



CHARTERED ENGINEER

STATEMENTS OF COMPETENCE AND COMMITMENT

This document sets out:

- **The competence and commitment standards expected of a chartered engineer by the Engineering Council**
- **Gives guidance from IHIE on applying the Standards to highways and transportation.**

Network managers, traffic engineers, transportation planners, highway designers and project managers are typical chartered level positions. You may have broad responsibilities or may specialise in one or more aspects but the Reviewers are looking for rounded awareness of the bigger picture, creative problem solving and independent thinking in all cases.

Remember that, although you may lead a team, the Institute wants to know what you do, and the extent of your personal responsibility.

What is a Chartered Engineer?

Chartered Engineers develop appropriate solutions to engineering problems, using new or existing technologies through innovation, creativity and change. They might develop and apply new technologies, promote advanced designs and design methods, introduce new and more efficient techniques, marketing and construction concepts, pioneer new engineering services and management methods. Chartered Engineers are technical and commercial leaders and exercise effective interpersonal skills. They demonstrate a personal and professional commitment to society, to their profession, and to the environment.

You will be expected to have a knowledge and understanding of each role (A1, A2 etc) and to be competent overall in each broad statement (A, B, C, D and E). You must be competent in Health and Safety, Role E2.

The EC Standard	IHIE Guidance
<p>A. Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology</p>	
<p>A.1</p> <p>Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology and other relevant developments</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Identify the range of your personal knowledge and skills. • Continue to extend your technical capability • Broaden and deepen your knowledge through research and experimentation 	<p><i>In your submission, show you:</i></p> <p>Read widely.</p> <p>Have an understanding of current design & construction standards/methods and can extend these methods to new situations.</p> <p>Are aware of evolving policy and practice for design, construction and maintenance of transport projects.</p> <p>Have a comprehensive knowledge of relevant data collection, methodologies, design techniques, audit processes and contract documents in your field.</p> <p>Use and evaluate innovative solutions/techniques in your projects.</p> <p>Identify new areas for development and research.</p> <p>Evaluate the need for policy changes.</p> <p>Evaluate options and recommend solutions based on evidence.</p>
<p>A.2</p> <p>Engage in the creative and innovative development of engineering technology and continuous improvement systems.</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Establish users' needs • Assess marketing needs and contribute to marketing strategies • Identify constraints and exploit opportunities to develop and transfer technology • Promote new applications • Develop and evaluate continuous improvement systems. 	<p><i>In your submission, show you:</i></p> <p>Take part in early client contacts eg. Presentations, analyses.</p> <p>Investigate, identify and agree client, user and community requirements.</p> <p>Plan and interpret data collection, draw conclusions and make recommendations.</p> <p>Identify and implement innovative schemes.</p> <p>Prepare test reports of the suitability of strategy options.</p> <p>Prepare a brief.</p> <p>Supervise and present project proposals.</p> <p>Assess and recommend strategy options.</p> <p>Prepare reports with policy guidance and advice to members or clients.</p>

The EC Standard	IHE Guidance
A. Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology	
<p>Typical documents which you have produced and can submit might be:</p> <ul style="list-style-type: none">Client briefsInception reportsFeasibility reportsCommissioning reportsDesign option appraisals with costingsInterpretation and analysis and application of survey results or other data in reaching a design solutionTransport policies, strategies and plans, (LTSP, Local frameworks) which you wroteTransport assessments, Travel plansSafety audits or exception reportsMaterials investigation reportsFailure investigationsAppeal StatementsCost benefit analysesValue engineering exercisesCorrespondence demonstrating engineering knowledgeResearch commissionsEnvironmental assessments <p>These are suggestions only, your choice will depend on your work experience.</p> <p><i>The same documents may also be used for Statement B etc.</i></p>	

The EC Standard	IHIE Guidance
<p>B. Apply appropriate theoretical and practical methods to analyse and solve engineering problems</p>	
<p>B.1</p> <p>Identify potential projects and opportunities</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Review the potential for enhancing systems or services • Identify new opportunities • Use your knowledge to assess the viability of opportunities 	<p><i>In your submission, show you:</i></p> <p>Know how projects are financed and funds obtained and managed</p> <p>Understand forward planning and legal processes</p> <p>Deliver either new or improved infrastructure or maintenance projects</p> <p>Evaluate options and recommend appropriate solutions</p> <p>Device implementation plans including risk analyses</p> <p>Use up to date research and evaluation of techniques</p>
<p>B.2</p> <p>Conduct appropriate research and design and develop engineering solutions.</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Identify and agree appropriate research methodologies • Assemble the necessary resources • Carry out necessary tests • Collect, analyse and evaluate relevant data • Draft, present and agree design recommendations taking account of cost, quality, safety, reliability, appearance, fitness for purpose and environmental impact. • Undertake engineering design 	<p><i>In your submission, show you:</i></p> <p>Establish and agree the basis of designs including eg cost and plan deliverables and implementation programmes.</p> <p>Prepare option studies, whole-life performance costings, designs or programmes to solve problems and meet objectives.</p> <p>Can deal with complex schemes or projects.</p> <p>Use up to date research to generate and evaluate solutions.</p> <p>Lead design teams</p> <p>Produce concept designs.</p> <p><u>'Design'</u> may cover, for example, maintenance regimes, network management plans, transportation plans or modelling, signal control installations as well as road or traffic management designs.</p>

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B. Apply appropriate theoretical and practical methods to analyse and solve engineering problems	
<p>B.3</p> <p>Implement design solutions and evaluate their effectiveness</p> <p>Typically this could include an ability to:</p> <ul style="list-style-type: none"> • Ensure that the application of the design results in the appropriate practical outcome • Implement designs solutions taking account of critical constraints • 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 	<p><i>In your submission, show you:</i></p> <p>Design and implement methods of assessing performance against objectives.</p> <p>Set the evaluation criteria</p> <p>Evaluate options</p> <p>Present optimum solutions</p> <p>Can respond to unforeseen circumstances</p> <p>Learnt from past projects to improve delivery of a later project</p> <p>Are innovative in identifying progressive solutions to non-standard situations.</p>

The EC Standard	IHIE Guidance
C. Provide technical leadership	
<p>C.1</p> <p>Plan effective project implementation</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Identify the factors affecting project implantation • Lead the preparation and agreement of implementation plans and method statements • Ensure the necessary resources are secured and brief the project team • Negotiate the necessary contractual arrangements 	<p><i>In your submission, show you:</i></p> <p>Manage the design development process.</p> <p>Agree legal investigation requirements</p> <p>Obtain statutory consent</p> <p>Played a key role in a major project involving other professionals and disciplines</p> <p>Conduct negotiations. Resolve disputes</p> <p>Contribute to the management of the commercial aspects of projects</p> <p>Manage projects</p> <p>Negotiate and finalise agreed non-standard contracts</p> <p>Approve interim valuations and final accounts</p> <p>Schedule responses</p> <p>Monitor and control</p> <p>Manage evaluations</p>
<p>C. 2</p> <p>Plan, budget, organise, direct and control tasks, people and resources</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Set up appropriate management systems • Agree standards, programme and budgets • Lead work teams, coordinating project activities • Ensure variations from standards, programme are identified and that corrective action is taken • Evaluate performance and recommend improvements 	<p><i>In your submission, show you:</i></p> <p>Control projects by, for example,</p> <ul style="list-style-type: none"> – Issuing approvals for projects – Preparing budgets for programmes of work – Controlling expenditure and activities against budgets of some size – Agreeing targets for delegated work <p>Prepare or evaluate/recommend tenders and/or bids</p> <p>Evaluate proposed changes and make recommendations or issue appropriate instructions.</p> <p>“Budgets” can be broadly interpreted to cover procuring and allocating money, resources and people.</p> <p>“Projects” are whatever you are responsible for – a design, materials research, a feasibility study, a construction site, a highway maintenance programme.</p>

The EC Standard	IHIE Guidance
C. Provide technical leadership	
<p>C.3</p> <p>Lead teams and develop staff to meet changing technical and managerial needs.</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Agree objectives and work plans with teams and individuals • Identify team and individual needs and plan for their development • Lead and support team and individual development • Assess team and individual performance and provide feedback • Take responsibility 	<p><i>In your submission, show you:</i></p> <p>Provide team leadership</p> <p>Identify and agree collective goals</p> <p>Provide guidance on values at work</p> <p>Develop team spirit and resolve disputes</p> <p>Manage crises or resolve disputes</p> <p>Manage contractual issues</p> <p>Induct and brief teams</p> <p>Conduct appraisals</p> <p>Exercise sound holistic judgement and take responsibility</p>
<p>C. 4</p> <p>Bring about continuous quality improvement through quality management</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Promote quality through your organisation and its customer and supplier networks • Develop and maintain operations to meet quality standards • Direct project evaluation and recommend improvements 	<p><i>In your submission, show you:</i></p> <p>Manage change</p> <p>Monitor, maintain and improve delivery</p> <p>Establish or manage in-company quality processes</p> <p>Participate in damage limitation/reparation where QA is compromised</p> <p>Organise or participate in quality groups</p> <p>Carry out quality audits</p> <p>Evaluate your own work and are self-critical</p>

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C. Provide technical and commercial leadership

Typical Documents which you have produced and can submit might include:

Work instructions
 Non standard tenders, manuals and guides written by you
 Progress meetings and action plans managed by you
 Work programmes
 Exchange of letters
 Scheme briefs and monitoring reports
 Minutes of meetings you led
 Budget control cash flow analyses
 Schedule of tasks with the delivery monitored
 Audit reports
 Preparation or evaluation of estimates, bids and tenders
 Contract variations you negotiated
 Monitoring reports
 Estimates
 Planning gain arrangements
 Partnering arrangements showing your role
 Monitoring reports
 Quality system reviews
 Materials laboratory reports

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D. Demonstrate effective communication and interpersonal skills	
<p>D.1</p> <p>Communicate in English and interact with others at all levels</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Contribute to, chair and record meetings and discussions • Prepare letters, documents and reports on complex matters • Exchange information and provide advice to technical and non-technical colleagues 	<p><i>In your submission, show you:</i></p> <p>Establish and maintain effective working relationships with colleagues, client and others</p> <p>Respond effectively and efficiently to received communications.</p>
<p>D.2</p> <p>Present and discuss proposals.</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Prepare and deliver presentations on strategic matters • Lead debates with audiences • Feed the results back to improve the proposals • Communicate new concepts and ideas 	<p><i>In your submission, show you:</i></p> <p>Communicate fluently verbally and in writing at a professional level</p> <p>Manage information</p> <p>Prepare reports on complex matters</p> <p>Participate in and lead meetings</p> <p>Provide advice to colleagues</p> <p>Negotiate variations and instructions</p> <p>Explain processes, rationales and constraints to client and colleagues</p> <p>Make presentations to prospective clients or communities</p>

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D. Demonstrate effective communication and interpersonal skills	
<p>D. 3</p> <p>Demonstrate personal and social skills.</p> <p>Typically this includes an ability to:</p> <ul style="list-style-type: none"> • Know and manage your strengths and weaknesses • Be aware of the needs and concerns of other people and communities • Be confident and flexible in dealing with new and changing interpersonal situations • Lead work towards collective goals • Resolve conflicts • Create, maintain and enhance productive working relationships and resolve conflicts 	<p>In your submission, show you:</p> <p>Reflect on your work and actions</p> <p>Establish and maintain effective relations</p> <p>Give clear and accurate instructions</p> <p>Deal with conflict</p> <p>Mentor colleagues</p> <p>Know/carry out disciplinary procedures</p>
<p>Typical Documents which you have produced and can submit might include:</p> <p>Committee or cabinet reports</p> <p>Correspondence conducted by you</p> <p>Internal documents or briefing materials</p> <p>Minutes which show your participation</p> <p>Advice and recommendations you made</p> <p>Interpretative reports</p> <p>Public consultations you conducted. Public exhibitions you prepared or participated in</p> <p>Public inquiry evidence you prepared</p> <p>Appropriate presentation of data</p> <p>Impact and environmental assessments</p> <p><i>“All levels” means colleagues, subordinates, line managers, clients, consultants, utilities, developers, contractors, elected members, interest groups, the public, local press – as applies to your job.</i></p> <p><i>“Teams” may be your staff or all those concerned with delivering your project, including the public, clients, consultants and contractors.</i></p> <p><i>The documents can be those already used for Roles A, B and C.</i></p> <p><i>Appropriate voluntary activities may provide evidence for D1, D2 and D3</i></p> <p><i>Your Review submission and your presentation at interview will be taken into account for Role D</i></p> <p><i>Your Employer Proposer should comment on your performance in Form 301 sent with your Review submission.</i></p>	

The EC Standard	IHIE Guidance
<p>E. Demonstrated a personal commitment to professional standards, recognising your obligations to society, the profession and the environment</p>	
<p>E. 1</p> <p>Comply with relevant codes of conduct</p> <p>Typically this includes and ability to:</p> <ul style="list-style-type: none"> • Understand and comply with IHIE's rules of professional conduct • Lead work within all relevant legislation and regulatory frameworks, including social and employment legislation. 	<p><i>In your submission, show you:</i></p> <p>Know your organisation's goals and ethos</p> <p>Behave appropriately and professionally</p> <p>Demonstrate integrity</p> <p>Base opinions or statements on adequate knowledge</p> <p>Are objective and truthful</p> <p>Know the purpose of professional institutions</p> <p>Know the duty of an engineer under EC (UK) and IHIE Codes and Rules of Conduct.</p> <p>Participate in IHIE activities</p> <p>Work with a variety of conditions of contract</p> <p><i>Your Report must include an example of where ethical behaviour has been an issue at work and of how a conflict of interest was resolved, or the procedures for doing so.</i></p> <p><i>Refer to your company's standing orders, equal opportunities and conduct statements in your submission but do not include them.</i></p> <p><i>At your interview, expect to discuss the profession's values, your aspirations and practical ethical issues arising from work</i></p>

The EC Standard	IHIE Guidance
<p>E. Demonstrated a personal commitment to professional standards, recognising your obligations to society, the profession and the environment</p>	
<p>E. 2</p> <p>Manage and apply safe systems of work.</p> <p>Typically this includes and ability to:</p> <ul style="list-style-type: none"> • Identify and take responsibility for your obligations for health, safety and welfare issues • Ensure that systems satisfy health, safety and welfare requirements • Manage health, safety and welfare within your own area of responsibility • Identify and deal with potential hazards • Analyse, assess and manage risk • Manage, evaluate and improve these systems. 	<p><i>In your submission, show you:</i></p> <p>Design or plan safe systems</p> <p>Analyse, assess and control risk</p> <p>Identify and deal with potential hazards</p> <p>Work safely</p> <p>Accept responsibility for your own and other's safety</p> <p>Are aware of emergency measures</p> <p>Comply with HASWA, CDM regulations, company safety policy, all relevant legislations, codes of practice, transport and road safety.</p> <p>Typical Documents could include:</p> <ul style="list-style-type: none"> • Risk Assessments • Application of CDM regulations, Chapter 8 Codes etc. • COSHH assessments and method statements • Environmental or social impact assessments • Reports recommending improvements in safety or the environment • Safety audits • Pre-tender health and safety plans <p>Additional Guidance Notes on E2 and E3 are available from IHIE.</p>

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<p>E. Demonstrated a personal commitment to professional standards, recognising your obligations to society, the profession and the environment</p>	
<p>E.3</p> <p>Undertake engineering activities in a way that contributes to sustainable development</p> <p>Typically this includes and ability to:</p> <ul style="list-style-type: none"> • 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 enhance the quality of the environment and the community, and which meet financial objectives • Understand and secure stakeholder involvement of all relevant parties 	<p><i>In your submission, show you:</i></p> <p>Implement solutions, which comply with environmental regulations</p> <p>Actively promote and implement sustainable practice</p> <p>Help clients to embrace sound environmental principles</p> <p>Provide whole-life performance information</p> <p>Consult the public</p> <p>Typical documents could include:</p> <ul style="list-style-type: none"> • Reports of consultations with conservation and local groups • Environmental assessments • Waste disposal/ recycling in your projects • LTPs, travel plans or green transport initiatives you wrote or to which you made a significant, identifiable contribution <p><i>Additional Guidance Notes are available from IHIE.</i></p>

The EC Standard	IHIE Guidance
<p>E. Demonstrated a personal commitment to professional standards, recognising your obligations to society, the profession and the environment</p>	
<p>E.4</p> <p>Carry out the continuing professional development necessary to maintain and enhance competence in your area of practice</p> <p>Typically this includes and ability to:</p> <ul style="list-style-type: none"> • Review your development needs • Prepare action plans to meet personal and organisational objectives • Carry out CPD activities • Maintain evidence of developing your competence • Evaluate outcomes against your action plans • Assist others with their CPD 	<p><i>In your submission, show you:</i></p> <p>Set goals to achieve personal and organisational objectives</p> <p>Undertake professional development to enhance competence</p> <p>Prepare and maintain a professional action plan</p> <p>Keep CPD records of professional development activities Help others plan their developments</p> <p>Include in your submission:</p> <ul style="list-style-type: none"> • A record, over at least the last two years, showing 5 days p.a. of structured development which can include reading and research. • 10 'CPD days' off the job education and training in the last two years • A structured Professional Development Plan including the years following a successful Review • Copies of recent annual appraisals (if possible and appropriate) <p>Expect to discuss your learning experiences to date at the Review interview</p>