

INCORPORATED ENGINEER

Statements of Competence and
Commitment

This document:

- Defines an Incorporated Engineer
- Explains the Incorporated competence and commitment standards set by the Engineering Council
- Gives guidance on applying the standards in highways and transportation
- Lists typical documents and schemes you might submit for Review
- Explains how to use an NVQ4 portfolio.
- Gives examples of a document matrix or schedule

What is an Incorporated Engineer?

Incorporated Engineers are the mainstream operational managers at the forefront of developing technology: *"They are characterised by their ability to act as exponents of today's technology through creativity and innovation. To this end, they maintain and manage applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operations. Incorporated Engineers are engaged in technical and commercial management and possess effective interpersonal skills. They demonstrate a personal and professional commitment to society, to their profession, and to the environment"*.

IHE members include traffic management engineers, network managers, maintenance engineers, development control officers, transportation planners, highway designers, signals engineers and project managers and the example documents reflect this diversity.

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

The following pages set out the Engineering Council's Statements of Competence and Commitment with IHE guidance alongside and list typical documents you could select to illustrate your experience.

A. Use engineering knowledge and understanding to apply existing and emerging technology

A.1**Maintain and extend a sound theoretical approach to applying technology in engineering practice.****Typically this includes an ability to:**

- Identify the range of your personal knowledge and skills
- To extend your technical capability
- Broaden and deepen your knowledge through changes in applications and techniques.

In your submission, show you:

Have extended your knowledge

Critically evaluate your learning

Know, understand and apply current relevant legislation, specifications, codes of practice, trade publications, software and guidance by referring to them in your report.

Give appropriate advice

Learn and apply new practice

A.2**Use a sound evidence-based approach to problem solving and contribute to continuous improvement.****Typically this includes an ability to:**

- Establish users' requirements for improvement
- Use your knowledge of technological developments to promote and improve the effectiveness of systems or services you are concerned with
- Contribute to evaluating and developing continuous improvement systems
- Solve problems using first principles

In your submission, show you:

Investigate, identify and agree client, user and community requirements

Apply engineering principles to solve client needs

Critically evaluate data

Are logical

Critically evaluate evidence from best practice,

Recommend or apply departures from standards

Know "why" as well as "how"

Use feedback from previous schemes to improve your next ones

A. Use engineering knowledge and understanding to apply existing and emerging technology

Typical documents which you have produced and might submit:

Client briefs

Inception reports

Feasibility reports

Commission reports

Design option appraisals with costings

Interpretation and analysis and application of survey results or other data in reaching a design solution

Use of databases

Transport policies, strategies and plans, (LTPs , Local frameworks)

Transport assessments, Travel plans

Safety audit reports

Test results and interpretation

Failure investigations

Use of relevant computer software

Appeals statements

Cost benefit analyses

Value engineering exercises

Correspondence demonstrating engineering knowledge

These are suggestions only; your choice will depend on your work experience.

The same documents may also be used for Statement B etc

B. Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate and maintain products, equipment, processes, systems or services

B.1

Identify, review and select techniques, procedures and methods to undertake engineering tasks.

Typically this includes an ability to:

- Select a review methodology
- Review the potential for enhancement using evidence from best practice
- Establish an action plan to implement the results of the review

In your submission, show you:

- Conduct surveys
- Investigate relevant factors
- Identify and evaluate options
- Use and interpret good practice guides etc.
- Develop and test options
- Recommend optimum solutions which contribute to improved social, economic and environmental outcomes
- Can respond to unforeseen circumstances
- Set targets and draft programmes to schedule activities

B.2

Contribute to the design and development of engineering solutions.

Typically this includes an ability to:

- Contribute to the identification and specification of design and development requirements
- Identify potential problems and evaluate possible engineering solutions taking account of cost, quality, safety, reliability, appearance, fitness for purpose and environmental impact
- Contribute to the design of engineering solutions

In your submission, show you:

- Conduct surveys
- Investigate relevant factors
- Identify and evaluate options
- Use and interpret national and local guides etc
- Craft specifications
- Can respond to unforeseen circumstances

B. Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate and maintain products, equipment, processes, systems or services

B.3**Implement design solutions, and contribute to their evaluation and monitoring.*****Typically this includes an ability to:***

- Secure the resources required
- Implement design solutions, taking account of critical constraints.
- Identify problems during implementation and take corrective action
- Contribute to evaluating design solutions
- Contribute to recommending improvements and learn from experience and feedback

In your submission, show you:

- Exercise independent technical judgement
- Take responsibility
- Determine measures of success
- Monitor and evaluate schemes

B. Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate and maintain products, equipment, processes, systems or services

Typical Documents include:

Site investigation and condition reports

Traffic survey and data reports. Accident data and analysis reports. Road user or safety audits

Specifications you drew up

Preliminary designs and drawings

Detailed design drawings you prepared or initiated. Calculations

Alternative costings

Test reports

Design mixes

As built drawings. Site type approvals. Acceptance tests

Writing of, or interpretation of, design guides, safety statements

Technical advice statements or reports

Instructions on monitoring performance

Maintenance manuals. Maintenance schedules

Cost benefit analyses

Tender or appraisal reports you prepared,

Section 38 agreements.

Assessment reports

Evaluations of materials or processes

Before and after studies(photographs)

Tender appraisal reports

Final account comparisons

Post-project evaluations

Maintenance schedules

Monitoring utilities

These are suggestions only; your choice will depend on your work experiences. The same documents may also be used for Statements A, C, E2 etc.

C. Provide technical and commercial management

C.1**Plan effective project implementation.****Typically this includes an ability to:**

- Identify the factors affecting project implementation
- Prepare and agree implementation plans
- Identify roles in the project team
- Secure the necessary resources
- Apply the necessary contractual arrangements

In your submission, show you:

- Plan the delivery of tasks, schemes etc.
- Identify resources and costs
- Schedule activities, materials and resources
- Prepare and agree contracts/work orders
- Monitor and evaluate after implementation

C.2**Manage the planning, budgeting and organisation of tasks, people and resources.****Typically this includes an ability to:**

- Operate appropriate management systems
- Work to agreed standards, programmes and budgets within legal and statutory requirements
- Manage work teams, coordinate project activities
- Identify variations from standards, programmes and budgets and take corrective action
- Evaluate performance and recommend improvements

In your submission, show you:

- Plan, organise, manage and control financial and other resources
 - Manage tasks within financial, commercial and regulatory constraints
 - Apply your organisation's financial regulations, standing orders and contract management procedures
 - Prepare or manage budgets or estimates
 - Prepare or assess costs, bids and tenders
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C. Provide technical and commercial management

C.3**Manage teams and develop staff to meet changing technical and managerial needs.****Typically this includes an ability to:**

- Agree objectives and work plans with teams and individuals
- Identify team and individual needs and plan for their development
- Manage and support team and individual development
- Assess team and individual performance and provide feedback

In your submission, show you:

- Manage yourself
- Plan activities and determine work methods to achieve objectives
- Manage teams (which can be internal or can include your client, consultants or contractors)
- Contribute to/carry out staff appraisals
- Contribute to/plan staff development

“Teams” may be your staff or all those concerned with delivering your project, including the public, clients, consultants and contractors.

C.4**Manage continuous quality improvement.****Typically this includes an ability to:**

- Ensure team members and colleagues apply quality management principles
- Manage operations to maintain standards
- Evaluate projects and recommend improvements

In your submission, show you:

- Promote quality
 - Identify and evaluate changes to meet quality objectives
 - Implement continuous improvement
 - Contribute to quality audits
 - Monitor, maintain and improve delivery of services
-

C. Provide technical and commercial management

Typical Documents which you have produced and might submit:

Work instructions

Non standard tenders, manuals and guides written by you

Progress meetings and action plans

Works programmes

Statutory undertaker enquiries, orders and co-ordination plans

Works instructions, site diaries

Exchanges of letters

Scheme briefs and monitoring reports

Minutes of meetings showing actions on you

Budget control cash flow analyses

Schedule of tasks with the delivery monitored

Audit reports

Preparation or evaluation of estimates, bids and tenders.

Costings

Bills of quantities

Monitoring reports

Estimates

Planning gain agreements

Partnering arrangements showing your role

Monitoring reports

Quality system reviews.

Manuals you wrote

Materials laboratory reports

Applied Best Value PIs.

Appraisal report

Works programmes

Project or Budget reports

Works instructions

D. Demonstrate effective communication and personal skills

D.1**Communicate in English and interact with others at all levels.****Typically this includes the ability to:**

- Contribute to, chair and record meetings and discussions
- Prepare letters, documents and reports on technical matters
- Exchange information and provide advice to technical and non-technical colleagues.

In your submission, show you:

Establish and maintain effective working relationships with colleagues, clients and others

Use drawings and other visual aids effectively

Respond effectively and efficiently to received communications

Select appropriate methods of communicating e.g. diagrams, sketches, plans, photographs, reports, internet, audiovisuals, I.T.

D.2**Present and discuss proposals.****Typically this includes the ability to:**

- Prepare and deliver appropriate presentations
- Manage debates with audiences
- Feed discussion results back to improve proposals

In your submission, show you:

Communicate fluently verbally and in writing at a professional level

Manage information

Prepare reports in a professional manner

Participate in and lead meetings

D. Demonstrate effective communication and personal skills

D.3**Demonstrate personal and social skills.****Typically this includes an ability to:**

- 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
- Identify, agree and work towards collective goals
- Create, maintain and enhance productive working relationships and resolve conflicts

In your submission, show you:

- Establish and maintain effective relations
- Give clear and accurate instructions
- Mentor colleagues
- Assess the performance of others
- Can resolve conflicts

D. Demonstrate effective communication and personal skills

Typical Documents which you have produced and might submit:

Work or site instructions.
Correspondence conducted by you
Internal documents or briefing materials
Minutes which show your participation
Committee or cabinet reports you wrote
Advice and recommendations you made
Interpretative reports
Public consultations you conducted
Public inquiry evidence you prepared
Public exhibitions you prepared or participated in
Appropriate presentation of data
Impact and environmental assessments
Task planning and organisation documents.
Training and development plans (also Role E4)

“All levels” means colleagues, subordinates, line managers, clients, consultants, utilities, developers, contractors, elected members, interest groups, the public – as applies to your job.

“Teams” may be your staff or all those concerned with delivering your project, including the public, clients, consultants and contractors.

The documents can be those already used for Roles A, B, and C.

Appropriate voluntary activities may provide evidence for D1, D2 and D3

Your Review report and your presentation at interview will be taken into account for Role D.

Your Employer Proposer Form 301 should comment on your performance.

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

E.1**Comply with relevant codes of conduct.****Typically this includes and ability to:**

- Comply with IHE's rules of professional conduct
- Work constructively within all relevant legislation and regulatory frameworks, including social and employment legislation

In your submission, show you:

Know your organisation's goals and ethos (refer to its conduct statements)

Behave appropriately and professionally

Base opinions and actions on adequate knowledge

Know the purpose of professional institutions and their codes of conduct

Can resolve a conflict of interest or know the procedures to do so

Know the duty of an engineer under EC and IHE Codes and Rules of Conduct

Participate in IHE activities

Work with a variety of conditions of contract

Include an example of where ethical behaviour has been an issue at work or of how a conflict of interest was resolved, or the procedures for doing so

Refer to your company's standing orders, equal opportunities and conduct statements in your submission but do not include them

At your interview, expect to discuss the profession's values, your aspirations and practical ethical issues arising from work

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

E.2**Manage and apply safe systems of work.****Typically this includes an ability to:**

- Identify and take responsibility for your obligations for health, safety and welfare issues
- Manage systems to satisfy health, safety and welfare requirements
- Identify and deal with potential hazards
- Analyse, assess and manage risk
- Manage, evaluate and improve these systems

In your submission, show you:

Design or plan safe systems

Analyse, assess and control risk

Identify and deal with potential hazards

Work safely

Accept responsibility for your own and others' safety

Are aware of emergency measures

Comply with HASWA, CDM regulations, company safety policy, all relevant legislation, codes of practice, transport and road safety

Know your role under CDM Regulations

Typical documents could include:

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

Include in your submission:

Two CPD days on health and safety (including road safety) in the last two years

Additional Guidance Notes on E2 and E3 are available from IHE.

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

E.3**Undertake engineering activities in a way that contributes to sustainable development.****Typically this includes an ability to:**

- Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously
- Provide products and services which maintain and enhance the quality of the environment and the community, and which meet financial objectives
- Understand and encourage involvement of stakeholders in sustainable development

In your submission, show you:

Implement solutions, which comply with environmental regulations

Are aware of and adopt, where possible, sustainable practices

Identified and addressed an environment or community issue and refer to relevant codes of practice

Contribute to environmental impact assessments

Typical documents could include:

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

Include in your submission:

One CPD day on Sustainability issues in the last two years

Guidance on [Sustainability](#) is published by the EC and IHE.

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

E.4**Carry out the continuing professional development necessary to maintain and enhance your competence****Typically this includes an ability to:**

- 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

In your submission, show you:

Set goals to achieve personal and organisational objectives

Undertake professional development to enhance competence

Prepare and maintain a professional action plan

Keep CPD records of professional development activities

Include in your submission:

- A record over at least the last two years, showing 5 days p.a. of structured development which can include reading and research
- A structured Professional Development Plan including the years following a successful Review or copies of recent annual appraisals
- A list of 7 CPD days off the job education and training in the last two years

Expect to your discuss your learning experiences to date at the Review interview.

Examples of Evidence Schedules

1. NVQ/SVQ4 Portfolios

If you choose to use evidence from your NVQ, to show completion of an EC Statement please send a schedule explaining how the NVQ units meet the Statements and cross referencing the evidence from your NVQ. In your explanation, state why the evidence meets our requirements.

Role	NVQ Unit or element	Documentary Evidence	Explanation
A1	TRP 4/029	Appraisal form	
A2	TRP 4/C01	Brief for Highway One	
	TRP 4/C02	Brief to survey team	
etc			

2. Trunk road/highway supervisor

Doc Ref	Statement/ Document	A1	A2	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3	E1	E2	E3	E4
Doc 1	Personal development plan	✓											✓			✓	✓
Doc 2	Development action plan	✓								✓				✓			✓
Doc 3	Safety fencing certificate	✓															
Doc 4	Term maintenance works order		✓		✓			✓									✓
Doc 5	Programme of works for surfacing			✓			✓					✓					
Doc 6	Site instruction		✓				✓		✓		✓	✓	✓			✓	
Doc 7	Scrim report		✓	✓			✓			✓		✓					
Doc 8	Works programme			✓			✓				✓						
Doc 9	Minutes of incident planning meeting								✓	✓	✓	✓	✓	✓			
Doc 10	Emergency incident Procedures				✓	✓		✓				✓					
Doc 11	Road Traffic Accident report					✓			✓			✓			✓	✓	
Doc 12	Scrim report and list of work orders		✓		✓	✓											
Doc 13	Correspondence with contractor re. poor practice and remedial actions								✓		✓			✓	✓		
Doc 14	QA Audit Form of contractor's work									✓							

3. Senior traffic engineer (£0.5M annual budget)

Doc	Statement	A1	A2	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3	E1	E2	E3	E4
Doc 1	Design considerations for, Cricklade Scheme		✓			✓											
Doc 2	Accident investigations for Cricklade Scheme		✓														
Doc 3	AutoCAD design drawings for Cricklade scheme		✓			✓											
Doc 4	AutoTRAX drawings for Cricklade Scheme		✓			✓											
Doc 5	Annual Works Programme		✓	✓			✓	✓	✓				✓				
Doc 6	Spreadsheet for structural calculations of T-Beam design		✓		✓												
Doc 7	Letter to speed limit requester		✓								✓						
Doc 8	Photographs of solar powered units																✓
Doc 9	Specifications of Solar units																✓
Doc 10	Brief for Valley Road pedestrian enhancement scheme			✓	✓		✓										
Doc 11	Down Lane – monitoring of works costs		✓	✓			✓	✓									
Doc 12	Draft minutes of progress meeting and return comments			✓			✓		✓		✓						
Doc 13	Schedule of works, costs, safety/risk assessment				✓	✓		✓		✓	✓				✓		
Doc 14	Down Lane – Manual speed counts					✓											
Doc 15	Down Lane – Safety Audit																
Doc 16	Down Lane – Snagging list						✓										
Doc 17	Design drawing for Silver Street signing				✓	✓											✓

Doc	Statement	A1	A2	B1	B2	B3	C1	C2	C3	C4	D1	D2	D3	E1	E2	E3	E4
Doc 18	Down Lane – Evaluation Programme			✓	✓					✓							
Doc 19	Portham area LTP working group minutes and plan							✓				✓					
Doc 20	Letter to Contractors re invoice over estimated amount			✓				✓					✓				
Doc 21	Letter to Consultants re posts incorrectly installed								✓								
Doc 22	Witness testimony from Manager re staff supervision								✓				✓				
Doc 24	Performance Review Form									✓							
Doc 25	Minutes of Senior Team Leaders' meeting								✓		✓		✓				✓
Doc 27	Personal Development Plan – short term												✓				✓
Doc 28	File note on rectification of contractors' poor safety procedures													✓	✓		
Doc 29	Consultation leaflet for Down Lane																✓
Doc 30	3-year Professional Development Plan												✓				✓
Doc 31	Letter re Signing review in Town													✓			
Doc 32	Professional Development Record	✓								✓							✓