



Workshop on BEM Outcome-based PAE: **Let's begin!**

Preparation of Documentations for Submission

Presented by:

Dato' Ir. Prof Emeritus Dr. Hassan bin Basri

Member of WG on PAE



Workshop 2: 23rd August 2023



Dubai 3,
MATRADE Exhibition & Convention Centre



Become a PE

- Let's begin!!

- 1. START WITH RECAP***
- 2. ACCESSING THE BEM WEBSITE***
- 3. HANDS-ON TUTORIAL***





You have to prepare **three major documents** for submission:

PHASE I – For Online

- 1. Application Form** *(do this first)* **submission**
- *includes career history/experience.*
- 2. Training & Experience Report** *(do this, based on the above)*
– *A self testimony of competence attained by candidate*

Phase 2 - To be submitted later, but not later than two days before interview.

- 3. Powerpoint presentation of selected technical work**
- *Maximum eight slides*

(Actually you should prepare a 4th, not for submission, but as “dummy/trial” document to prepare for the sit-in Code of Conduct paper)

1. Application Form

APPENDIX PAE-1

[Example for Career History doc.no.4.](#)
[Appendix PAE- I.docx](#)



APPENDIX PAE-1

Name: Click or tap here to enter text.

Identity Card/Passport No: Click or tap here to enter text.



CAREER HISTORY									
STATEMENT OF EXPERIENCE		Assess your competency levels under Categories A, B, C, D and E							
		1 - Minimum Involvement (Participating role) 2 - Moderate Involvement (Contributing role) 3 - Substantial Involvement (Leading role)							
Date (month & year) relating to each appointment Example: July 2001 to May 2005	State Title of Position held, Name of Employer, Location and Description of each work (Make description brief and concise, not exceeding 100 words and include some indication of magnitude and complexity of work in which engaged, your duties and degree of responsibility) If necessary additional sheets may be attached. NOTE: EXPERIENCE MUST BE AFTER REGISTRATION AS BEM GRADUATE ENGINEER	Name, Position and Email address of Engineer or Supervisor (not necessarily a PE) under whom served.	Experience (in month)	A	B	C	D	E	Signatures of any Professional Engineers (same discipline) who has personal knowledge of Applicant's training or experience in the period mentioned
Understanding & Knowledge	Design & Development of Solution	Responsibility, Management & Leadership	Communication & Interpersonal Skills	Code of conduct & obligations to society, profession, environment					
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		Total Months	Click or tap						

Notes:

1. To create new page, please click (+) button

1. Application Form



APPENDIX PAE-1






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BEM ROADSHOW 2023 SARAWAK DAY 2 SESSION 1_PAPER 4 Example for Career History doc.no.4. Appendix PAE-1.docx



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Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	<div style="border: 1px solid black; width: 100px; height: 50px; margin: 0 auto;"></div> Signature	
		Total Months	Click or tap here to enter text.							

Notes:
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Training & Experience Report

Fill up this form

TRAINING & EXPERIENCE REPORT BASED-ON-COMPETENCE-GAINED

Name: _____
Branch of registration: _____
Graduate Registration number: _____

How should you use this section?

The four areas of Competence, A, B, C and D, must be demonstrated in order to practice professionally. They are subdivided further into thirteen (13) Competency Elements, i.e. A(1-3), B(1-3), C(1-3) and D(1-3).

For each of the Competency Elements, you are required to explain in a narrative your work experiences as evidence which has contributed to the competency.

These narratives will be the evidence used for demonstration by you and as the basis for assessment by examiners during the Professional Assessment Examination (PAE).

Please ensure the narrative, or evidence, for each of the Competency Element has around 300-500 words depending on the amount and variety of your experience.

What are the levels of competency expected?

While a Professional Engineer is expected to be able to demonstrate his/her competence in all of the areas listed, the depth and extent will vary with the nature and requirements of his/her experience.

Hence you are expected to demonstrate a degree of competence in each area at a level which is consistent with your actual specific role/s. You may have a higher level of competence in some areas than others, and possibly the levels may be quite limited in certain areas.

However, you need to demonstrate an understanding of, and familiarity with, the key aspects of competence in all areas as a minimum requirement while demonstrating higher levels of competence in those areas which are critical to your role. Overall, you need to demonstrate an appropriate balance of competencies.

What constitute evidence of your competencies?

Evidence that need to be demonstrated are narratives of your work experiences and proficiencies which has contributed to the competency as you engaged in various engineering activities and/or encountered engineering problems in your career.

The given examples of activities for each Competency Element, listed in the template which follows, are examples of evidence that demonstrate the specific competency. They provide guidance to help identify those appropriate for the particular Competency Element.

They are included as examples only, since the most appropriate activities may vary with each individual role. The list is not exhaustive and other types of activities might be valid.

Normally there is no necessity to refer to all of your activities for evidence in each area of competence. If you have had many roles, select those which are most relevant and best illustrate the Competency Element. Examples from two or several projects or tasks should usually be appropriate, being very specific in the descriptions of each.

The objective is to convince the interviewers such that, before you walk into the interview, they already think you are indeed "PE material" and all they have to do is confirm your competence.

How should you do the write-up?

You need to do the write-up in this template carefully and concisely, highlighting your key role and responsibilities (not merely a job description) and achievements as evidence for each Competency Element.

Some example points that you can elaborate as evidence are:-

- Explanation of the context and justifications in which you made decisions.
- Benefits of presenting technical information for review by others.
- Explanation of investigation results, and how you ensured the quality of the data used.
- Justification on choice of techniques, software, etc that guided your technical decisions.
- Description of how you reached to particular outcome.
- Technological changes which affected your methods or decisions.

Further guidance when writing-up:-

- Focus on your individual achievements, not what the team did. Try as much as possible to use phrases such as "I designed", "I negotiated", "I led a construction team", "I participated in", "I implemented", "I achieved", etc.

Use terms which can be understood by a non-specialist in your field. Avoid using jargon and unnecessary or unexplained abbreviations.

- Indicate the size and complexity of the projects or tasks for which you had direct or partial responsibility, for example, numbers of people supervised, the value in financial terms of the activity.

Your write-up will be the main reference during the interview, so before it is in your own interest to present your work clearly.

Page Break

COMPETENCY AREAS & ELEMENTS

Competency Element	
	Competency Area A: KNOWLEDGE AND UNDERSTANDING OF ENGINEERING Comprehension of advanced engineering knowledge of the widely-applied principles underpinning good practice
A1	Broadening personal knowledge, understanding and technical skills in applicant's own and/or allied fields of specialisation Examples of activities as evidence to demonstrate this competency: <ul style="list-style-type: none"> → Formal training or post-graduate study related to your role → Learning and/or developing new engineering knowledge in a different industry or role → Learning current and/or emerging technology and technical best practice in your area → Developing a broader and deeper knowledge base through research and experimentation → Learning and developing new engineering techniques and theories in the workplace
A2	Broadening personal knowledge and experience in relation to products or services engaged by applicants, especially with a view to improvement Examples of activities as evidence to demonstrate this competency: <ul style="list-style-type: none"> → Carrying out technical research and development → Learning, analysing and/or developing solutions involving complex, non-standard, multidisciplinary or safety-critical problems → Learning and/or developing new applications, designs, processes or systems based on new, established or evolving technology → Learning, developing and/or evaluating continuous improvement systems → Identifying constraints and exploit opportunities for development and transfer of technology



2. Training & Experience Report

Self testimony of competence gained

Four competence areas will be self-reported:

**A. KNOWLEDGE AND UNDERSTANDING OF
ENGINEERING**

B. PRACTICAL APPLICATION OF ENGINEERING

C. MANAGEMENT AND LEADERSHIP

D. COMMUNICATION AND INTERPERSONAL SKILLS

The four areas above will be assessed during the *oral interview*

A fifth competence area:

E. ETHICAL & PROFESSIONAL CONDUCT





Training & Experience Report

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A2	Broadening personal knowledge and experience in relation to products or services engaged by applicant, possibly with a view to improvement Examples of activities as evidence to demonstrate this competency: <ul style="list-style-type: none">• Carrying out technical research and development• Learning, analysing and/or developing solutions involving complex, non-standard, multidisciplinary or safety-critical problems• Learning and/or developing new applications, designs, processes or systems based on new, established or evolving technology• Learning, developing and/or evaluating continuous improvement systems• Identify constraints and exploit opportunities for development and transfer of technology

BEM ROADSHOW 2023 SARAWAK DAY
2_SESSION 1_PAPER 4 Template - structure for
each element.docx

What is meant by EVIDENCE?

So for the purpose of the PAE documents:

- Evidence mainly refer to narratives of your work experiences, i.e. as self-testimonies of competences gained by you.
- Evidence does not normally refer to records, documents or objects;
 - however you may wish to include these as supporting materials in the form of:-
 - softcopy appendices (with links to remote files), or
 - loose items brought during the interview.
 - examiners may request to view specific items



EXAMPLES OF SPECIFIC EVIDENCE (*GIVEN IN TEMPLATE*)

- **The given examples of activities for each Competency Element are example evidence that demonstrate the specific competency element.**
- They provide guidance to help you identify those appropriate for your experience.
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EXAMPLES OF POINTS FOR THE WRITE-UP

Competency Element

Competency Area A: **KNOWLEDGE AND UNDERSTANDING OF ENGINEERING**

A1

Broadening personal knowledge, understanding and technical skills in applicant's own and/or allied fields of specialisation.

Examples of activities as evidence to demonstrate this competency:

- Formal training or post-graduate study related to your role
- Learning and/or developing new engineering knowledge in a different industry or role
- Learning current and/or emerging technology and technical best practice in your area
- Developing a broader and deeper knowledge base through research and experimentation
- Learning and developing new engineering techniques and theories in the workplace

A2

Broadening personal knowledge and experience in relation to products or services engaged by applicant, possibly with a view to improvement.

Examples of activities as evidence to demonstrate this competency:

- Carrying out technical research and development
- Learning, analysing and/or developing solutions involving complex, non-standard, multidisciplinary or safety-critical problems
- Learning and/or developing new applications, designs, processes or systems based on new, established or evolving technology
- Learning, developing and/or evaluating continuous improvement systems
- Identify constraints and exploit opportunities for development and transfer of technology

A3

Learning, comprehension and application of relevant engineering codes, standards, specifications and/or guidelines, especially those appropriate to local context, requirements, and application.

Examples of activities as evidence to demonstrate this competency:

- Understanding and applying the relevant codes and standards relevant to engaged projects
- Development of codes, standards, specifications and/or guidelines

Competency Element	<div>Competency Area B:</div> <div>PRACTICAL APPLICATION OF ENGINEERING:</div> <div>Application of appropriate theoretical and practical methods to the analysis, design and/or solution of engineering problems</div>
B1	<div>Review and/or identification of project requirements, problems, opportunities and/or engineering techniques.</div> <div>Examples of activities as evidence to demonstrate this competency:</div> <ul style="list-style-type: none"> Identifying/defining engineering problems or future needs in work place Reviewing/identifying technical improvements to services, products, processes or systems Preparing specifications, taking account of functional and other requirements Establishing user requirements for solution of engineering problems Reviewing specifications and tenders to identify technical issues and potential improvements Carrying out technical risk analysis and identifying mitigation measures Reviewing and selecting techniques to undertake engineering tasks. Exploring and assessing opportunities relating to new and emerging technologies
B2	<div>Investigations, analysis, design and development of engineering solutions.</div> <div>Examples of activities as evidence to demonstrate this competency:</div> <ul style="list-style-type: none"> Selecting appropriate investigation and research methodologies needed to undertake engineering tasks Investigating a technical issue, identifying potential solutions and determining the factors needed to compare them Identifying and carrying out tests or trials, and analysing and evaluating the results Carrying out technical design, simulations, analysis or value engineering. Preparing, presenting and deciding on design recommendations, with appropriate analysis of risk, and taking account of cost, quality, safety, reliability, accessibility, appearance, fitness for purpose, security (including cyber security), intellectual property constraints and opportunities, and environmental impact
B3	<div>Implementation of design solutions or other engineering tasks, and evaluating their effectiveness</div> <div>Examples of activities as evidence to demonstrate this competency:</div> <ul style="list-style-type: none"> Implementing solutions to engineering tasks. This includes construction, fabrication, supervision and/or commissioning of projects in accordance to design and specifications. The implementation takes account of critical constraints, including due concern for safety, sustainability and disposal or decommissioning. Identifying lessons learned Ensuring that the implementation will result in the appropriate practical outcome Evaluating existing designs or processes and identifying faults or potential improvements including risk, safety and life cycle considerations Actively learning from feedback on results to improve future design solutions and contributing to accepted best practices

Competency Element	Competency Area C: MANAGEMENT AND LEADERSHIP Responsibility, management and leadership in relation to technical, commercial and financial matters.
C1	<p>Planning to enable effective implementation of projects or engineering tasks.</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none"> • Preparing budgets and associated work programmes for projects or tasks • Systematically reviewing the factors affecting the project implementation including safety, sustainability and disposal or decommissioning considerations • Carrying out a task or project risk assessment and identifying mitigation measures • Leading on preparing and agreeing implementation plans and method statements • Negotiating and agreeing arrangements with customers, colleagues, contractors and other stakeholders, including regulatory bodies • Ensuring that information flow is appropriate and effective
C2	<p>Managing budget, people and other resources for an engineering task or project.</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none"> • Setting up appropriate management systems • Establishing and maintaining quality standards and budget within legal and statutory requirements • Organising/coordinating/directing work teams and project activities • Managing the balance between quality, cost and time • Scheduling, monitoring and control of work progress and costs , taking appropriate corrective actions when required • Interfacing effectively with customers, contractors and other stakeholders • Gather and evaluate feedback and recommend improvements.
C3	<p>Leadership of teams in the workplace, developing and assisting colleagues to meet changing technical and managerial needs.</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none"> • Agreeing objectives and work plans with teams and individuals • Reinforcing team commitment to professional standards • Leading and supporting team and individual development • Assessing team and individual performance, and providing feedback • Seeking input from other teams or specialists where needed and managing the relationship • Providing specialist knowledge, guidance and input to engineering teams, engineers, customers, management and relevant stakeholders • Leading a research programme • Leading an undergraduate university programme • Developing and delivering a teaching module/course at Masters or PhD level
C4	<p>Promotion of continuous quality improvement and best practices</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none"> • Promoting quality throughout the organisation as well as its customer and supplier networks • Developing and maintaining operations to meet accepted quality standards • Supporting or directing project evaluation and proposing recommendations for improvement

Competency Element	<p>Competency Area D:</p> <p>COMMUNICATION AND INTERPERSONAL SKILLS</p> <p>Ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively</p>
D1	<p>Effective communication in the National Language and/or English Language with others, at all levels.</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none">• Preparing reports, specifications and other documentation on complex matters• Leading, chairing, contributing to and recording meetings and discussions• Exchanging information and providing advice to colleagues• Engaging or interacting with professional networks
D2	<p>Effective presentation and discussion of proposals, justifications and conclusions.</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none">• Contributing to scientific papers or articles as an author• Preparing and delivering presentations on substantive matters• Preparing and/or presenting bids, proposals, plans, studies, etc• Leading and sustaining debates with audiences• Feeding back results of discussion to improve proposals, papers, etc
D3	<p>Personal and social skills, with awareness of diversity and inclusion issues.</p> <p>Examples of activities as evidence to demonstrate this competency:</p> <ul style="list-style-type: none">• Knowing and managing own emotions, strengths and weaknesses• Being confident and flexible in dealing with new and changing interpersonal situations• Identifying, agreeing and working together towards collective goals• Creating, maintaining and enhancing productive working relationships• Resolving conflicts• Being supportive of the needs and concerns of others, especially where this relates to issues of diversity and inclusion

Become a PE

- Let's begin!!

- 1. ACCESSING THE BEM WEBSITE**
- 2. HANDS-ON TUTORIAL**



Q & A





THANK YOU



“Committed To Engineering Excellence”

BOARD OF ENGINEERS MALAYSIA

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