

THE INSTITUTION OF ENGINEERS PAPUA NEW GUINEA INC.

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COMPETENCE SELF REVIEW (FORM CA03)

Name of
Applicant: _____

Membership
number : _____

GENERAL GUIDANCE NOTES

- Use this form if you are applying for an Assessment for Admission (AFA)/Registration for entry to IEPNG competence based register or IEPNG membership classes. If you are preparing a portfolio of evidence for Continued Registration Assessment (CRAs), use this form if your practice area has changed materially or if your assessors have asked you to provide more detailed evidence.
- In completing this form, please refer to the relevant competence standard (and performance indicators) you are being assessed against.
- The table at the rear of the form provides definitions of 'complex', 'broadly-defined' and 'well-defined' engineering problems and activities.
- Write your material in the first-person using 'I' or 'me' instead of 'we' or 'us' statements.
- Additional information about filling in this form can be found in the [Instructions to Fill in CA03 Form](#) document.

Important, before filling out form please read these notes

1. This form requires you to provide two examples for each element of the relevant competence standard that you believe shows you meet the requirements for each element of the standard in your practice area.
2. The examples you give should demonstrate a level of complexity consistent with the standard you are being assessed against. The factors contributing to the complexity of the engineering work are given in the definitions at the rear of this form. It will assist assessors if you state the factors you consider contribute to the complexity of the work in each example.
3. You may provide three (or more) examples if you wish – for example, you might have more than 2 cases of 'strong' evidence or you may wish to use more examples to demonstrate competence over a diverse range of activities within your practice area. if, say, you are a 'generalist' civil engineer, you may do this by providing geotechnical, waters and structural design examples.
4. When documenting your examples, be succinct and precise - large amounts of detail are not required. Typically a well-written example would only need half to a full page of text. Feel free to include photos or videos as attachments if this will help the assessors.
5. Refer to the performance indicators (these are the bulleted text listed in the competence standard, accessible via the links given above) of the relevant element for guidance on the nature of evidence that is expected. For your convenience, the performance indicators for the Professional Engineer are listed for each element in this form. As a test, we suggest you ask yourself 'Does the evidence I have provided match one or some of the performance indicators?'

6. You can use the same piece of work for one or more elements where different facets of the work can be used to demonstrate competence in different elements. If you do this, cross reference relevant information to save yourself time and avoid repetition – however, please ensure that assessors can find the relevant information easily. Your first reference to an example might describe the work in some detail – covering information such as the name of the job, significance of the project (such as size and cost), your role in the project and the key actions you took or responsibilities you had and factors contributing to the complexity of engineering work involved. You need only make reference to this element (or other documents) when using the same work as your example in subsequent elements – although you need to highlight the specific activity relevant to the element (e.g. analytical skills, management skills or risk management as appropriate).
7. Registration requires evidence of current competence in engineering. Engineers in engineering management roles (engineers managing engineering related projects or businesses) are still considered to be ‘in engineering’. If your role is in engineering management you may interpret ‘engineering problems’ as the ‘engineering management problems’. You should also make reference to your engineering management role in your practice area description.
8. Work samples are ‘good evidence’ for assessment and are now required for both AFAs and CRAs. The number of work samples you should submit will depend on the extent each work sample demonstrates competence across the standard. Ideally you would submit sufficient work samples to demonstrate competence across all 12 elements.

ELEMENT ONE – KNOWLEDGE**PE**

Comprehend and apply knowledge of the accepted principles underpinning widely applied good practice in professional engineering (Washington Accord degree level)

PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER

Has a Washington Accord degree or recognised equivalent qualification or has demonstrated equivalent knowledge and is able to:

- Identify, comprehend and apply appropriate engineering knowledge
- Work from first principles to make reliable predictions of outcomes
- Seek advice, where necessary, to supplement own knowledge and experience
- Read literature, comprehend, evaluate and apply new knowledge

Provide annotations to your evidence portfolio (document and page number)

ELEMENT TWO – LOCAL KNOWLEDGE

PE	Comprehend and apply knowledge of the accepted principles underpinning good practice for professional engineering that is specific to the jurisdiction in which he/she practices (PNG)	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Demonstrates an awareness of legal requirements and regulatory issues within the jurisdictions in which he/she practices • Demonstrates an awareness of and applies appropriately the special engineering requirements operating within the jurisdictions in which he/she practices.		

ELEMENT THREE – ANALYSE PROBLEMS

PE	Define, investigate and analyse <i>complex engineering problems</i> in accordance with good practice for professional engineering	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER - Identifies and defines the scope of the problem - Investigates and analyses relevant information using quantitative and qualitative techniques - Tests analysis for correctness of results - Conducts any necessary research and reaches substantiated conclusions		

ELEMENT FOUR – DESIGN OR DEVELOP SOLUTIONS

PE	Design or develop solution to <i>complex engineering problems</i> in accordance with good practice for professional engineering	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Identifies needs, requirements, constraints and performance criteria • Develops concepts and recommendations that were tested against engineering principles • Consults with stakeholders • Evaluates options and selects solution that best matched needs, requirements and criteria • Plans and implements effective, efficient and practical systems or solutions • Evaluates outcomes		

ELEMENT FIVE – DECISION MAKING

PE	Be responsible for making decisions on part or all of one or more <i>complex engineering activities</i>	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Takes accountability for his/her outputs and for those for whom he/she is responsible • Accepts responsibility for his/her engineering activities		

ELEMENT SIX – MANAGEMENT

PE	Manage part or all of one or more <i>complex engineering activities</i> in accordance with good engineering management practice	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER - Plans, schedules and organises projects to deliver specified outcomes - Applies appropriate quality assurance techniques - Manages resources, including personnel, finance and physical resources - Manages conflicting demands and expectations		

ELEMENT SEVEN – RISK MANAGEMENT

PE	Identify, assess and manage engineering risk (in the context of <i>complex engineering problems</i>)	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Identifies risks • Develops risk management policies, procedures and protocols to manage safety and hazards • Manages risks through ‘elimination, minimisation and avoidance techniques		

ELEMENT EIGHT – ETHICAL CONDUCT		
PE	Conduct engineering activities to an ethical standard at least equivalent to the relevant code of ethical conduct	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Demonstrates understanding of IEPNG and/or CPEng codes of ethics • Behaves in accordance with the relevant code of ethics even in difficult circumstances (includes demonstrating an awareness of limits of capability; acting with integrity and honesty and demonstrating self management)		

ELEMENT NINE – RECOGNISE FORESEEABLE EFFECTS

PE	Recognise the reasonably foreseeable social, cultural and environmental effects of <i>professional engineering activities</i> generally	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Considers and, where needed, takes into account health and safety compliance issues and impact(s) on those affected by engineering activities • Considers and takes into account possible social, cultural and environmental impacts and consults where appropriate • Recognises impact and long-term effects of engineering activities on the environment • Recognises foreseeable effects and where practicable seeks to reduce adverse effects		

ELEMENT TEN – COMMUNICATION

PE	Communicate clearly with other engineers and others that he or she is likely to deal with in the course of his or her professional engineering activities	Provide annotations to your evidence portfolio (document and page number)
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Uses oral and written communication to meet the needs and expectations of his/her audience • Communicates using a range of media suitable to the audience and context • Treats people with respect • Develops empathy and uses active listening skills when communicating with others • Operates effectively as a team member		

ELEMENT ELEVEN – MAINTAIN CURRENCY

PE	Maintain the currency of his or her engineering knowledge and skills	Page reference of relevant work history, CPD or work sample evidence.
PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER • Demonstrates a commitment to extending and developing knowledge and skills • Participates in education, training, mentoring or other programmes contributing to his/her professional development • Adapts and updates knowledge base in the course of professional practice • Demonstrates collaborative involvement with professional engineers (Engineers for CPEng assessments)		

ELEMENT TWELVE – JUDGEMENT**PE**Exercise sound **professional** engineering judgement

Provide annotations to your evidence portfolio (document and page number)

PERFORMANCE INDICATORS FOR PROFESSIONAL ENGINEER

- Demonstrates the ability to identify alternative options
- Demonstrates the ability to choose between options and justify decisions
- Peers recognise his/her ability to exercise sound professional engineering judgement

Professional Engineer
RegEng , MIEPNG
(PE)

Complex engineering activities or projects have some or all of the following characteristics:

- Involve the use of diverse resources (and, for this purpose, **resources** includes people, money, equipment, materials and technologies);
- Require resolution of critical problems arising from interactions between wide-ranging technical, engineering and other issues;
- Have significant consequences in a range of contexts;
- Involve the use of new materials, techniques, or processes or the use of existing materials, techniques, or processes in innovative ways

Complex engineering problems have some or all of the following characteristics:

- Involve wide-ranging or conflicting technical, engineering, and other issues
- Have no obvious solution and require originality in analysis; Involve infrequently encountered issues
- Are outside problems encompassed by standards and codes of practice for professional engineering
- Involve diverse groups of stakeholders with widely varying needs
- Have significant consequences in a range of contexts
- Cannot be resolved without in-depth engineering knowledge