

Registration of Professional Engineering Technologists Design for Outcome no. 1



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Introduction

Today we are discussing what is meant by “designing” for registration as a Professional Engineering Technologist in the following disciplines.

- 1. Consulting*
- 2. Construction*
- 3. Government*
- 4. Managerial*



Outcome no. 1 of your application form

The application form consists of eleven outcomes that are all to be achieved for registration.

The outcomes no's 1 and 2 seem to be a problem with applicants who have not worked in a Consultant's design office.

Applicants seem to have a problem when they have to discuss a design.

Outcome no. 1 states "Define, investigate en analyse a broadly defined engineering activity."



Outcome no. 1 of your application form (Cont.)

If you look at the key words:

- Define – 1.1
- Investigate – 1.2
- Analyse – 1.3

Define – Discuss the problem encountered which has to have the criteria of a Broadly-Defined Engineering Activity.

Investigate – Discuss what information was collected to be able to make a decision for your solution.



Outcome no. 1 of your application form (Cont.)

Analyse – What assumptions did you use for your initial (preliminary) design.

It must be noted that these first three key words actually follow after each other.

You cannot collect information or make assumptions before identifying a problem.

Outcome no. 1

Outcome 1: Define, investigate and analyse broadly-defined engineering problems.		
1.1 State how <u>you</u> performed or contributed in defining engineering problems leading to an agreed definition of the problems to be solved.		Period No:
1.2 State how <u>you</u> performed or contributed in investigating engineering problems including collecting, organising and evaluating information.		Period No:
1.3 Describe how <u>you</u> performed or contributed in analysing engineering problems, using conceptualisation, justified assumptions, limitations and evaluation of results.		Period No:



Outcome no. 2 of your application form

Outcome no. 2 follows after outcome no. 1.

Here you discuss your design and your solution to the problem defined based on the information collected and the assumptions made in outcome no. 1.

Outcome no. 2 states “Design or develop a solution to broadly-defined engineering problems.”

The key words are:

Design or develop – 2.1



Outcome no. 2 of your application form

Solution – 2.2

Design or develop – Here you discuss your design or development of your solution based on the problem identified, information collected and assumptions made in outcome no. 1.

Solution – Here you discuss what designs or solutions you used to solve the identified broadly-defined engineering activity, please note designs or solutions are in plural.

After you identified the different solutions state which was the best solution to be used and why did you opt to that solution.

Outcome no. 2

Outcome 2: Design or develop a solution to broadly-defined engineering problems.		
2.1 Describe how <u>you</u> designed or developed solutions to broadly-defined engineering problems.		Period No:
2.2 Indicate how <u>you</u> systematically synthesised solutions and alternative solutions or approaches to the problem by analysing designs against requirements, including costs and impacts on outside parameters. (requirements).		Period No:



What is understood with design experience for registration

Here I am going to discuss briefly what is mean with word design for registration as a Professional at ECSA.

What does the word design mean as defined according to The Pocket Oxford Dictionary, Sixth Edition, 1978.

“Outline, sketch, plan, pattern, for future product”



What is understood with design experience for registration - Consultants

1. Consulting

- You receive a brief about the engineering problem to be solved
- Collect information
- Assume certain pre-conceived designs based on certain assumptions made
- You look at various design solutions
- You choose the design that have certain attributes that fit certain criteria (financial, maintenance, durability, lifespan, etc.)



What is understood with design experience for registration - Construction

1. Construction

The greatest myth is that if you work in Construction Industry and if you have not worked in a design office you can never register at ECSA as a Professional.

- As Site Agent / Contracts Manager you have to design temporary and permanent works on your construction site for the Works on many occasions
- You receive designs from Consulting Engineers and find out they are not viable due to various factors that were not taken into account.



What is understood with design experience for registration - Construction (Cont.)

- You look to collect as much information as possible
- Your assumptions are based on the information that you collected
- Your alternative designs is based on the information you collected and your engineering judgement
- You choose the best design based on various factors (Financial, constructability, durability, etc.)



What is understood with design experience for registration – Government

When working in a Government environment and you are in a position of authority you still do design although you have not worked in a design office.

- You receive a design from an Engineering Consultant to be reviewed and approved
- You look at the design based on the criteria guidelines of the Government Department in conjunction with your engineering experience and judgement
- You look at the various options that the Engineering Consultant could have used, using the Government Department criteria and your engineering experience and judgement



What is understood with design experience for registration - Government (Cont.)

- Based on the various designs you evaluate to see if the Engineering Consultant has met all the required criteria of the Government Department guidelines and Engineering Experience and Judgement.
- If the Engineering Consultant has not met these criteria you discuss with the Engineering Consultants Representative the various options based on your proposed designs.
- Based on your discussions/recommendations the best design option is put forward for approval by all parties.



What is understood with design experience for registration – Managerial

In a Managerial position (Private or Government environment) you can still do designing as you are in a position of authority.

- You receive designs from your subordinates to be checked for review and approval
- You check designs according to certain criteria with your engineering experience and judgement
- Designs are not just checked against a checklist without any engineering experience and judgement



What is understood with design experience for registration – Managerial

- You also look at various options based on your assumptions
- You weigh up the various options and see if the design submitted satisfies the required criteria for approval



Conclusion

Today we discussed misconception of the criteria for design in the various sectors of our Engineering Industry for outcome no's 1 and 2 of the Engineering Report (Form B2.3 ER)



Acknowledgement

The presentation is based on:

- The ECSA application form for Outcomes no's 1 and 2 (Form B2.3 ER)



Thank you

• *Any Questions??*