Competence Criteria for Fellow (FCIBSE)

The competence criteria for the Fellow grade of CIBSE (FCIBSE) are directly aligned to the Competence Statements issued by the Engineering Council, as part of **UK-SPEC**, for Chartered Engineer (CEng) registration.

Fellowship is the most senior grade of CIBSE membership and as such you will have reached a position in which you carry full responsibility for decisions on the design, management and financial implications of engineering projects. In addition to proven expertise in one or more specialist sectors, candidates for Fellow must show an understanding of the broad field of building services engineering.

You will need to satisfy the 17 objectives in the competence criteria when applying for FCIBSE or FCIBSE CEng. Consider how you may use your experience, knowledge and skills to assist in the development and promotion of your Institution.

The examples given are intended to help you identify activities you might quote to demonstrate the required competence and commitment for Fellow. These are not exhaustive and you are not required to give multiple examples to demonstrate competence and commitment.

Use this competence criteria framework and Fellow Application Guidance (Factsheet F20/F20a) for reference when putting together your Application and Engineering Practice Report. Tell us about your career, education and training; explaining how this has made you more competent.

For further information and guidance please visit **www.cibse.org/fellow**

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A. Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.

No	Objective	Range	Evidence Examples
A1	Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology. This could include an ability to: • Identify the limits of own personal knowledge and skills • Strive to extend own technological capability • Broaden and deepen own knowledge base through research and experimentation.	Engage in formal post-graduate academic study. Learn and develop new engineering theories and techniques in the workplace. Broaden your knowledge of engineering codes, standards and specifications.	Identify, through project or operational involvement and your questioning mind, new areas for development and research. Read technical journals via paper or electronic media. Engage in wider reading of general engineering, research and building design and operation publications. Use and evaluate innovative solutions / new technology with particular reference to more sustainable solutions and reducing carbon emissions. Demonstrate how you have introduced a new process or technique to improve operational practices.
A2	Engage in the creative and innovative development of engineering technology and continuous improvement systems. This could include an ability to: • Assess market needs and contribute to marketing strategies • Identify constraints and exploit opportunities for the development and transfer of technology within own chosen field • Promote new applications when appropriate • Secure the necessary intellectual property (IP) rights • Develop and evaluate continuous improvement systems.	Lead/manage market research, and product and process research and development. Cross-disciplinary working involving complex projects. Conduct statistically sound appraisal of data. Use evidence from best practice to improve effectiveness.	Be responsible for multi-disciplinary teams, including new build, renewal or retrofit installations. Coordinate with other professionals including clients. Evaluate proposals and plan specific tasks to fully exploit the opportunities presented by contemporary schemes and solutions. Read publications of other relevant professional institutions. Make comparisons of your endeavours with those of your contemporaries. Implement innovative technologies, materials, products or processes paying regard to more sustainable solutions and reducing carbon emissions. Devise and promote different ways of conducting post project reviews to establish whether objectives were achieved and lessons learned. Be involved in, and influence the design, development, operation and running of all types of project at progressively increasing levels of responsibility. Take account of, and understand, the commercial value and whole life cost of your and others' innovative work and ideas.

B. Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.

No	Objective	Range	Evidence Examples
B1	Identify potential projects and opportunities. This could include an ability to: • Establish and help develop solutions to meet users' requirements • Consider and implement new and emerging technologies • Enhancing engineering products, processes, systems and services • Use own knowledge of the employer's position to assess the viability of opportunities.	Involvement in the marketing of and tendering for new engineering products, processes and systems. Involvement in the specification and procurement of new engineering products, processes and systems. Set targets, and draft programmes and action plans. Schedule activities.	Develop and apply organisational objectives, and business plans identifying engineering opportunities. Identify and promote future work opportunities. Participate in activities, discussions, peer group reviews to enhance knowledge and understanding. Be responsible for and participate in proposals and presentations. Contribute to technology transfers, investigative thinking and critical evolution. Have marketing and business development responsibility.
B2	Conduct appropriate research, and undertake design and development of engineering solutions. This could include an ability to: • Identify and agree appropriate research methodologies • Allocate and manage resources • Develop the necessary tests • Collect, analyse and evaluate the relevant data • Undertake engineering design • Prepare, present and agree design recommendations, with appropriate analysis of risk, and taking account of cost, quality, safety, reliability, appearance, fitness for purpose, security, intellectual property (IP) constraints and opportunities and environmental impact.	Carry out formal theoretical research. Evaluating numerical and analytical tools. Carry out applied research on the job. Lead/manage value engineering and whole life costing. Lead design teams. Draft specifications. Develop and test options. Identify resources and costs of options. Produce concept designs, and develop these into detailed designs. Be aware of IP constraints and opportunities.	Take part as director, team leader or expert individual in early stakeholder contact, such as meetings, presentations, initial proposals or analysis. Select, use and evaluate software packages, including off-the-shelf and customised. Integrate relevant manual and computerised techniques to achieve practical and innovative solutions. Establish and agree bases for engineering solutions with an appropriate cost plan, deliverables and programme for implementation. Engage with third parties to obtain specialist input including product design, testing, models, mock-ups and research. Prepare reports to include option studies, whole-life performance costings, drawings, and other documentation to solve problems and meet objectives. Understand client and user requirements and financial limitations, including Capital and Operational Expenditure.

| B3 | Manage implementation of design solutions, and evaluate their effectiveness.
This could include an ability to:
• Ensure that the application of the design results in the appropriate practical outcome
• Implement design solutions, taking account of critical constraints, including due concern for safety and sustainability
• Determine the criteria for evaluating the design solutions
• Evaluate the outcome against the original specification
• Actively learn from feedback on results to improve future design solutions and build best practice. | Follow the design process through into product or service realisation and its evaluation. Prepare and present reports on the evaluation of the effectiveness of the designs, including risk, safety and life cycle considerations. Manage product improvement. Interpret and analyse performance. Determine critical success factors. | Work with manufacturers and installers to understand and evaluate their contribution to the design process, including operational aspects.

Authorise and lead improvements and remedial work to optimise the benefits of a post-occupancy review.

Read manufacturers' literature and test data to establish understanding of product development, manufacture and application, and identify any limitations that might apply, showing due concern for safety and sustainability.

Undertake a post occupancy assessment.

Consult with peers and stakeholders to seek their views of your interpretations.

Establish benchmarks with similar projects as an evaluation strategy.

Utilise previous experiences and solutions to avoid re-work.

Update budgets, make comparisons and evaluate differences.

Conduct Value Engineering exercises and take account of whole life costing.

Evaluate results against original targets and assumptions.

Identify and implement new methods of working and technological advancements. |

C. Provide technical and commercial leadership.

No	Objective	Range	Evidence Examples
C1	Plan for effective project implementation. This could include an ability to: • Systematically review the factors affecting the project implementation including safety and sustainability considerations • Define a holistic and systematic approach to risk identification, assessment and management • Lead on preparing and agreeing implementation plans and method statements • Ensure that the necessary resources are secured and brief the project team • Negotiate the necessary contractual arrangements with other stakeholders (client, subcontractors, suppliers, etc).	Lead/manage project planning activities. Produce and implement procurement plans. Carry out project risk assessments. Collaborate with key stakeholders, and negotiate agreement to the plans. Plan programmes and delivery of tasks. Identify resources and costs. Negotiate and agree contracts/work orders.	Play a key role in a major project involving other professionals and disciplines. Engage in meetings, conduct of negotiations, meeting deadlines. Conduct risk analysis and be aware of appropriate regulations and best practice. Develop an implementation programme, for deliverables, identifying and agreeing significant dates. Estimate any resource required. Answer queries, respond to changes and requests, advise on cost/benefits ratios, and propose alternative solutions. Embrace current and proposed legislation including working towards zero carbon emissions and the implementation of more sustainable solutions. Prepare and lead on the production of tender/bid and/or proposal documentation. Agreeing scope of works with the team, other professionals and disciplines.

C2	Plan, budget, organise, direct and control tasks, people and resources. This could include an ability to: • Set up appropriate management systems • Define quality standards, programme and budget within legal and statutory requirements • Organise and lead work teams, coordinating project activities • Ensure that variations from quality standards, programme and budgets are identified, and that corrective action is taken • Gather and evaluate feedback, and recommend improvements.	Take responsibility for and control project operations. Manage the balance between quality, cost and time. Manage risk register and contingency systems. Manage project funding, payments and recovery. Satisfy legal and statutory obligations. Lead/ manage tasks within identified financial, commercial and regulatory constraints.	Prepare deliverables management plan to ensure resources are available in accordance with delivery programme and that production standards are consistent across the whole team. Preparation and monitoring of fee proposals and budgets. Management and progress reporting on resources and deliverables. Undertake tender analysis. Use and compile criteria/checklists to ensure fair judgement between different tenders. Observe and report inconsistencies or misleading presentation of information in tenders received. Take decisions on sound evidence, between competing tenders. Read and refer to relevant legislation, cases, information resources such as periodicals, and participate in training courses and seminars as appropriate. Lead the preparation of documentation for claims or disputes. Evaluate any proposed changes and make recommendations/issue instructions accordingly. Answer client queries, respond to changes and requests, advise on cost/benefits ratios, and propose alternative solutions. Embrace current and proposed legislation including working towards zero carbon emissions and the use of sustainable materials.
C3	Lead teams and develop staff to meet changing technical and managerial needs. This could include an ability to: • Agree objectives and work plans with teams and individuals • Identify team and individual needs, and plan for their development • Reinforce team commitment to professional standards • Lead and support team and individual development • Assess team and individual performance, and provide feedback.	Carry out/contribute to staff appraisals. Plan/contribute to the training and development of staff. Gather evidence from colleagues of the management, assessment and feedback that you have provided. Carry out/contribute to disciplinary procedures.	Responsible for leading and managing others. Demonstrate preparation/development of scope and workflows for individuals in accordance with deliverables and programme. Prepare job/ person specifications and adverts. Select team members, coach, train and develop team spirit, resolve disputes. Develop and implement appraisal criteria and processes. Exhibit leadership skills, such as managing a crisis and taking responsibility for outcomes. Take responsibility in Quality and Technical Circles. Read books and articles on quality theory, TQM and current case studies. Analyse the distinctive features of QA in the building services engineering environment. Lead damage limitation/ reparation when QA becomes compromised. Participate in Investors in People Scheme or similar.

| C4 | Bring about continuous improvement through quality management.
This could include an ability to:
• Promote quality throughout the organisation and its customer and supplier networks
• Develop and maintain operations to meet quality standards
• Direct project evaluation and propose recommendations for improvement. | Plan and implement best practice methods of continuous improvement, e.g. ISO 9000, EFQM, balanced scorecard. Carry out quality audits. Monitor, maintain and improve delivery. Identify, implement and evaluate changes to meet quality objectives. | Establish and participate in company quality schemes.

Demonstrate how quality schemes have been adhered to and improved.

Consult with and make presentations to colleagues and peer groups of projects undertaken, project development, solutions reached and on specific issues.

Participation in design and peer reviews.

Organise or foster the development of quality groups.

Evaluate your work and be critical as to its content and outcome.

Establish and implement key performance indicators (KPI).

Encourage and assist manufacturers, contractors and other professionals to evaluate their progress, inputs and outputs at strategic stages.

Engage in a process of continuous evaluation against pre-set targets, for example the use of resources, cash flow, drawing and documentation production or installation progress. |

D. Demonstrate effective interpersonal skills.

No	Objective	Range	Evidence Examples
D1	Communicate in English[1] with others at all levels. This could include an ability to: • Lead, chair, contribute to and record meetings and discussions • Prepare communications, documents and reports on complex matters • Exchange information and provide advice to technical and non-technical colleagues.	Reports, letters, emails, drawings, specifications and working papers (e.g. meeting minutes, planning documents, correspondence) in a variety of formats. Engaging or interacting with professional networks.	Identify opportunities or constraints inherent in different settings. Manage meetings, identify, develop and establish formal and informal communication channels between stakeholders. Negotiate on variations, budgets and instructions. Prepare and handle handover, closing or contract documentation. Prepare service delivery documentation. Plan and record outcomes of meetings. Deliver verbal presentations outlining solutions and concepts. Explain process, technical rationales and constraints as necessary to clients and colleagues. For example, Factory Acceptance Tests, witness testing, or role of regulatory authorities.

1 Any interviews will be conducted in English, subject only to the provisions of the Welsh Language Act 1993 and any Regulations which may be made in implementation of European Union directives on free movement of labour.

D2	Present and discuss proposals. This could include an ability to: • Prepare and deliver presentations on strategic matters • Lead and sustain debates with audiences • Feed the results back to improve the proposals • Raise the awareness of risk.	Presentations, records of discussions and their outcomes.	Take part in meetings with prospective clients. Prepare or analyse and discuss client specifications. Obtain involvement of different departments in preparing final solutions. Prepare proposals and evaluate risks. Prepare or evaluate final tenders, appreciate particular procurement practices or cultural differences of particular types of client or service, such as local authority, private/public sector, overseas, PFI / PPP, Partnering, etc. Prepare and deliver powerful and effective presentations using appropriate software and other presentation aids to small and large groups, answer questions and engage in debate. Attend seminars; critically evaluate their usefulness, ask questions and debate answers. Participate in technical or design peer reviews. Challenge thoughts and expectations of concepts and proposals.
D3	Demonstrate personal and social skills. This could include an ability to: • Know and manage own emotions, strengths and weaknesses • Be aware of the needs and concerns of others, especially where related to diversity and equality • Be confident and flexible in dealing with new and changing interpersonal situations • Identify, agree and lead work towards collective goals • Create, maintain and enhance productive working relationships, and resolve conflicts.	Records of meetings. Evidence from colleagues of your personal and social skills. Take responsibility for productive working relationships. Apply diversity and anti-discrimination legislation.	Select and use appropriate communications styles for the full range of professionalsituations. For example notes, memos, formal letters, reports, minutes, etc. Take a mature approach to awareness of your own strengths and weaknesses. Seek to grow your strengths and identify possible ways to improve your weaknesses. Exhibit well developed listening skills. Make oral presentations to small and large groups, both formal and informal. Exhibit interpersonal skills such as assertiveness, negotiation, flexibility, dealing with conflict. Select appropriate communication modes and approaches for different situations such as sell, explain, reprimand. Communicate in a foreign language. Establish links with training and education providers. Advise and encourage others on building services engineering careers. Demonstrate advanced time and stress management skills.

E. Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.

No	Objective	Range	Evidence Examples
E1	Comply with relevant codes of conduct. This includes an ability to: • Comply with the rules of professional conduct of own Institution. • Lead work within all relevant legislation and regulatory frameworks, including social and employment legislation.	Work with a variety of conditions of contract. Demonstrate initiative in and commitment to the affairs of your institution.	Examine, digest and abide by the CIBSE Code of Conduct. Exercise all reasonable professional skill and care. Give due regard as appropriate to the Engineering Council (EngC) Guidelines. Promote the profession and encourage the development of others. Exercise a working knowledge of all current and impending legislation, standards and Codes of Practice that will influence, guide and regulate your work. Understanding own responsibility for holding this status. Maintain professional competence and keep up to date with technical knowledge and an understanding through research, CPD, reading and participating in the activities of the Institution.
E2	Manage and apply safe systems of work. This could include an ability to: • Identify and take responsibility for own obligations for health, safety and welfare issues • Ensure that systems satisfy health, safety and welfare requirements • Develop and implement appropriate hazard identification and risk management systems and culture • Manage, evaluate and improve these systems • Apply a sound knowledge of health and safety legislation.	Undertake formal health and safety training. Work with health and safety legislation and best practice. In the UK, examples include HASAW 1974, CDM regs, OHSAS 18001:2007 and company safety policies. Carry out safety audits. Identify and minimise hazards. Assess and control risks. Evaluate the costs and benefits of safe working. Deliver strategic health and safety briefings and inductions.	Be aware of your employers' health and safety policy and practice as they relate to your personal circumstances and to your responsibility for others. Understanding your responsibility for good safety culture. Taking responsibility for your safety as well as others ensuring actions are taken immediately as appropriate. Provide information as required for the Health and Safety plan for projects and to comply with the Construction (Design & Management) Regulations (CDM). Be familiar with and take responsibility for safe systems of work, method statements for the execution of work and permits to work systems.

E3	Undertake engineering activities in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Use imagination, creativity and innovation to provide products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Understand and secure stakeholder involvement in sustainable development • Use resources efficiently and effectively.	Carry out environmental impact assessments. Carry out environmental risk assessments. Plan and implement best practice environmental management systems, e.g. ISO 14000. Manage best practice risk management systems e.g. ISO 31000. Work within environmental legislation. Adopt sustainable practices. Achieve social, economic and environmental outcomes.	Actively promote the profile and implementation of engineering solutions and designs that embrace the principles of sustainability in materials and energy sources. Actively engage in the process of reducing carbon emissions by reducing energy requirements using prudent design techniques and innovation. Observe good practice in respect of sustainability, energy conservation and environmental awareness in the conduct of your own business and practice. Help clients to embrace sound environmental principles by providing them with commercially sound whole life performance information identifying long term benefits.
E4	Carry out and record Continuing Professional Development (CPD) necessary to maintain and enhance competence in own area of practice. Including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned and unplanned CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against the action plans • Assist others with their own CPD.	Keep up to date with national and international engineering issues. Maintain CPD plans and records. Involvement with the affairs of your Intuitions. Evidence of your development through on-the-job learning, private study, in-house courses, external courses and conferences.	Be proactive in any available company appraisal and development system. Be involved with CIBSE activities, Technical and Regional Groups. Read professional journals, attend development seminars. Plan short, medium and long term CPD. Help other plan their CPD. Establish links with local training and education providers. Advise others on building services engineering careers. Mentor, assist, encourage and guide the professional development of others. Access information sources for learning opportunities. Exercise skills transfer between professional and personal life.
E5	Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles as published by the Engineering Council and the Royal Academy of Engineering. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.	Recognise and operate within the limits of your knowledge and competence. Understand and operate within the Engineering Council's Statement of Ethical Principles; also understand how this is relevant to the stature of the engineering professions. Have a general understanding of how ethical dilemmas can arise in own work and own duties to employers and society. Understand and operate within your Employer's Ethical Standards Policy. Present only justifiable information and technical opinion, be receptive to concerns, other aspirations and contrary opinion or information. Evidence of training, advice and information given by your employer.