivery and maintenance of engineering work is deemed to be a person who performs identified work contemplated in item 2 of this Notice.

(3) For the purpose of this item, "exit level" means the "exit level" contemplated in the Regulations issued in terms of the National Qualifications Framework Act, 67 of 2008.

PERFORMANCE OF IDENTIFIED WORK BY PERSON REGISTERED IN DIFFERENT CATEGORY

18 (1) For the purposes of section 18(2) of the Engineering Profession Act, a person who is registered as a Professional Engineer is deemed to be registered as an Engineering Technologist or Professional Engineering Technician and may perform the identified engineering work that a Professional Engineering Technologist or Professional Engineering Technician may perform as indicated in items 6 to 15 in the relevant engineering discipline provided that he or she is competent in terms of his or her education, training and experience to perform that work.

(2) A person who is registered as a Professional Engineering Technologist is deemed to be registered as a Professional Engineering Technician and may perform any of the identified engineering work that a Professional Engineer Technician may perform as indicated in items 6 to 15 in the relevant engineering discipline provided that he or she is competent in terms of his or her education, training and experience to perform that work.

(3) A person registered in a particular category referred to in section 18(1)(a) or (c) of the Engineering Profession Act, may, notwithstanding the provisions of items 6 to 15, perform any work identified in items 6 to 15 for a different category of registered person, if ECSA grants such registered person a transitional authorisation, special consent or category adjustment, as the case may be.

(4) A person who is registered as a Professional Certificated Engineer may perform engineering work identified at the broadly-defined level in the disciplines referred to in items 10, 12 and 14 commensurate with the qualification or combination of qualifications which led to the issuing of his or her certificate of competency referred

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to in item 15.

(5) Notwithstanding the provisions of this item, a person who is registered as a candidate referred to in section 18(1)(b) of the Engineering Profession Act may not apply for special consent and may only perform identified engineering work under the direction, control and direct supervision of a person registered in the appropriate category in terms of the Engineering Profession Act if the professional or person concerned is authorised under items 6 to 15 in the relevant engineering discipline to perform such identified engineering work.

TRANSITIONAL AUTHORISATION

19 (1) A person who is registered in terms of the Engineering Profession Act and who, after commencement of that Act but before commencement of this notice, performed identified engineering work referred to in items 6 to 15 for a person registered in a category of registration in which he or she is not registered, may apply to ECSA for a transitional authorisation.

(2) An application for a transitional authorisation must be in writing, submitted to ECSA in the form determined by ECSA within six months from the date of commencement of this notice and be accompanied by-

(a) proof of practice during the period contemplated in sub-item (1) within the category that he or she is not registered for;

(b) all available documents pertaining to that practice;

(c) the name and contact details of at least two registered persons who are in a position to serve as personal referees;

(d) the fee determined by ECSA in accordance with section 12 of the Engineering Profession Act; and

(e) any other information required by ECSA.

(3) When considering an application for a transitional authorisation ECSA must take into account the education, training and experience of the applicant requesting such transitional authorisation to undertake the applicable identified engineering work commensurate with the competency requirements contemplated in item 4.

(4) ECSA may, after evaluation of the application for transitional authorisation refuse

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or approve the transitional authorisation and if it approves the transitional authorisation it may subject the approval to any condition it considers appropriate.

(5) If ECSA refuses to grant a transitional authorisation it must, in writing, provide the applicant with the reasons for its decision within seven days of that decision.

(6) If ECSA approves the transitional authorisation it must issue a transitional authorisation certificate in the manner determined by it and the certificate must contain the conditions of issue, if any.

(7) A transitional authorisation certificate authorises the holder thereof to perform the work identified in terms of this Notice for another category of registered person for a period of five years provided that the holder remains a registered person, complies with the continuing professional development requirements and the conditions of approval, if any.

SPECIAL CONSENT

20 (1) A registered person who, after commencement of this notice, intends to perform work for a specific project, commission or appointment or a particular scope of work for which specific competencies are required and which is identified in this Notice for a person registered in a category of registration and linked to a particular discipline in which he or she is not registered, may apply to ECSA for special consent.

(2) An application for special consent must be in writing submitted to ECSA in the form determined by ECSA

and be accompanied by-

(a) a brief motivation for the application;

(b) if applicable, an affidavit from the prospective client of the applicant, other consultants on the proposed team and the proposed contractor;

(c) if applicable, an affidavit from the employer of the applicant who is entitled to perform the identified work by reason of the employer's registration in the applicable category;

(d) all available documents pertaining to the proposed project;

(e) the name and contact details of at least two persons who are in a position to serve as personal referees;

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(f) the fee determined by ECSA in accordance with section 12 of the Engineering Profession Act; and

(g) any other information required by ECSA.

(3) When considering a request for special consent, ECSA must take into account the education, training and experience of the applicant requesting such special consent to undertake the applicable identified engineering work at the level of complexity of a project contemplated in item 3 commensurate with the competency requirements contemplated in item 4.

(4) ECSA may, after evaluation of the application for special consent referred to in this item, refuse or approve the special consent and if it approves the special consent it may subject the approval to any condition it considers appropriate.

(5) If ECSA refuses to grant a special consent it must, in writing, provide the applicant with the reasons for its decision within seven days of that decision.

(6) If ECSA grants the special consent:

(a) for a specific project, commission or appointment it must issue a special consent certificate for that specific project, commission or appointment; or

(b) for a particular scope of work which requires specific competencies, it must issue a special consent certificate for that particular scope of work, in the manner determined by it and the certificate must contain the conditions of issue, if any.

(7) A special consent certificate granted for -

(a) a specific project, commission or appointment, authorises the holder thereof to perform the relevant work for the duration of that project, commission or appointment; or

(b) a particular scope of work which requires specific competencies, authorises the holder thereof to perform the particular scope of work for a period of five years provided that the person remains a registered person, complies with continuing professional development requirements and the conditions of approval, if any.

CATEGORY ADJUSTMENT

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21 (1) A registered person who, after commencement of this notice, generally wants to perform work identified in item 3 and 4 read with items 6 to 15, for a person registered in a category of registration in which he or she is not registered, may apply to ECSA for a category adjustment.

(2) An application for a category adjustment must comply with the rules of ECSA pertaining to registration.

CROSS DISCIPLINARY PRACTISE

22 A person who is registered as a professional and who performs identified engineering work in a particular discipline identified in items 5 to 16 for which he or she has the competence, education, training and experience, may perform identified engineering work in a different discipline if he or she has the competence, education, training and experience to perform such work in that different discipline.

DUAL REGISTRATION

23 A person who is registered as a professional under the professions' Acts, other than the Engineering Profession Act may apply for registration with ECSA provided that such person can show proficiency to perform the identified engineering work applicable to the respective category of registration.

SCOPE OF WORK IDENTIFIED BY COUNCIL FOR THE BUILT ENVIRONMENT FOR PROFESSIONALS OF OTHER COUNCILS FOR THE PROFESSIONS

24 (1) A person registered in a category referred to in section 18(1)(a) of the Architectural Profession Act, 2000 (Act No. 44 of 2000) may perform the scope of work determined in Annexure B which falls within the scope of the engineering profession regulated by the Engineering Profession Act if the education, training and experience of that person have specifically rendered him or her competent to perform that work and the work is performed within the framework of architectural work as defined in Notice No... of 2020 issued by the Council for the Built Environment.

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(2) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may perform the scope of services contemplated in Notice No... of 2014 issued by the Council for the Built Environment which falls within the scope of services of the quantity surveying profession regulated by the Quantity Surveying Profession Act, 2000 (Act No. 44 of 2000), if the qualification , training and experience of that person have specifically rendered him or her competent to perform those services and the services are performed within the framework of engineering work.

(3) A person registered in a category referred to in section 18(1)(a)(i) of the Engineering Profession Act may perform the scope of work determined in Annexure C which falls within the scope of the project and construction project management professions regulated by the Project and Construction Project Management Professions Act, 2000 (Act No. 48 of 2000) if the education, training and experience of that person have specifically rendered him or her competent to perform that work and the work is performed within the context of a construction works project.

(4) A person registered in a category referred to in section 18(1)(a) of the Engineering Profession Act may, in conjunction with a person registered in terms of section 18(1)(a) of the Landscape

(5) Architectural Profession Act, 2000 (Act No. 45 of 2000) perform the scope of work identified in Notice No... of 2020 issued by the Council for the Built Environment, if the qualification, training and experience of that person have specifically rendered him or her competent to perform those services and the services are performed within the framework of engineering work or construction works.

APPEAL

25 Any person who feels aggrieved by an action of ECSA as a result of the work identified in this notice or due to the refusal by ECSA to grant a transitional authorisation, special consent or category adjustment contemplated in items 19, 20 or 21 may lodge an appeal against such an action with ECSA and section 35 of the Engineering Profession

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Act applies with the necessary changes.

IMPROPER CONDUCT

26 Any registered person who is not permitted to undertake work identified in items 5 to 16 or who has not obtained a transitional authorisation, special consent or category adjustment to do so in terms of item 19, 20 or 21, is in breach of the code of conduct of ECSA and the provisions of the Engineering Profession Act relating to improper conduct applies.

TRANSITIONAL PROVISIONS

27 (1) Any person who is not registered in terms of the Engineering Profession Act, and who is required to be registered as a professional or in a specified category in terms of this Notice must, within 36 months of the date on which this Notice comes into operation, apply for registration according to the programme contemplated in sub-item

(2) in the appropriate category referred to in section 18(1)(a) or (c) of the Engineering Profession Act.

(2) A person who is required to be registered in terms of this Notice and whose surname-

(a) begins with the letter "A" to "K", may apply for registration from 1 January 2022;

(b) begins with the letter "L" to "Q", may apply for registration from 1 January 2023; and

(c) begins with the letter "R" to "Z", may apply for registration from 1 January 2024.

(3) Any person whose registration in a category referred to in section 18(1)(a) or (c) was cancelled in terms of the Engineering Profession Act within one year prior to the date on which this Notice commences must be re- registered in the appropriate professional category within six months from the date on which this Notice commences, unless he or she is not required to be so registered in terms of this Notice.

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ANNEXURE A

WORK IDENTIFIED BY THE COUNCIL FOR THE BUILT ENVIRONMENT IN THE CONTEXT OF AN ENGINEERING PROJECT OR A CONSTRUCTION WORKS PROJECT INCLUDES THE SCOPE OF SERVICES IN THE FOLLOWING STAGES

1. The engineering work performed by a person registered in terms of section 18(1)(a) of the Engineering Profession Act in the context of an engineering project or a construction works project, includes the standard services set out in Table A to the extent that the registered person's education, training, experience and contextual knowledge render him or her competent to perform.
2. A person registered in terms of section 18(1)(a) of the Engineering Profession Act may, in the performance of engineering work in the context of an engineering project or the mechanical and electrical engineering work components of a construction works project, perform the work of a principal consultant or principal agent, if appointed as such by the client or employer, to the extent that the registered person's education, training, experience and contextual knowledge render him or her competent to perform.
3. Stages 7, 8 and 9 in Table A below are only applicable to engineering projects.

Table A: Scope of services for a person registered in terms of section 18(1)(a) of the Engineering Profession Act in the context of an engineering project or a construction works project.

STAGE 1: INCEPTION	
1	Assist in developing a clear project brief
2	Attend the project initiation meetings
3	Advise on policies, inter alia, procurement, logistics, indigenisation, standards and specifications for the
4	Advise on rights, constraints, consents and approvals
5	Define the services and scope of work required.
6	Conclude the terms of the agreement with the client
7	Inspect the site and advise on the necessary surveys, analyses, tests and site or other investigations where such information will be required for Stage 2 including the availability and location of

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8	Determine availability of data, drawings and plans relating to the project
9	Advise on appropriate financial design criteria
10	Advise on other criteria that could influence the project life cycle cost significantly.
11	Provide necessary information within agreed scope of the project to the other consultants involved
STAGE 2: CONCEPT AND VIABILITY	
1	Agree the documentation programme with the principal consultant, and client and the other consultants
2	Attend design and consultants' meetings
3	Establish concept and project design criteria
4	Prepare initial concept design and related documentation
5	Advise the client regarding further surveys, analyses, tests and investigations which may be required
6	Refine and assess concept design to ensure conformance with all regulatory requirements and consents
7	Establish regulatory authorities' requirements and incorporate into the design
8	Establish access, utilities, services and connections required for the design
9	Co-ordinate design interfaces with the other consultants
10	Prepare preliminary process designs, preliminary designs and related documentation for approval by authorities and the client and suitable for costing
11	Prepare cost estimates and comment on life cycle costs as required
12	Liaise, co-operate and provide necessary information to the client, principal consultant and other consultants involved
13	Undertake preliminary risk assessments
STAGE 3: DESIGN DEVELOPMENT	
1	Review the documentation programme with the principal consultant and the other consultants
2	Attend design and consultants' meetings
3	Incorporate the client's and authorities' detailed requirements into the design
4	Incorporate the other consultants' designs and requirements into the design
5	Prepare design development drawings, including draft technical details and specifications
6	Review and evaluate design and outline specifications and exercise cost control and project
7	Prepare detailed estimates of construction costs and other costs
8	Liaise, co-operate and provide necessary information to the client, principal consultant and other
9	Submit necessary design documentation to local and other authorities for approval.
10	Conduct relevant risk assessments
STAGE 4: DOCUMENTATION AND PROCUREMENT	
1	Chair or attend design and consultants' meetings.
2	Prepare specifications and preambles for the works
3	Accommodate services design
4	Check cost estimate with the quantity surveyor and adjust designs and documents if necessary to remain within budget
5	Chair or assist the principal consultant in the formulation of or formulate the procurement strategy for contractors .
6	Review working drawings for compliance with the approved budget and scope
7	Prepare documentation for contractor procurement
8	Review designs, drawings and schedules for compliance with approved budget

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9	Assist the principal consultant with calling of tenders and negotiation of prices, if required Calling for tenders and/or negotiation of prices and/or assist the principal consultant where relevant
10	Liaise, co-operate and provide necessary information to the principal consultant and the other consultants as required
11	Assist with evaluation of tenders
12	Assist with preparation of the contract documentation for signature
13	Assist in pricing, documentation and tender evaluation as required when the detailed services for these activities are provided by others
14	Assess samples and products for compliance and design intent
STAGE 5: CONSTRUCTION	
1	Attend the site handover
2	Issue construction documentation in accordance with the documentation programme including, in the case of structural engineering, reinforcing bending schedules and detailing and specifications of structural steel sections and connections
3	Carry out contract administration procedures delegated by the principal agent in terms of the contract
4	Prepare schedules of predicted cash flow
5	Prepare pro-active estimates for proposed variations for client decision-making
6	Attend regular site, technical and progress meetings
7	Inspect the works for quality and conformity to approved contract documentation
8	Adjudicate and resolve financial claims by contractor
9	Assist in the resolution of contractual claims by the contractor
10	Establish and maintain a financial control system
11	Clarify details and descriptions during construction as required
12	Prepare valuations for payment certificates to be issued by the principal agent
13	Instruct, witness and review of all tests and mock-ups carried out both on and off the site
14	Check and approve subcontract shop contractor drawings for design intent
15	Update and issue drawings register
16	Issue contract instructions as and when required
17	Review and comment on operation and maintenance manuals, guarantees, certificates and warranties
18	Inspect the works and issue practical completion and defects lists
19	Arranging for the delivery of all test certificates, statutory (regulatory) and other approvals, as built drawings and operating manuals.
20	Compilation of the required safety information
21	Prepared final account(s) for electrical and mechanical engineering works on a progressive basis
STAGE 6: CLOSE-OUT OF THE CONSTRUCTION PHASE	
1	Inspect and verify rectification of defects
2	Receive, comment and approve relevant payment valuations and completion certificates
3	Facilitate and/or prepare and/or procure operations and maintenance manuals, guarantees and warranties as- built drawings and documentation
4	Prepare and/or procure as-built drawings and documentation
5	Conclude the final accounts where relevant
6	Obtain final handover and acceptance from the client
STAGE 7: OPERATE IN ACCORDANCE WITH PURPOSE STATEMENT FOR LIFE OF PROJECT	

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STAGE 8: MAINTAIN THE AS-BUILT-STATE FOR LIFE OF PROJECT
STAGE 9: SHUTDOWN PERMANENTLY; DECOMMISSION; DEMOLISH AND RE-INSTATE

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ANNEXURE B

WORK IDENTIFIED BY THE COUNCIL FOR THE BUIIT ENVIRONMENT WHICH FALLS WITHIN THE SCOPE OF THE ENGINEERING PROFESSION WHICH IS REGULATED BY THE ENGINEERING PROFESSION ACT WHICH MAY BE PERFORMED BY A PERSON REGISTERED IN A CATEGORY REFERRED TO IN SECTION 18(1)(a) OF THE ARCHITECTURAL PROFESSION ACT

A person registered in terms of section 18(1)(a) of the Architectural Profession Act, 2000 may perform the following work which falls within the scope of the engineering profession which is regulated by the Engineering Profession Act to the extent that the registered person' education, training, experience and contextual knowledge render them competent to perform:

1. The design of any building or building component using the deemed-to-satisfy requirements given in SANS 10400: The application of the National Building Regulations, excluding the application of rational design or rational assessment as defined in SANS 10400-A.

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ANNEXURE C

WORK IDENTIFIED BY THE COUNCIL FOR THE BUIIT ENVIRONMENT WHICH FALLS WITHIN THE SCOPE OF THE PROJECT AND CONSTRUCTION PROJECT MANAGEMENT PROFESSION REGULATED BY THE PROJECT AND CONSTRUCTION PROJECT MANAGEMENT PROFESSION ACT, 2000 WHICH MAY BE PERFORMED BY A PROFESSIONAL REGISTERED IN THE CATEGORY REFERRED TO IN 18(1)(a)(i) OF THE ENGINEERING PROFESSION ACT

1. A person registered in terms of section 18(1)(a)(i) of the Engineering Profession Act may perform the scope of services indicated in Table C1 below which falls within the scope of services identified by the Council for the Built Environment for a professional registered in terms of the Project and Construction Management Professions Act, 2000, to the extent that the registered person' education, training, experience and contextual knowledge render them competent to perform.

2. The work referred to in the table below is the work contemplated in Notice No. ... of 2014 issued by the Council for the Built Environment.

STAGE 1- PROJECT INITIATION AND BRIEFING
Standard Services
1.1 Assist the client in the procurement of the necessary and appropriate consultants including the clear definition of their roles, responsibilities and liabilities.
1.2. Establish in conjunction with the client, consultants, and all relevant authorities the site characteristics necessary for the proper design and approval of the intended project
1.3. Manage the integration of the preliminary design to form the basis for the initial viability assessment of the project
STAGE 2- CONCEPT AND FEASIBILITY
Standard Services
2.1 Assist the client in the procurement of the necessary and appropriate consultants including the clear definition of their roles, responsibilities and liabilities.
2.2 Advise the client on the requirement to appoint a Health and Safety Consultant
2.3 Manage and integrate the concept documentation for presentation to the client for approval

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STAGE 3 - DESIGN DEVELOPMENT
Standard Services
3.1 Assist the client in the procurement of the balance of the consultants including the clear definition of their roles, responsibilities and liabilities.
3.2 Manage, co-ordinate and integrate the design by the consultants
3.3 Conduct and record the co-ordination meetings
3.4 Manage and monitor the timeous submission by the design team of all plans and documentation to obtain the necessary statutory approvals
3.5 Establish responsibilities and monitor the information flow between the design team.
3.6 Facilitate and monitor the timeous technical co-ordination of the design by the design team
STAGE 4- TENDER DOCUMENTATION AND PROCUREMENT
Standard Services
4.1 Manage the tender process in accordance with agreed procedures.
STAGE 5- CONSTRUCTION DOCUMENTION AND MANAGEMENT
Standard Services
5.1 Appoint contractor(s) on behalf of the client including the finalisation of all agreements.
5.2 Instruct the contractor on behalf of the client to appoint subcontractors.
5.3 Receive, co-ordinate, review and obtain approval of all contract documentation provided by the contractor, subcontractors, and suppliers for compliance with all of the contract requirements.
5.4 Facilitate the handover of the site to the contractor.
5.5 Regularly conduct and record the necessary site meetings
5.6 Monitor the compliance by the contractors of the requirements of the Health and Safety Consultant.
5.7 Monitor the preparation by the Environmental Consultants of the Environmental Management Plan
5.8 Establish the construction information distribution procedures.
5.9 Agree and monitor the Construction Documentation Schedule for timeous delivery of required information to the contractors.
5.10 Manage the review and approval of all necessary shop details and product propriety information.
5.11 Agree to the quality assurance procedures and monitor the implementation thereof by the consultants and contractors.
5.12 Monitor, review, approve and certify monthly progress payments.
5.13 Receive, review and adjudicate any contractual claims.
5.14 Issue the Practical Completion Lists and the Certificate of Practical Completion.

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5.15 Issue of the Works Completion List by the consultants to the contractors.
5.16 Check the defects items to achieve Works Completion.
STAGE 6 - PROJECT CLOSE OUT
Standard Services
6.1 Issue the Works Completion Certificate
6.2 Preparation of all as-built drawings and design documentation.
6.3 The procurement of all statutory compliance certificates and documentation.
6.4 Issue the Final Completion Defects list and Certificate of Final Completion.

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