



CIWEM

The Chartered Institution of
Water and Environmental Management

Evidence Of Attainment Of Mandatory Competences Fellow/Member /CEng/CSci/CEnv

EVIDENCE OF ATTAINMENT OF CIWEM MANDATORY COMPETENCES

All applicants presenting themselves for consideration as Direct Entry Fellows, Members or Associates are asked to submit evidence of Attainment of CIWEM's Mandatory Competences on the following form.

The CIWEM Mandatory Competences give you a way to show your personal contribution. Make sure you show clearly the things you have achieved as your level of attainment and professionalism are being considered. Remember to give all the statement of attainment examples from your own recent personal perspective. (Write in the first person, I did, I was responsible also think about 'where', 'when' and 'how' when compiling your examples).

The form can be completed clearly in long hand or preferably you can type your statements. Each statement should be approximately 100 words or less in length and the font size 11+. A copy of the form is available from the website, www.ciwem.org in Word and pdf Formats.

Please **do not** alter the format, (expand the boxes), make additions or append information to the form as this is used both by the Professional Boards at the initial assessment stage and, if you are invited, by the Interview Panel at the Professional Review Interview to record the outcome of your interview.

If you are invited to attend a Professional Review Interview try to cross reference the examples you give on the form with those given in your career and project report.

Please **ensure** that your Sponsor/Supervisor/Mentor indicates how they have judged your attainment of the competences, (written reports, observation questioning or other comments).

Also **ensure** that your Sponsor/Supervisor/Mentor signs and dates each statement made and also **signs the last page** to indicate their status.

Applicants who have followed a formal Structured Training Scheme either for CIWEM, or another Professional Body, will still be required to complete the form in full.

Applicants who are already 'Chartered' via another qualifying body will also be required to fully complete the form.

You can provide more than one example for each competence however the information you do provide must be sufficient to meet the competence.

Your example should be quantified wherever possible, e.g. flow volumes, cost etc.

Examples of the type of evidence required are outlined on the following pages.

To help you complete this form some worked examples are given at appendix A. These are a very small sample and there are bound to be many more examples that you can draw from your own personal experience.

GUIDANCE FOR COMPLETION OF CIWEM 10 MANDATORY COMPETENCES

The Competences are numbered A.1 – C.4 and under each heading there are some examples of areas you may wish to examine to demonstrate your personal attainment of each of the competences.

A.1 Develop a personal knowledge of water and environmental affairs.

Using a wide variety of sources think of examples of how the sector has changed over the last 50 years.

Have a look at legislation, directives and regulations and how they may impact on your own employer.

Select a topic to research, e.g. flooding, and look at it from the public's perspective and maybe that of a private organisation or pressure group.

Look at the potential impact of emerging technologies, organisational change and suggest how you see these changes affecting your organisation.

A.2 Formulate corporate or personal strategies or policies that address change or development (e.g. legislative, economic or technological)

Identify changes and developments in the sector in which you work, or related sectors and evaluate your findings.

Select items that would have the greatest effect on your business in terms of workload or revenue.

From these items develop possible ways of dealing with these changes and how they could be adopted in your organisation.

Identify any gaps in your proposal above and show where you feel additional investigation needs to be carried out.

B.1 Identify constraints, influences and success factors relevant to the development, improvement and sustainable use of environmental resources.

Analyse a brief for a task ensuring that both the customer and the public will be served by the results.

Look at why client needs and public requirements may differ.

Undertake surveys, mapping or other investigations for a project and appraise the methodology and outcome.

Examine the historical, social, ecological context of a project and any changes that might result should the work be carried out.

Consider the regulatory constraints or relevant directives that might influence any recommendations you may make.

Look at the economic or financial implications of the work you are doing.

Evaluate any external resources needed to complete the task.

B.2 Prepare potential solutions and evaluate their merit.

Look at a plan and highlight your personal contribution where problems or gaps have been identified.

Consider whether your various suggestions delivered a 'best fit' outcome.

Check your solution has met the regulatory and legislative requirements and customer expectations.

B.3 Demonstrate the ability to implement and introduce change.

How have you developed a plan for a task, monitored its development and made any necessary revisions during its implementation?

B.4 Plan the operation and continuing maintenance of new systems and services. Monitor and assess their performance.

What strategy have you developed to ensure a task will be achieved and comply with all the appropriate standards QA, H&S or environmental regulations?

Look at how you drew up a plan for monitoring and maintaining a system or service. Examine results including costs, resources management etc.

Look at the outputs from the task and any analysis you may have done giving recommendations to avoid the repeat of any that were unacceptable.

C.1 Apply professional ethics in your work.

Consider an issue that causes a challenge to your organisation.

Look at how you have dealt with influences that might affect you, your team, your employer or the wider community. This might include regulatory and legislative requirements and making sure they are met.

C.2 Contribute to the effectiveness and competitiveness of your organisation by efficient management of resources.

Report on the performance of project aspects to which you are contributing. Look at how you can help your company to deploy, monitor, control and organise people and resources to achieve a planned outcome.

C.3 Demonstrate a commitment to the promotion of Health & Safety, quality and sustainable environmental activity through your work (Applicants shall give examples from all three areas).

Show your awareness of your employer's Health & Safety policy and procedures, or the practices appropriate to aspects of your professional activity. Look at how you personally can promote adherence to safety requirements.

Show also your awareness of any quality procedures that your employer may have in place.

Look at how you have promoted the wise use of non-renewable resources through possible waste minimisation and recycling also the benefits you may have observed by the lowest consumption of raw materials and energy and by the adoption of sustainable management practices.

C.4 Demonstrate a commitment to continuing learning and professional development.

Look at how you have improved your personal competence in your current position and how you intend to maintain and improve your knowledge and experience. Look at developing a personal CPD programme for the future.

APPENDIX A

EXAMPLES OF MANDATORY COMPETENCE ATTAINMENT

A.1 **Develop a personal knowledge of water and environmental affairs.**

Example 1 - I studied the CIWEM Diploma to broaden my understanding of Water and Environmental Management. I have attended a wide range of CIWEM meetings and training courses including: Farm Waste Management, the design of Reedbeds for Waste Water Treatment amongst others. My knowledge of this subject has grown through the variety of positions I have held, each one providing the opportunity to learn more.

Example 2 - As a water engineer and scientist, I always try to deepen my understanding of water and environmental management. I lecture about the historical development of the water utilities and I undertake active research in future technical and managerial issues affecting the water and environmental industry. Moreover, I am currently investigating public interaction with the wastewater industry and the regulators regarding sustainable urban drainage systems. I am keen to promote sustainable techniques like swales, retention ponds and constructed wetlands. However I have experienced that finance is frequently the main driver for future developments.

A.2 **Formulate corporate or personal strategies or policies to address change or developments (e.g. legislative, economic or technological).**

Example 1 - As Diffuse Pollution Project Officer I wrote a Strategy for the North Wessex Area. This was designed to facilitate further work on diffuse pollution prevention. In order to do this I needed to raise the profile of diffuse pollution in relation to that of point sources and catalyse the transfer of resources to further work in this field. I devised a prioritisation scheme to assist in implementation. As a member of the Campaigns team I participated in the formulation of our Area Campaigns system.

Example 2 - I have experience in managing small research projects within the industrial but predominantly academic environment. There are 2 main funding councils for water engineering however the main financial provider is usually the academic department. My predominant task as the project leader is to formulate policies for both the day-to-day work and research strategies. I have to assess and review these strategies as the environmental system to be investigated changes. Planned modifications of the original research proposal require the agreement of all parties involved. I have experienced that it is important to include also technicians in the decision making process.

B.1 Identify constraints, influences and success factors relevant to the development, improvement and sustainable use of environmental resources.

Example 1 - The main constraints for both the Campaigns and Diffuse Pollution work were lack of resources both financial and personnel. These were identified following prioritisation of the work, those tasks that could be resourced having the highest score. The other significant constraint was the perception of some of the implementing personnel. As a result of this work I wrote bids for funds for some of the actions and have let contracts to partner organisations to complete the work.

Example 2 - In 2001/2 whilst working at Bloggs and Partners I assisted in the appraisal of various treatment processes for the Lower Pond S T W by carrying out the hydraulic calculations associated with the 3 treatment options being considered for a flow up to 543L/sec. I prepared a report on the capital and running costs of each (allowing for pumping) for the Project Manager.

Example 3 - During the planning process of a research project, it is vital to identify potential constraints due to the implementation of both university and professional code of good practice policies in order to deliver all project objectives. I think that it is essential to formulate and agree a project brief, which meets the remit of the funding body, the requirements of the university, profession and regulators as well as the expectations of research students and fellows. A proper survey of the characteristics of the natural or built environment and all factors relating to it is important in order to identify potential problems and constrains before the start of any project. Nevertheless, financial resource implications are frequently restricting further project developments in later planning stages.

B.2 Prepare potential solutions and evaluate their merit. (3)

Example 1 - I have written a number of feasibility reports based on working up a variety of options which I had researched. These included: The best way forward for a dairy / pig unit, potential improvements to meet Consent requirements, the best option for disposal of aquatic plants from pumping stations.

Example 2 - In 2001/2 whilst working at Bloggs and Partners I assisted in the design of the Lower Pond Sewage Treatment Works by undertaking comparative process design work for SBR and conventional activated sludge and percolating filters for a design flow to full treatment of 543 litres/sec. I prepared outline designs and wrote a report on the advantages of each process which was incorporated into the overall report prepared by the Project Manager.

Example 3 - The main role of an academic researcher is to make recommendations for solutions regarding research projects and consultancy work. It is vital to plan the solution process in order to meet the requirements of the funding body. The preparation of a project timetable including the identification of milestones is common practice. I always conduct a literature review before the specification of a project idea in order to assess both alternative project solutions (option study) and compliance with standards. Solution processes to a project idea are summarised in the methods section within a proposal.

B.3 Demonstrate the ability to implement and introduce change.

Example 1 - In Guatemala I bought and arranged transport for all the required materials into the mountains for installation of gravity fed water supplies. In Mozambique I designed and ordered well moulds for concrete ring fabrication. Bought cement, tools, pumps etc exported from Malawi and imported into Mozambique.

Example 2 - In 2002 whilst working for Bloggs and Partners I undertook the details hydraulic design for Lower Pond STW (design flow for full treatment 543 litres/sec) and supervised the preparation of drawings by our CAD team. I also wrote the particular section of the specification for incorporating into the contract documents.

Example 3 - The ability to implement a solution with respect to a research project is usually simple because of considerable 'academic freedom' in undertaking research at the university. However funding bodies require the production of progress reports. The funding body does not make recommendations regarding the project management as long as the project is within the pre-defined framework. A vital part of any project is the production of a journal paper. I have published at least 15 papers relevant to the remits of CIWEM.

B.4 Plan the operation and continuing maintenance of new systems and services. Monitor and assess their performance.

Example 1 - I trained a team in Mozambique to do a variety of tasks, one being to encourage women to learn pump maintenance and set up water committees. These women were trained to maintain the pumps and encouraged to devise a way of raising funds for spare parts. This team is still carrying out this work some 7 years later as part of a community development programme.

Example 2 - During the period June 2000 to April 2004 I set up and ran a section within Bloggs and Partners to prepare schemes for replacing and renovating water mains over the area of Bumpshire for the Mercian Water Company. I evaluated the scale of the works required, identified and recruited the necessary resources, set up procedures and managed the work to completion. Some 45km of new main was laid in sizes ranging from 100 mm to 900mm diameter, and a further 25km of main was renewed by various trenchless techniques.

Example 3 - I have considerable experience in managing the operation and maintenance of experimental systems like biological activated carbon fibres and constructed reed beds. A system of service requires maintenance or control throughout the operation or study. In order to meet performance objectives, it is essential to plan the operation of laboratory and pilot plant rigs. A quality assurance plan needs to be implemented in order to guarantee a satisfactory output or service above recommended standards. I found that a good knowledge of (geo-) statistics is helpful to guarantee a high quality management.

C.1 Apply professional ethics in your work.

Example 1 - I have represented my company as a field Officer; this has included giving a TV interview. I have exercised my professional discernment in assessing the adequacy of Farm Waste Management Plans and pollution prevention systems and

strategies on industrial sites. I have worked both as a team member and leader and striven to balance often conflicting needs both in UK and overseas. I identified the long term needs for development through consultation with local people in Mozambique.

Example 2 - As an environmental water engineer and Graduate member of CIWEM, I always try to promote and comply with professional ethics and legal responsibilities. The submission of my reports to funding bodies and papers to refereed journals and conferences enables other members of the scientific community to benefit from my findings. I consider my own professional development (CPD) and independence as an academic essential in order to deliver unbiased research. I am committed to CIWEM policies and the development of my local Branch. Moreover, I have participated at paper competitions and published papers in the CIWEM Journal.

C.2 Contribute to the effectiveness and competitiveness of your organisation, by efficient management of resources.

Example 1 - I have written project proposals to secure the required funds for the continuation and development of the rehabilitation programme in Mozambique. I adhered to the budget and kept monthly accounts for the water project. This involved paying 40 staff and buying all the equipment required. I have written and secured bids for funding for the diffuse pollution project and managed these funds in partnership with the Farming and Wildlife Advisory Group.

Example 2 - I contribute to the increase of organisational efficiency within my university, because I always try to secure research funding by applying for grants. Moreover, I am research active. My department supports lecturers by providing a limited individual budget or giving them the opportunity to negotiate individual requests for financial support. I monitor and control my limited resources (manpower, equipment and finances). However, my Head of Department makes the final decision about finances. Furthermore, I need to find individual agreements with my research students regarding their academic projects.

C.3 Demonstrate a commitment to the promotion of Health & Safety, Quality and Sustainable environmental activity (Applicants shall give examples from all three areas).

Example 1 - I attended Water Safety Training in 1993, First Aid June 2000, Health and Safety day Feb '02. I also have varied experience from lone working when I adhered to the agreed call in procedures. I established safe systems of work in Mozambique for the well diggers in particular for entering and exiting wells safely and lowering the concrete rings.

Example 2 - In 2001 I undertook two in-house courses on "Health and Safety" awareness and "Design Risk Assessments". In 2001 I prepared "Design Risk Assessments" for Lower Pond STW pipeline construction, and provided information to the Planning Supervisor for inclusion in the Pre Tender Phase Health and Safety Plan.

Example 3 - As the Departmental Health and Safety Representative and an official First Aider, I am aware of safety systems and services provided by health and safety institutions. Recently, I have obtained the Standard Certificate in Health and Safety Practice. I have contributed to the development and implication of health and safety

guidelines within my department. Moreover, I need to assess and help to create safe systems and conditions for staff and students. The evaluation of risk assessments is a major part of my administrative duties. Furthermore, I frequently need to investigate unsafe behaviour of individuals within laboratories and workshops.

C.4 Demonstrate a commitment to continuing learning and professional development.

Example 1 - I undertook an MSc to gain knowledge of water supply systems and their development in order to work overseas in this field. As a member of an engineering charity I have attended courses in water supply and sanitation for emergencies, personal effectiveness and the relationships between Refugees, Agencies and Donors. I have attended: Project Management, Team Building and Personal Effectiveness courses.

Example 2 - I work continuously on my personal and professional development. Therefore, I try to improve my skills by taking part at staff development courses in order to learn further management, inter-personal, communication and computational skills. I found it easy to manage myself and project students. However, I have to improve my personal skills in dealing with some technicians. I have discovered different attitudes to work and I have learnt to respect other attitudes as long as they do not harm the progress of research work. I am seeking a third secondment to a water company. This might be beneficial for my development.

EVIDENCE OF ATTAINMENT OF MANDATORY COMPETENCES	CANDIDATES NAME: _____
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STATEMENT OF ATTAINMENT:	A1) Develop a personal knowledge of water and environmental affairs
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To be completed by the candidate only

Mentor / Supervisor / Sponsor: Signature: _____ Date: _____	Judged Attainment by: Written Reports <input type="checkbox"/> Questioning <input type="checkbox"/> Observations <input type="checkbox"/> Other (comments) _____ _____
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TO BE COMPLETED BY PROFESSIONAL REVIEWERS ONLY

Demonstrated In: Reports <input type="checkbox"/> Interview <input type="checkbox"/>	Decision Pass <input type="checkbox"/> Fail <input type="checkbox"/>
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Empty space for professional reviewers' comments.

EVIDENCE OF ATTAINMENT OF MANDATORY COMPETENCES

STATEMENT OF ATTAINMENT:	C3) Demonstrate a commitment to the promotion of Health & Safety, quality and sustainable environmental activity through your work (Applicants shall give examples from all three areas).
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To be completed by the candidate only

Mentor / Supervisor / Sponsor: Signature: _____ Date: _____	Judged Attainment by: Written Reports <input type="checkbox"/> Questioning <input type="checkbox"/> Observations <input type="checkbox"/> Other (comments) _____ _____
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TO BE COMPLETED BY PROFESSIONAL REVIEWERS ONLY

Demonstrated In: Reports <input type="checkbox"/> Interview <input type="checkbox"/>	Decision Pass <input type="checkbox"/> Fail <input type="checkbox"/>
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EVIDENCE OF ATTAINMENT OF MANDATORY COMPETENCES

STATEMENT OF ATTAINMENT:	C4) Demonstrate a commitment to continuing learning and professional development.
To be completed by the candidate only	
Mentor / Supervisor / Sponsor: Signature: _____ Date: _____	Judged Attainment by: Written Reports <input type="checkbox"/> Questioning <input type="checkbox"/> Observations <input type="checkbox"/> Other (comments) _____ _____

TO BE COMPLETED BY PROFESSIONAL REVIEWERS ONLY

Demonstrated In: Reports <input type="checkbox"/> Interview <input type="checkbox"/>	Decision Pass <input type="checkbox"/> Fail <input type="checkbox"/>

CANDIDATES NAME _____

NOTES FOR MENTORS/SPONSORS/SUPERVISORS

Full details of the mandatory competences are given as an appendix to this form. It is important that you indicate in the 'judged attainment by' column of the form (Mentor/Sponsor or Supervisor), how you have judged the candidate's attainment of the mandatory competences (e.g. by written reports, observation or questioning). Please sign each competence and this form indicating your status (*delete as applicable).

NAME: _____ *MENTOR/SPONSOR/SUPERVISOR

QUALIFICATIONS: _____

POSITION IN ORGANISATION: _____

SIGNATURE: _____ DATE: _____

NOTES FOR PROFESSIONAL REVIEWERS

It is important that you assess the degree to which the candidate has demonstrated attainment of the mandatory competences in both reports and at interview. Please tick the boxes appropriately and complete your comments on each competence in the box Provided. All Reviewers on the panel must jointly sign this form, on the day of the interview.

RECOMMENDATION

We the undersigned confirm that this Applicant has satisfied/not satisfied* the Institution's requirements and Mandatory Competences and we/we do not* recommend to the Council that the Applicant be admitted to the grade of:

*Member/Fellow/CEng/IEng/CSci/CEnv

REVIEWER COMMENTS

NAME:
CEng/IEng/CSci/CEnv _____ Signature _____

NAME:
CEng/IEng/CSci/CEnv _____ Signature _____

NAME:
CEng/IEng/CSci/CEnv _____ Signature _____

DATE: _____

April 2006