



Pathway guide
Quantity Surveying and
Construction
August 2018



Pathway guide

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Quantity Surveying and Construction

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Quantity Surveying and Construction

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Introduction

This guide supports the Quantity Surveying and Construction pathway. It is designed to help you understand more about qualifying in this area. You must use this guide in conjunction with the core assessment documentation which is available on the RICS website and comprises of:

- Requirements and competencies guide
- Candidate guide for your RICS assessment e.g. APC, Academic, Senior Professional, Specialist
- Counsellor guide.

You can download all the supporting guidance from rics.org/apcguides

All RICS pathways are global, though it is appreciated that markets may vary from country to country. If you have any queries please contact your local office.

About the competencies

The RICS competency framework ensures those applying for the RICS qualification are competent to practise and meet the highest standards of professionalism required by RICS. There is a wide range of pathways available to qualify as an RICS professional covering many different areas of practice.

The RICS assessment aims to assess that you are competent to carry out the work of a qualified chartered surveyor. To be competent is to have the skill or ability to perform a task or function. The RICS competencies are also based upon attitudes and behaviours. The competencies are presented in a generic way so they can be applied to different areas of practice and geographical locations. It is important that you interpret them within the context of your own area of practice or specialism and location.

Each competency is defined at three levels of attainment. You must reach the required level in a logical progression and in successive stages.

Level 1 – knowledge and understanding

Level 2 – application of knowledge

Level 3 – reasoned advice, depth and synthesis of technical knowledge and its implementation.

The competencies are in three distinct categories:

Mandatory – the personal, interpersonal, professional practice and business skills common to all pathways and mandatory for all candidates.

Technical core – the primary skills of your chosen pathway.

Technical optional – Selected as additional skill requirements for your pathway from a list of competencies relevant to the area of practice.

The mandatory competency requirements are set out in detail in the Requirements and competencies guide.

Choosing your competencies

It is important that you give careful thought to your choice and combination of competencies. Your choice will inevitably reflect the work you do in your day-to-day environment (driven by the needs of your clients/employer). Your choice and combination of competencies will be a reflection of your judgement.

At the final assessment interview, the assessors will take these choices into account. They will expect you to present a sensible and realistic choice that reflects the skills needed to fulfil the role of a surveyor in your field of practice.

This guide should help candidates and employers with a degree of assistance in choosing the competencies that are most appropriate to their area of practice.

Where to find help

RICS has fully trained teams across the globe who will be able to help you with any queries. For details of your local office – rics.org/contactus

About the pathway

Quantity surveyors are the cost managers of construction. They are initially involved with the capital expenditure phase of a building or facility, which is the feasibility, design and construction phases, but they can also be involved with the extension, refurbishment, maintenance and demolition of a facility. The construction industry is global and extends across all real estate and infrastructure markets.

Quantity surveyors work in all sectors of the construction industry worldwide. In real estate, this covers residential, commercial, industrial, leisure, agricultural and retail facilities. In infrastructure, it covers roads, railways, water ways, airports, seaports, coastal defences, power generation and utilities. Quantity surveyors may also work in process engineering, such as chemical engineering plants or oil rigs. They must understand all aspects of construction over the whole life of a building or facility. They must have the ability to manage cost effectively, equating quality and value with individual client needs.

Candidates should select from one of the following fields of work in which to demonstrate their competency. Other fields may be accepted, subject to written approval from RICS.

- Construction
- Civil Engineering
- Railways
- Petro-chemicals
- Oil / gas installations
- Mechanical and electrical installations.

RICS qualification

As a quantity surveyor, you may be working as a consultant in private practice, for a developer or in the development arm of a major organisation (e.g. retailer, manufacturer, utility company or airport), for a public-sector body or for a loss adjuster. On the contracting side, you could be working for a major national or international contractor, a local or regional general contractor, for a specialist contractor or sub-contractor, or for a management style contractor.

Your work may include the following:

- preparing feasibility studies or development appraisals
- assessing capital and revenue expenditure over the whole life of a facility
- advising clients on ways of procuring the project
- advising on the setting of budgets
- monitoring design development against planned expenditure
- conducting value management and engineering exercises
- managing and analysing risk
- managing the tendering process
- preparing contractual documentation
- controlling cost during the construction process
- managing the commercial success of a project for a contractor

- valuing construction work for interim payments, valuing change, assessing or compiling claims for loss and expense and agreeing final accounts
- negotiating with interested parties
- giving advice on the avoidance and settlement of disputes.

Chartered alternative designations

All candidates qualifying through this pathway, whether they work in private practice or for a contractor, will be entitled to use the designation 'Chartered Quantity Surveyor'.

RICS also offers a pathway for Quantity Surveying and Construction as part of the Associate Assessment. For further details please go to rics.org/associate.

Pathway requirements

Mandatory	Core	Optional
<p>Level 3</p> <ul style="list-style-type: none"> Ethics, Rules of Conduct and professionalism <p>Level 2</p> <ul style="list-style-type: none"> Client care Communication and negotiation Health and safety <p>Level 1</p> <ul style="list-style-type: none"> Accounting principles and procedures Business planning Conflict avoidance, management and dispute resolution procedures Data management Diversity, inclusion and teamworking Inclusive environments Sustainability 	<p>Level 3</p> <ul style="list-style-type: none"> Commercial management (of construction works) or Design economics and cost planning* Construction technology and environmental services Contract practice Procurement and tendering Project finance (control and reporting) Quantification and costing (of construction works) 	<p>Two to Level 2</p> <ul style="list-style-type: none"> Capital allowances Commercial management (of construction works) or Design economics and cost planning (whichever is not selected as core competency) Conflict avoidance, management and dispute resolution procedures or Sustainability Contract administration Corporate recovery and insolvency Due diligence Insurance Programming and planning Project feasibility analysis Risk management

*Candidates working in a **commercial or contracting environment** will likely choose **Commercial management to Level 3**.

Candidates working in a **consulting environment** within either the public or private sector will likely choose **Design economics and cost planning to Level 3**.

Mandatory competencies guidance

Ethics, Rules of Conduct and professionalism

This competency covers your professionalism. It requires you to understand the role of the RICS and how it works. As your regulating body you must have a thorough knowledge of its regulations, rules of conduct and ethical code. You should be aware of your role as a professional and of society's expectations of professional practice. You should also understand the general principles of law and the legal system, as applicable in your country of practice.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the role and significance of RICS and its functions. Also an appreciation of your personal professional role and society's expectations of professional practice and RICS code of conduct and conduct regulations, including the general principles of law and the legal system, as applicable in your country of practice.

Examples of knowledge comprised within this level are:

- The structure of RICS
- RICS' global and professional ethical standards
- Mandatory Professional Statements e.g. Conflicts of Interest
- Guidance notes and their status
- RICS' CPD policy
- The role of Professional Groups
- Bodies within the RICS e.g. Matrics, LionHeart
- Rules of conduct for members
- Rules of conduct for firms
- Policy documents
- Help sheets
- RICS Bye-laws
- Government, legislation and regulation
- Common law
- Construction and Technology Court.

Level 2

Provide evidence of practical application in your area of practice, being able to justify actions at all times and demonstrate personal commitment to the rules of conduct, ethics and RICS standards.

Examples of activities and knowledge comprised within this level are:

- Your involvement with RICS
- Identifying a conflict of interest
- Transparency in professional fees
- Checking a terms of an appointment document for compliance with RICS rules
- Handling gifts and hospitality
- Complying with RICS' CPD policy for members
- Checking your employer's compliance with RICS rules for firms.

Level 3

Provide evidence of application of the above in your area of practice in the context of advising clients.

Examples of activities and knowledge comprised within this level are:

- Dealing with a conflict of interest
- Dealing with a complaint
- Handling client's money
- Setting up professional indemnity insurance
- Registration of a firm with RICS.

Client care

This competency covers how a surveyor meets a client's brief in respect of a specific appointment and how they deal with a client from a business and professional perspective. The term 'client' as it is used in this competency means not only the contractual party who has appointed the surveyor, but also all of the stakeholders in a project with whom the surveyor has to engage. This competency is closely linked to Ethics, rules of conduct and professionalism, which defines professional behaviour and sets out some mechanisms for protecting clients.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles and practice of client care including:

- The concept of identifying all clients/colleagues/third parties who are your clients and the behaviour that is appropriate to establish good client relationships
- The systems and procedures that are appropriate for managing the process of client care, including complaints
- The requirement to collect data, analyse and define the needs of clients.

Examples of knowledge comprised within this level are:

- The information contained within a client's brief
- Defining your scope of services within the limits of your competence and PI insurance
- How fees are established
- The use of standard forms of appointment
- Mechanisms contained within an appointment document
- Insurance requirements (legal and RICS)
- How stakeholders are identified and how their status within the project is established
- Formal communication systems with clients and stakeholders
- Complaints handling procedures
- KPIs.

Level 2

Provide evidence of practical application of the principles and practice of client care in your area of practice.

Level 3

Provide evidence of reasoned advice given to clients and others.

Examples of activities and knowledge comprised within this level are:

- Establishing a client's objectives
- Confirming a client's brief
- Establishing a scope of services
- Calculating fees for professional services
- Compiling an appointment document
- Establishing project stakeholders and their status
- Setting up communication systems with a client and stakeholders
- Issuing reports to a client e.g. cost reports
- Dealing with a complaint
- Measurement of KPIs
- Analysing the data gathered through the client briefing process and formulating a detailed client brief

Examples of activities and knowledge comprised within this level are:

- Developing tailored proposals linked to business strategies
- Presenting a prioritised and informed brief to enable decision-making
- Value management with stakeholders to ensure delivery against client expectations
- Advising on the need for statutory and other consents and approvals
- Presenting alternative proposals including option appraisals
- Presenting outline schedules of work
- Agreeing the level of fees with a client
- Issuing an appointment document
- Ensuring insurances are in place
- Setting performance levels and KPIs

continued on next page

Client care [continued]

Examples of likely knowledge, skills and experience at each level

Level 1

- The methods of data gathering during the inception stage of a project including client briefings and site based information
- The law applicable to your area of practice, in particular those relating to employment law, statutory compliance, consents and approvals
- The principles of the preparation of alternative outline proposals including the methodology of preparing option appraisals
- The principles of preparing outline schedules of work.

Level 2

- Consulting with the statutory authorities on the consents and other approvals required
- Preparing alternative outline design proposals, including option appraisals
- Preparing outline schedules of work
- Assessing client relationships, team performance and stakeholder interfaces on projects.

Level 3

- Monitoring compliance with the scope of services
- Monitoring performance internally and externally against client/stakeholder performance levels
- Reporting to clients and stakeholders
- Using KPIs to improve performance.

Communication and negotiation

This competency covers the way in which a surveyor communicates, in writing, graphically and orally. It also looks at the process and strategy of a negotiation. Effective communication is a fundamental aspect of professionalism and candidates must be able to communicate complex technical matters to both technical and non-technical people in a clear fashion. Negotiation is a regular part of a surveyor's work and this competency deals with taking a systematic approach to achieving a satisfactory conclusion.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of effective oral, written, graphic and presentation skills including the methods and techniques that are appropriate to specific situations.

Examples of knowledge comprised within this level are:

- Good grammar and spelling
- The etiquette of written communication in emails, letters and reports
- Common formats for reports
- Presentation of figures and data using spreadsheets, graphs and charts
- How to deliver a report at a meeting
- How to structure and deliver a presentation
- Establishing your objectives and strategy for a negotiation
- The process of negotiation.

Level 2

Provide evidence of practical application of oral, written, graphic and presentation skills that are appropriate in a variety of situations, specifically including where negotiation is involved.

Examples of activities and knowledge comprised within this level are:

- Writing letters or other formal documents
- Compiling a report
- Compiling minutes of meetings
- Producing pricing documents
- Delivering reports at meetings
- Taking part in interviews e.g. for contractor selection
- Giving presentations to staff or project teams
- Negotiating a contract sum or final account
- Agreeing the value of an instruction.

Level 3

Provide evidence of evaluation of your communication in a variety of situations.

Examples of activities and knowledge comprised within this level are:

- Issuing reports to clients
- Producing in-house management communications
- Chairing meetings
- Conducting interviews
- Presenting at seminars
- Public speaking on behalf of your business
- Agreement of fees with a client
- Advising on complex negotiations e.g. claims for loss and expense
- Tailoring communication solutions to address cultural issues effectively.

Health and safety

This competency covers the relationship between the work of the surveyor and health and safety issues, including the legal, practical and regulatory requirements. Candidates should have a detailed understanding of the health and safety processes and guidelines used to achieve this.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles and responsibilities imposed by law, codes of practice and other regulations appropriate to your area of practice.

Examples of knowledge comprised within this level are:

- Personal safety on site and in the office
- Procedures imposed by law
- Specific regulations relevant to your area of work
- The impact on health and safety of: Design, Construction processes, Building maintenance
- Health and safety training requirements as it relates to the employment of staff.

Level 2

Apply evidence of practical application of health and safety issues and the requirements for compliance, in your area of practice.

Examples of activities and knowledge comprised within this level are:

- Obtaining formal health and safety qualifications including first aid, industry specific or nationally recognised qualifications
- Being involved with specific roles and responsibilities within the various regulations
- Being involved in specific health and safety audits/reviews
- Reviewing health and safety proposals as part of a contractor's tender.

Level 3

Provide evidence of reasoned advice given to clients and others on all aspects on health and safety.

Examples of activities and knowledge comprised within this level are:

- Giving reasoned advice on and/or taking responsibility for health and safety issues relating to:
 - Impact of design on construction
 - Alternative construction processes
 - Impact of design on occupation and maintenance
 - Undertaking risk assessments
 - Advising on current legislation.
 - Advising on adequacy of health and safety allowances within tenders.

Accounting principles and procedures

This competency covers the basic principles of accounting and the interpretation of company accounts in order that reasoned advice can be given to clients.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of accounting concepts and the format and preparation of management and company accounts, including profit and loss statements, cash flow statements and balance sheets.

Examples of knowledge comprised within this level are:

- The Generally Accepted Accounting
- Principles [GAAP] relevant to the candidate's geographical area of experience and how property is treated in an entity's accounts
- International Accounting Standards [IAS], broadly how IAS vary from National GAAP and how property is treated in an entity's accounts prepared under IAS
- An entity's financial results and basic accounting principles including balance sheets, profit and loss, and cash flow statements
- The role of the auditor.

Level 2

Provide evidence of interpretation of company accounts and balance sheets in your area of practice and application of appropriate accounting and regulatory standards.

Examples of activities and knowledge comprised within this level are:

- Applying knowledge obtained to achieve Level 1 and specific knowledge of the accounting standards that relate to property
- Considering financial statements to establish, for example, the financial strength of an entity
- Reviewing and understanding analysts' reports on financial statements
- Considering and understanding common financial measures such as return on capital employed, NAV, net assets per share, gearing ratio, EBIT, EBITDA and PE ratio.

Level 3

Provide evidence of reasoned advice given to clients with regards to profit and loss statements and balance sheets.

Examples of activities and knowledge comprised within this level are:

- Providing clients, in an appropriately supervised manner, with reasoned advice relating to the financial standing of a company e.g. for agency activities such as leasing, buying and selling or to assess suitability for a commercial relationship
- Preparing, or assisting in the preparation of, service charge accounts
- Preparing, or assisting in the preparation of, management accounts for a property
- Preparing, or assisting in the preparation of, an entity's accounts i.e. balance sheet, profit and loss, and cash flow statements
- Providing other professional advice related to the interpretation and/or preparation of accounts.

Business planning

This competency is about the principles and tools of business planning.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of how business planning activities contribute to the achievement of corporate objectives.

Examples of knowledge comprised within this level are:

- Types of business plan, e.g. strategic, departmental, operational, corporate
- The essential elements of a business plan
- Organisational structures
- Methods for financial benchmarking [e.g. key financial ratios]
- Meaning of working capital, stock, debtors and creditors
- Accounting techniques
- Forecasting techniques
- Planning to meet corporate objectives.

Level 2

Provide evidence of application of the principles of business planning appropriate to your area of practice.

Examples of activities and knowledge comprised within this level are:

- Setting objectives and targets
- Undertaking risk analysis
- Preparing a business plan
- Creating an organisational chart
- Using financial ratios
- Using company accounts.

Level 3

Provide evidence of reasoned advice given to clients and others of the principles and tools of business planning and be able to evaluate your performance and outcomes.

Examples of activities and knowledge comprised within this level are:

- Undertaking presentations and reports
- Undertaking option appraisals
- Setting performance indicators
- Reviewing performance against targets and indicators.

Conflict avoidance, management and dispute resolution procedures

Refer to page 25.

Data management

This competency covers how data relating to individual projects and a surveyor's work generally is collected, stored and retrieved. In addition to having knowledge of the different storage systems and data sources and how they work, a candidate should also understand the principles behind the systems and what makes them effective. Candidates should also have knowledge of how general information and data is managed on a project and the increasing use of computerised central project databases.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the sources of information and data, and the systems applicable to your area of practice, including the methodologies and techniques most appropriate to collect, collate and store data.

Examples of knowledge comprised within this level are:

- The use of published sources of data, particularly BCIS
- How data is collected, analysed and stored within your employer's organisation
- How project information is stored within your employer's organisation
- How electronic database systems work
- The use of computerised central project databases or Building Information Modelling, the benefits, challenges and dangers
- How technical libraries are set up and used
- Legislation applicable to data management and data access.

Level 2

Provide evidence of practical application in your area of practice and understand the relevance of information gathered and the uses to which it can be applied. Analyse the information and data collected.

Examples of activities and knowledge comprised within this level are:

- Obtaining data from published sources for use on a project
- Obtaining data from in-house sources
- Extracting data for inclusion in a database
- Setting up and using paper based or electronic project filing systems
- Using a computerised central project database
- Retrieving information from a technical library
- Retrieving data from existing records, manual or electronic.
- Setting up a technical library
- Interpreting plan/map data
- Ensuring security of data,

Level 3

Provide evidence of reasoned advice given to clients and others on the use and practical application of the information collected and systems used, and/or specify the most appropriate way for your own and/or client organisation to collect, analyse and apply relevant information and data.

Examples of activities and knowledge comprised within this level are:

- Advising on data storage systems
- Advising on business filing systems
- Benchmarking from analysed historic data
- Advising on the use of a computerised central project database
- Advising on security of data
- Advising on BIM.

Diversity, inclusion and teamworking

This competency covers the role of the quantity surveyor within the team and their involvement with the establishment of the team. It deals with how team members interact, their behaviour and communication. It also looks at how to build a diverse and inclusive team, and the benefits of this for individuals and the team.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles, behaviour and dynamics of successfully working in a team.

Examples of knowledge comprised within this level are:

- How team members are selected and appointed
- The role played by the various team members
- The importance and business value of diversity in a team
- Formal communication processes within the team
- Inclusive communications
- How partnering and collaborative working affects the team
- Internal diversity and inclusion policies, including any applicable to non-discrimination or anti-harassment in the workplace
- Knowledge of Unconscious bias
- Supply chain management.

Level 2

Provide evidence of practical application of working as a team member in your area of practice.

Examples of knowledge comprised within this level are:

- Involvement with the selection and appointment of team members [consultants, contractors, sub-contractors, suppliers]
- Commitment to diversity and inclusion throughout the attraction and recruitment process
- Implementing processes to identify and address any barriers faced by different groups within the team
- Participating in project meetings
- Using project communication systems
- Ensuring internal and external communications reach minimum standards for accessibility.

Level 3

Provide evidence of evaluation of your teamworking skills in a variety of situations.

Examples of advice, activities and knowledge comprised within this level are:

- Chairing project meetings
- Promote flexible working policies and work-life balance within the team
- Provide visible support to underrepresented groups
- Facilitating risk or value workshops
- Setting up project communication systems
- Setting up partnering agreements
- Establishing frameworks
- Post completion project analysis of the team's performance
- Participation in diverse recruitment panels
- Taking action to identify and address Unconscious bias.

Inclusive environments

This competency is about the principles and processes that deliver accessible and inclusive environments, recognising the diversity of user needs and the requirement to put people (of all ages and abilities) at the heart of the process.

An inclusive environment recognises and accommodates differences in the way people use the built and natural environment. It facilitates dignified, equal and intuitive use by everyone. It does not physically or socially separate, discriminate or isolate. It readily accommodates and welcomes diverse user needs.

These principles and processes apply to all buildings, places, and spaces, and to equipment, in and around new property or in the adaptation of existing property, as well as to services provided to the public. Particular regard should be given to buildings, places and spaces that are open to the public; sports and entertainment venues; schools, colleges and educational establishments; hospitals and health facilities; and residential care facilities; as well as commercial and employment buildings.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate an understanding of the principles and processes that deliver accessible and inclusive environments, recognising the diversity of user needs and the requirement to put people [of all ages and abilities] at the heart of the process. In doing so, have regard to the legal, economic, sustainable and social case for making inclusion the norm not the exception.

Examples of knowledge comprised within this level are:

- Knowledge of best practice technical standards relevant to country of practice
- Recognition of the diversity of user needs
- Local planning policy, building regulation and health and safety requirements as applied to inclusive environments
- Appreciate and distinguish between ethical issues as opposed to legal requirements.

Level 2

Provide evidence of practical application of the principles and processes that deliver accessible and inclusive environments.

Examples of knowledge comprised within this level are:

- Practical applications as applied to different types of building and their associated uses
- Practical applications as applied to different types of outside areas and their associated uses
- A recognition of both real and perceived sensitive situations in the design or use of inclusive environments
- Ability to recognise the need for and use appropriate language in the discussion and resolution of inclusivity challenges.

Level 3

Provide evidence of reasoned advice given to clients and others of the principles and processes that deliver accessible and inclusive environments.

Examples of activities and knowledge comprised within this level are:

- The scoping and briefing of design work of new buildings, or in relation to remodelled buildings and external spaces
- The design and specification of a building, landscape/public realm project from outline proposals to completion of the design and specification process
- The drafting of clauses in leases or user agreements as to how places and spaces might be accessed or used.

Sustainability

Refer to page 39.

Leadership [mandatory for Senior Professional candidates only]

This competency covers the characteristics and behaviour of leaders. Applicants should be aware of the alternative styles of leadership and motivation. Applicants should have an understanding of how these techniques can be applied in their area of practice.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the characteristics and behaviour of a leader.

Examples of knowledge comprised within this level are:

- The different styles of leadership
- The different motivation theories
- Effective organisational design and communication strategies
- The climate necessary for the creation of high performing teams.

Level 2

Provide evidence of application of your role as a leader appropriate to your area of practice.

Examples of activities and knowledge comprised within this level are:

- How leadership and motivation theories can be applied in practice
- How organisational design and communication strategies can affect leadership
- The ingredients necessary to create high performing teams.

Level 3

Provide evidence of evaluation of your leadership role.

Examples of activities and knowledge comprised within this level are:

- Adapting your natural leadership style to meet challenges in your area of practice
- Adapting your leadership style to improve personal and team performance
- Demonstrating successful outcomes from your leadership and decision making
- Receiving acceptable peer group reviews of your performance as a leader.

Managing people [mandatory for Senior Professional candidates only]

This competency covers the principles and practice of managing people. Applicants should be aware of the skills required to manage people. Applicants should have an understanding of the appropriate application of these skills.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles and practice of managing people.

Examples of knowledge comprised within this level are:

- Human resource management legislation and techniques
- Effective organisational design and communication strategies
- The climate and culture necessary for the creation of high performing teams.

Level 2

Provide evidence of the application of the skills required to manage people.

Examples of activities and knowledge comprised within this level are:

- The principles of human resource legislation
- Applying human resource techniques
- Effecting improved human resource performance
- How use of effective organisational design and communication strategies improves human resource performance
- How climate and culture affect human resource performance.

Level 3

Provide evidence of the evaluation of your people management skills.

Examples of activities and knowledge comprised within this level are:

- Managing people and teams and achieving performance targets
- Carrying out performance appraisals and receiving acceptable individual and team peer reviews
- Carrying out training needs analyses
- Recruiting people.

Managing resources [excluding human resources] [mandatory for Senior Professional candidates only]

This competency is about managing the effective use, allocation and costing of resources (not including human resources).

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the resources required and their cost for the effective operation of a business.

Level 2

Provide evidence of the application in your area of practice, giving reasoned advice on the most effective use, allocation and cost of resources.

Level 3

Provide evidence of the evaluation of managing resources in specific business cases.

Examples of knowledge comprised within this level are:

- Types of resources required
- How to manage financial resources
- Accounting techniques
- Budgeting techniques
- Forecasting techniques
- Methods for obtaining resources and monitoring their use
- Personal resource management
- Costing of resources
- Relationship between cost and value of resources.

Examples of activities and knowledge comprised within this level are:

- Setting financial objectives
- Constructing a budget
- Monitoring and managing financial resources
- Setting personal objectives
- Preparing reports and recommendations for the use and allocation of resources.

Examples of activities and knowledge comprised within this level are:

- Undertaking cost benefit analysis
- Monitoring performance against budgets
- Taking action to improve poor performance against budgets/plans
- Reviewing personal performance
- Reviewing project performance

Technical competencies guidance

Capital allowances

This competency covers the taxation incentives/capital allowances available on property and structures in order to prepare claims and give advice to clients, including the various types of capital allowance that are available in accordance with capital allowances legislation. Candidates should have a thorough understanding of types used on their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of capital allowances and grants.

Examples of knowledge comprised within this level are:

- The definition of capital allowances and the history behind their existence
- The client types that they apply to
- The main types of capital allowances available relating to property, including plant and machinery, integral features, industrial building allowances, hotel allowances and enhanced capital allowances
- The property types that capital allowances apply to.

Level 2

Apply knowledge of capital allowances and grants, including the ability to use source documents necessary to prepare taxation allowances analyses.

Examples of activities and knowledge comprised within this level are:

- Collecting the relevant documentation to prepare a claim relating to the type of transaction. For acquisitions this might include sale agreements, valuation reports, ledgers, drawings and specifications. For developments, this might include ledgers, building contracts, final accounts, invoices
- Understanding, establishing and applying entitlement and compliance issues, including other capital allowances such as long life assets, short life assets, flat conversion, research and development
- Identifying and quantifying qualifying expenditure
- The property types that capital allowances apply to.

Level 3

Provide evidence of giving reasoned advice; preparing claims; making applications for grants; preparing and presenting reports to clients; and corresponding and negotiating with the relevant government and other authorities.

Examples of activities and knowledge comprised within this level are:

- Preparing and presenting reports and documentation
- Providing advice on issues affecting acquisitions, disposals and developments
- Giving advice on how design can maximize the amount of capital allowances
- Giving advice on the effect and interaction of capital allowances, general taxation and accounting issues
- Negotiating and agreeing capital allowances claims with taxation authorities.

Commercial management [of construction works]

This competency covers the commercial management of construction works, including commercial competitiveness balances against profitability. They must have a thorough understanding of the financial processes used to achieve profitability and how these integrate with the overall delivery of the project.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles of the management of construction projects.

Examples of knowledge comprised within this level are:

- Identifying and understanding the components that make up the cost of the project to the contractor
- The effect that the design and construction processes have on the cost
- The techniques used to reconcile the cost against income
- The techniques to financially manage sub-contractors and suppliers
- Understanding the use of cashflows.

Level 2

Apply your knowledge to the financial management of construction projects, including regular monitoring and reporting on cashflow and profitability.

Examples of knowledge comprised within this level are:

- Collecting of data for reports
- Carrying out cost to completion exercises
- Preparing cashflows
- Preparing reports such as liability statements, cost to complete and cost value reconciliations
- Applying value engineering processes
- Preparing and submitting cost data for in-house and/ or external use in relation to areas such as cost of preliminaries, comparative cost of different construction techniques and taxation allowances.

Level 3

Monitor, report and advise on project cashflows and profitability. Evaluate and advise on the financial implications and appropriate management actions.

Examples of activities and knowledge comprised within this level are:

- Monitoring, analysing, reporting and advising at a senior level on project cashflows and profitability for internal use
- Evaluating and advising on financial implications and appropriate management actions.

Conflict avoidance, management and dispute resolution procedures

This competency covers the surveyor's involvement with the avoidance, management and resolution of disputes, including the various processes and techniques commonly used in the industry. They should have a detailed understanding of how these are applied in practice.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the techniques for conflict avoidance, conflict management and dispute resolution procedures including for example adjudication and arbitration, appropriate to your pathway.

Examples of knowledge comprised within this level are:

- Techniques for conflict avoidance, management and resolution, in particular by the appropriate selection of procurement routes and use of processes such as partnering
- How various forms of contract deal with dispute avoidance and their provisions for resolving disputes
- Legal and statutory requirements for the resolution of disputes in construction contracts
- Conflict management and dispute resolution procedures within the construction process including negotiation, mediation and conciliation, adjudication, arbitration, independent expert determination and litigation.

Level 2

Provide evidence of practical application in your area of practice having regard to the relevant law.

Examples of knowledge comprised within this level are:

- Direct experience of conflict avoidance and management and dispute resolution procedures including Mediation, Adjudication, Arbitration, Expert Determination, Dispute Boards etc.
- Compiling evidence for use in dispute resolution procedures.

Level 3

Provide evidence of the application of the above in the context of advising clients in various circumstances.

Examples of activities and knowledge comprised within this level are:

- Giving reasoned advice on different dispute resolution procedures having reference to particular project circumstances
- Resolving disputes as a Mediator, Expert, Adjudicator, or Arbitrator e.g. Chairing a Dispute Board
- Giving advice on relevant law governing evidence of fact and expert evidence and the practice and procedures adopted by surveyors in the role of either advocate or expert witness
- Giving advice as an expert witness.

Construction technology and environmental services

This competency covers the design and construction of buildings and other structures. Candidates should have a clear understanding of the design and construction processes commonly used in the industry. They should have detailed knowledge of construction solutions relevant to their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles of design and construction relating to your chosen field of practice.

Examples of knowledge comprised within this level are:

- The stages of design from inception to completion
- Impact of current legislation and regulations (both national and international)
- How the various elements of a building or structure work and inter-relate
- Operational and maintenance processes post construction
- Knowledge of modern construction techniques such as prefabrication.

Level 2

Apply your knowledge to the design and construction processes.

Examples of activities and knowledge comprised within this level are:

- Appreciating how design solutions vary for different types of building such as clear span requirements for warehousing or acoustic requirements for accommodation
- Understanding alternative construction details in relation to functional elements of the design such as different types of foundation or structural frame solutions.

Level 3

Advise on the selection and application of particular processes within your area of experience. This should include liaison with specialists and consultants to develop project specific design and construction solutions.

Examples of activities and knowledge comprised within this level are:

- Advising on the choice of construction solutions for your project
- Reporting on the impact of different design solutions and construction processes on cost and programme.

Contract administration

This competency covers the role of a surveyor administering a construction contract. It includes the roles and responsibilities of the administrator under the main forms of contract. They should have a detailed understanding of the contractual provisions relating to the forms of contract that they have administered.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the contractual, legislative and statutory terminology/ requirements, of a construction contract.

Examples of knowledge comprised within this level are:

- The various standard forms of contract and sub-contract used in the industry
- Basic contractual mechanisms and procedures applied at various stages of the contract
- The roles and responsibilities of the administrator.

Level 2

Implement administrative procedures necessary to run a construction contract.

Examples of knowledge comprised within this level are:

- Issuing instructions
- Dealing with payment provisions
- Managing change procedures
- Involvement with dispute avoidance
- Dealing with completion and possession issues
- Issuing certificates.

Level 3

Advise on the administrative procedures necessary for the smooth running of a construction contract including document control techniques and systems, meetings and reporting procedures.

Examples of activities and knowledge comprised within this level are:

- Resolving disputes
- Assessing entitlement for extension of time
- Assessing entitlement for loss and expense
- Advising all parties of their contractual rights and obligations.

Contract practice

This competency covers the various forms of contract used in the construction industry, including all of the main standard forms of contract and a thorough understanding of contract law, legislation and the specific forms that they have used.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the various forms of contract used in the construction industry and/or your area of business.

Examples of knowledge comprised within this level are:

- Basic contract law and legislation
- Contract documentation
- The various standard forms of contract and sub-contract
- When the different forms would be used
- Basic contractual mechanisms and procedures at various stages of the contract
- Third-party rights including relevant legislation and the use of collateral warranties.

Level 2

Apply your knowledge of the use of the various standard forms of contract at project level, including the implications and obligations that apply to the parties to the contract.

Examples of knowledge comprised within this level are:

- Producing contract documentation
- Carrying out the contractual mechanisms and procedures relevant to the financial management aspects of your project, such as change procedures, valuations, loss and expense and final accounts
- Understanding general contractual provisions such as letters of intent, insurances, retention, bonds, liquidated damages, early possession, practical completion and other common contractual mechanisms.

Level 3

Provide evidence of reasoned advice, prepare and present reports on the selection of the appropriate form of contract and warranties for your chosen procurement route. This should include advising on the most appropriate contractual procedure at the various stages of a construction or other contract.

Examples of activities and knowledge comprised within this level are:

- Selecting the appropriate form of contract and/or sub-contract for your chosen procurement route
- Advising on the most appropriate contractual procedure at the various stages of a contract
- Evaluating the appropriateness and implications of proposed contractual amendments.

Corporate recovery and insolvency

This competency covers the involvement and actions of a quantity surveyor when insolvency occurs on a construction project. It includes the processes and procedures that can apply when a party to a contract becomes insolvent and what help and support a quantity surveyor can give to the various parties involved, including the insolvency practitioner. They must have a thorough understanding of the how insolvency has affected their project and the legal and contractual position of the parties involved.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the role of the quantity surveyor in corporate recovery and insolvency situations.

Examples of knowledge comprised within this level are:

- The principles of the different insolvency procedures, such as liquidation, administration, receivership and company voluntary arrangement
- How standard form contracts deal with insolvency
- The nature of an insolvency practitioner's role and their expectations as a client
- How a quantity surveyor might support an insolvency practitioner.

Level 2

Demonstrate an understanding of the various types of appointment that can be made to administer/manage the affairs of insolvent and potentially insolvent companies and individuals.

Examples of knowledge comprised within this level are:

- Undertaking valuations and notional final accounts in relation to an insolvency on a project
- Taking action to facilitate the completion of a project where insolvency has occurred
- Undertaking work in support of an insolvency practitioner.

Level 3

Provide evidence of reasoned advice, prepare and present reports on the proper ty assets of insolvent companies and individuals and/or in the administration of Fixed Charge Receivership appointments.

Examples of activities and knowledge comprised within this level are:

- Giving reasoned advice to a contracted party on how to proceed following the insolvency of the other party to the contract
- Giving reasoned advice to a client on how to proceed to complete a project following insolvency of a contractor.

Design economics and cost planning

This competency covers the impact of design and other factors on cost throughout the life of the building and the control of cost during the pre-contract stage, including how design decisions and construction processes impact on construction and operational costs. They must have a thorough understanding of techniques used to manage and control costs pre-contract.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the main factors that affect design economics over the whole life of a building. Demonstrate knowledge and understanding of how cost planning assists in the financial control of projects during the design development stage.

Examples of knowledge comprised within this level are:

- The rules under which Order of Cost Estimates and Elemental Cost Plans are produced [NRM1 and NRM3]
- The main factors that affect design economics over the whole life of the building including capital and life cycle costs
- How cost planning assists in the financial control of projects during the design development stage
- The various stages of cost planning
- Sources of cost data
- Adjustments that may be required for factors including location, specification, time and market forces.

Level 2

Apply your knowledge to the cost management of design development on a project from feasibility to design completion. Prepare and submit cost data to in-house and/or external data collection agencies.

Examples of knowledge comprised within this level are:

- Producing Order of Cost Estimates and Elemental Cost Plans
- Carrying out life cycle costing exercises
- Applying value engineering processes
- Quantifying risk
- Preparing cost reports
- Preparing and submitting cost data to in-house and/or external data collection agencies.

Level 3

Give strategic and reasoned advice, including the preparation and presentation of reports with reference to cost, time, quality and buildability. Advise on various market factors and trends in construction costs. Comment on accuracy and risk.

Examples of activities and knowledge comprised within this level are:

- Preparing and presenting reports with reference to cost, time, quality, risk and buildability, including qualifications and exclusions
- Evaluating building design efficiency
- Assessing/evaluating market factors and trends in construction costs
- Analysing the accuracy of predicted cost using benchmarking techniques
- Interrogating historical cost data
- Using value and risk management techniques.

Due diligence

This competency covers the due diligence work and/or fund monitoring on construction projects. It may also cover the duties of quantity surveyors monitoring the financial management of management style contracts. It includes the areas of concern for funders and clients within a project and the techniques used in the forensic interrogation and monitoring of those areas. They must have a thorough understanding of the techniques used on their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge of the techniques used for cost, quality and time related forensic examination in your area of practice.

Examples of knowledge comprised within this level are:

- The main areas of risk for a funder/client
- The process of analysing contract documentation
- How to interrogate pricing data in relation to development appraisals, cash flows, construction costs and risk allowances
- Techniques for assessing suitability of programmes
- Relevant statutory approvals, such as planning and building control
- How to monitor interim payments and planned progress.

Level 2

Apply your knowledge of cost, quality and time related forensic examination in your area of practice.

Examples of knowledge comprised within this level are:

- Reviewing development appraisals
- Reviewing specialist reports and checking statutory and other approvals
- Analysing the suitability of procurement strategies and contract documentation, including third party rights issues and insurances
- Interrogating pricing data in relation to development appraisals, cash flows, construction costs and risk allowances
- Establishing suitability of project programmes, quality control procedures and health and safety arrangements
- Checking suitability and appointments of project team
- Analysing project and construction risks
- Reviewing interim valuations for draw-down
- Monitoring progress against planned programmes
- Reviewing final accounts.

Level 3

Provide evidence of reasoned advice and report to clients on cost, quality and time related forensic examination in your area of practice.

Examples of activities and knowledge comprised within this level are:

- Checking compliance with loan agreements and agreements to lease
- Delivering reports to the funder/client on time, cost and quality matters covered by your monitoring activities
- Giving advice to the funder/client on suitable action to be taken in respect of issues identified by your monitoring activities.

Insurance

This competency covers specific insurance provisions related to property and development, including how insurance is used to deal with risk in development. They should have a detailed understanding of the contractual requirements under the various standard forms of contract.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles and practices of insurance in relation to your area of practice.

Examples of knowledge comprised within this level are:

- The insurance provisions within the standard forms of contract
- Specific insurance mechanisms such as joint names, subrogation, net contribution clauses, in the aggregate, each and every event and excess provisions
- Specialist insurances such as performance bonds, professional indemnity and retention bonds.

Level 2

Apply your knowledge and/or be involved with the insurance of construction and/or property related matters.

Examples of knowledge comprised within this level are:

- Developing specialist knowledge in areas such as asbestos or terrorism
- Compiling cost data for an insurance claim
- Compiling cost data for a fire insurance valuation.

Level 3

Demonstrate a thorough understanding of the regulations and practice governing the insurance of construction and/or property related matters.

Examples of activities and knowledge comprised within this level are:

- Reporting on cost impact of insurance claims to loss adjustor
- Reporting on re-construction costs for fire insurance valuations
- Advising clients on trends in the construction insurance market
- Advising on how insurances can be used to mitigate risk.

Procurement and tendering

This competency covers how a project is structured and delivered in terms of risk allocation and contractual relationships and how tendering processes are used to establish a contract price. Candidates should have a clear understanding of the different types of procurement and tendering commonly used and the advantages and disadvantages of each to the parties involved. They should have a detailed working knowledge of the procurement routes and tendering procedures used on their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the main types of procurement. Demonstrate knowledge and understanding of the tendering and negotiation processes involved in procurement.

Examples of knowledge comprised within this level are:

- The main types of procurement used in both the public and private sectors, both nationally and internationally
- Tendering and negotiation processes involved in procurement
- Ancillary processes such as partnering and framework agreements
- Codes of practice and procedures commonly used.

Level 2

Apply your knowledge to the implementation of the procurement routes selected for your projects and to carrying out tendering and negotiation processes relevant to them.

Examples of knowledge comprised within this level are:

- Implementing procurement routes such as traditional, design and build and management forms
- Producing and/or compiling tender documentation such as letter of invitation, form of tender, health and safety documentation, design documentation and contractual details [Please note: pricing documents are covered under the Quantification and costing of construction works]
- Carrying out of tendering and negotiation processes such as single and two stage tendering, the use of codes of practice and electronic tendering.

Level 3

Give reasoned advice on the appropriateness of various procurement routes. Manage the tendering and negotiation process and present reports on the outcome.

Examples of activities and knowledge comprised within this level are:

- Evaluating the appropriateness of various procurement routes
- Managing the tendering and negotiation process
- Preparing procurement and tendering reports.

Programming and planning

This competency covers a surveyor's involvement with the programming and planning of construction projects, including the various principles, techniques and issues that relate to the programming and planning of projects generally. They must have a thorough understanding of how these principles and techniques have been used and how specific issues have been dealt with on their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Describe the principals of financial and programme monitoring of projects, including planning techniques such as Gantt charts etc. Demonstrate knowledge of the various types of programmes and schedules commonly used on projects.

Examples of knowledge comprised within this level are:

- The need for pre-contract planning and programming techniques
- Different planning techniques e.g. Gantt Charts, Network
- Analysis and Critical Path Analysis etc.
- The principles of how a programme is affected by change
- The need for good programming when forecasting accurately materials, man-power, machinery and money
- The use of planning and programming when forecasting expenditure
- The importance of a project or a contract programme when used together with different forms of contract
- Understanding the programme requirements of different forms of contract.

Level 2

Assess, interpret and report on the programme control of projects.

Examples of knowledge comprised within this level are:

- Formulating and reporting on a project programme for different construction projects using planning techniques
- Reporting the client's financial forecast expenditure of a project using planning techniques
- Calculating a critical path network analysis and/or Program Evaluation and Review Technique (PERT) network analysis as appropriate to determine the longest path
- Identifying the impact of contractual provisions on the effective planning of projects
- Updating programmes for actual progress and in line with the requirements of different forms of contract.

Level 3

Provide evidence of reasoned advice on, or implement the principals of, executive programme control of projects. Your advice should demonstrate a good understanding of planning techniques (PERT) diagrams, network analysis/critical path methods.

Examples of activities and knowledge comprised within this level are:

- Interpreting the effectiveness of a project programme
- Providing reasoned advice on the financial planning of construction projects [e.g. a client/developer might have a particular way of funding a project, either fully financed or generating finance from sales in phase one to finance later phases. This would give rise to very different strategies affecting both the timing and the cost of a project]
- Analysing and advising on the possible outcomes in the event of a strategy change e.g. financing provisions, time of construction, scope changes
- Advising on a project programme when determining different procurement options.

Project feasibility analysis

This competency covers the financial aspects of feasibility studies and development appraisals. It includes the various elements of a feasibility study and development appraisal and the factors that can affect them. They should have a detailed understanding of the techniques used to assess financial viability.

Examples of likely knowledge, skills and experience at each level

Level 1

Describe the feasibility study process, including the financial and planning aspects associated with a development appraisal.

Examples of knowledge comprised within this level are:

- The process of carrying out a development appraisal using techniques such as residual valuation
- The various financial elements of a development appraisal such as land and construction costs, fees, finance costs, value or income stream and profit
- The impact of non-financial factors such as town and country planning on an appraisal
- The basic principles of techniques used in association with development appraisals such as value management, value engineering, life cycle and whole life costing and risk management.

Level 2

Apply the techniques used in value management/value engineering, life cycle/whole life costing and risk assessment, together with a balance sheet analysis.

Examples of knowledge comprised within this level are:

- Providing cost data for a development appraisal, particularly in respect of construction costs
- Understanding how financial data might be obtained for elements of a development appraisal (other than construction costs), for example land and financing costs, fees, taxation, property valuation, income stream and profit
- Carrying out life cycle cost exercises in relation to an appraisal
- Being involved in value and risk management exercises in relation to an appraisal.

Level 3

Initiate and monitor a feasibility study. Advise on the economics of design, on the use of value management and value engineering techniques and on how to undertake a full risk and balance sheet analysis.

Examples of activities and knowledge comprised within this level are:

- Carrying out an appraisal; reporting and advising on the outcome
- Advising on the impact of costs associated with the various elements of the appraisal on the overall viability.

Project finance [control and reporting]

This competency covers the effective cost control of construction projects during the construction phase, including the principles of controlling and reporting costs on any construction project. They should have a detailed understanding of the control and reporting processes used on their projects (please note: for surveyors working in contracting this competency covers externally issued cost advice and reports).

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the effective control of costs during a project. Demonstrate understanding of the legal and contractual constraints and the effect of time and quality on the cost of a project.

Examples of knowledge comprised within this level are:

- The effective control of costs during the construction phase of a project
- The legal and contractual constraints on the cost of a project such as changes in building legislation and design risk allocation
- The reporting and forecasting of costs during the construction phase
- The principles of risk allowances.

Level 2

Apply your knowledge to the management of project costs. This should include the preparation and presentation of financial reports on the performance of a project at appropriate intervals, to provide effective forecasting of costs, risks and their financial implications.

Examples of knowledge comprised within this level are:

- Managing project costs during the construction phase
- Reporting and forecasting costs for different procurement routes and client types
- Using cashflows in financial management
- Managing provisional sums and risk allowances.

Level 3

Advise on strategies and procedures to control predicted expenditure in line with a budget.

Examples of activities and knowledge comprised within this level are:

- Implementing change control procedures within the contract
- Establishing reporting regimes/protocols
- Using risk management and analysis techniques.

Quantification and costing [of construction works]

This competency covers the measurement and definition of construction works in order to value works and control costs, which includes the various methods of quantifying and pricing construction works used throughout a project. They must have a thorough understanding of the specific methods used on their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of the principles of quantification and costing of construction works as a basis for the financial management of contracts.

Level 2

Apply your knowledge to the quantification and costing of construction works, including the use of appropriate standard methods of measurement and forms of cost analysis. Carrying out measurement and costing of works at all stages of the construction process.

Level 3

Advise on appropriate methods of quantification and costing for specific projects. Take responsibility for the preparing and issuing pricing documents. Price or analyse such documents. Give advice on and/or supervise the valuation of construction works throughout a project.

Examples of knowledge comprised within this level are:

- The quantification of construction works (including both measurement and definition)
- The various standard methods of measurement
- The costing of construction works
- The measurement of buildings and structures to agreed standards.

Examples of knowledge comprised within this level are:

- Quantifying construction works at the various stages of a project
- Producing pricing documents such as bills of quantities, schedules of activities/works, schedules of rates or contract sum analyses.
- Carrying out the costing of construction works by methods such as tendered rates, quotations or day works.

Examples of activities and knowledge comprised within this level are:

- Advising on appropriate methods of measurement and costing
- Selecting of appropriate pricing documents
- Negotiating and agreeing the valuation of construction works at various stages of the project such as the contract sum, construction and final account.

Risk management

This competency covers the management of risk on construction projects, including the benefits to be gained and the techniques and processes used to manage risk. They should have a detailed understanding of how risk is dealt with on their projects.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate your knowledge and understanding of the nature of risk and, in particular, of the risks associated with your area of business/practice.

- Examples of knowledge comprised within this level are:
- The principles of risk management
 - How the various procurement routes deal with risk
 - Mitigation strategies
 - The techniques used to quantify risk
 - The effect of risk on programme and cost.
 - How the NRM deals with risk.

Level 2

Apply your knowledge to carry out risk assessments taking into account all relevant factors. Understand the application of the various methods and techniques used to measure risk.

- Examples of knowledge comprised within this level are:
- Contributing towards the identification of risk
 - Identifying who owns the risk in relation to the chosen procurement route on your project
 - Contributing towards strategies to mitigate risk
 - Contributing data towards the quantification of risk
 - Considering the effect of risk on programme and management cost specific to your project.

Level 3

Provide evidence of reasoned advice and implement systems to manage risk by competent management in relation to specific projects.

Examples of activities and knowledge comprised within this level are:

- Advising on the appropriate procurement route in relation to the client's attitude to risk
- Recognising and advising on the appropriate methodologies and approach to risk on a project
- Taking ownership of the risk register and advising on appropriate risk mitigation strategies
- Applying techniques to quantify risk and advising client's on the appropriate level of contingency.

Sustainability

This competency covers the role of the quantity surveyor in dealing with the impact of sustainability issues on development and construction. Candidates should have a knowledge and understanding of the various ways in which sustainability can impact on development and construction. They must have a thorough understanding of the impact made by sustainability on their projects and have been involved with the financial management of that impact.

Examples of likely knowledge, skills and experience at each level

Level 1

Demonstrate knowledge and understanding of why and how sustainability seeks to balance economic, environmental and social objectives at global, national and local levels in the context of land, property and the built environment.

Examples of knowledge comprised within this level are:

- The principles of sustainability within development and the construction process
- The relationship between property and the environment
- How national and international legislation, regulations and taxation relating to sustainability affect construction
- Criteria by which sustainability is measured in relation to finished buildings
- The principles of how design, technology and construction processes can contribute to sustainable building
- The principles of material resource efficiency within the supply chain
- Design considerations – site, location, building form, materials, lighting, ventilation, heating, water and drainage.
- Sources of renewable energy and energy recovery
- The principles of material resource efficiency within the supply chain.

Level 2

Provide evidence of the practical application of sustainability appropriate to your area of practice, and the circumstances in which specialist advice is necessary.

Examples of knowledge comprised within this level are:

- Planning guidance, sustainability checklists
- Focus on energy – EU Directive on Energy Performance of Buildings or National equivalent
- Renewable energy options – photovoltaics, wind turbines, biomass, central heating and power [CHP], ground source heating, thermal mass
- National Infrastructure projects and energy conservation.
- Carrying out capital cost and value engineering exercises to determine the impact of sustainability issues on design and construction processes
- Carrying out life cycle cost exercises which take account of sustainability issues
- Understanding the measures undertaken by governments and international bodies to encourage the reduction of the environmental impact of development.

Level 3

Provide evidence of reasoned advice given to clients and others on the policy, law and best practice of sustainability in your area of practice.

Examples of activities and knowledge comprised within this level are:

- Giving reasoned advice to your client and members of the project team on the financial impact of sustainability on a project
- Giving reasoned advice on the application of environmental law and policy
- Interpreting environmental reports and giving reasoned advice on the financial impact and programme implications on a project
- Giving advice on sustainable material selection and how performance baselines can be estimated
- Sustainable valuation, triple bottom line, economic, social and environmental considerations, short- medium- long term impacts
- Hard and soft valuation issues, health, well-being and Productivity.

Additional guidance

Part 1 – Profile of a newly qualified Chartered Quantity Surveyor

This section sets out, as a minimum, the areas in which a newly qualified Chartered Quantity Surveyor will have gained knowledge and experience during their training period. The quantity surveying and construction pathway guide gives a clear definition of the areas and levels of technical competence required of a quantity surveying and construction candidate. Because each candidate's journey to achieving the competencies will be unique, the definitions and examples take a generic approach that could be applied anywhere in the industry. So, what in detail should an individual candidate have knowledge of or have experienced on their unique journey to professional competence?

This profile aims to help all those involved with the process understand and interpret the core competencies for the quantity surveying and construction pathway. It should be read in conjunction with the quantity surveying and construction pathway core competencies definitions.

Part 2 – Selecting optional competencies

In addition to the core competencies, candidates are required to choose two other competencies at level 2. These must be selected from the closed list of competencies for the quantity surveying and construction pathway. This section will help candidates with the selection of these optional competencies.

Part 3 – Study check list

In this section the competencies are broken down into a check list of topics to help candidates make sure they have covered everything that is appropriate to their journey through the pathway. The list is not meant to be prescriptive. It is not comprehensive, nor must a candidate necessarily cover every topic. This section is an aide-mémoire only.

NOTE: In the case of doubt the competency definitions in this pathway guide will always take priority.

This supplemental guidance is intended to assist all candidates worldwide. The examples given in Section 1 and the topics listed in Section 3 often refer to UK practice. Candidates in other world regions should interpret these in relation to practices in their region.

Profile of a newly qualified Chartered Quantity Surveyor

The following profile sets out in elements the work of a quantity surveyor. The elements are then broken down into components. The elements do not match exactly the core competency titles in the pathway guide, but are referenced to them. This is because the core competencies span a number of elements. QS candidates will need to gain knowledge and experience in all of the following elements:

- Estimating
- Cost planning
- Procurement
- Tendering
- Contract selection
- Contract procedures
- Post contract cost control OR Commercial management of contracts
- Quantification of works
- Construction technology

Every effort should be made to do this.

In the final assessment candidates, will be expected to have a depth of knowledge in the areas of their experience, but also a breadth of knowledge across all of the following profile.

We recognise candidates might work in a specific sector (water utility, residential, education), or for a particular type of client (commercial developer, government department, airport operator), or in one geographical region (UK, USA, UAE). What is important is that candidates cover the following profile within their sector(s) and for their client(s) in their region. They should always have a knowledge and understanding that things might be done differently in other sectors or in the industry at large within their region. Where their sector or client does things in a specific way, candidates should be aware of the industry norm.

However, in some of the components within the elements, such as value management or life cycle costing, it may not be possible to obtain adequate or any experience. Equally a candidate is unlikely to experience all types of procurement and might not experience every type of tendering. In all of these cases candidates will need to undertake additional private study and try to make contact with someone who has experience in the area to lift their knowledge to the required level of competency.

Element	Component	Core competency
Estimating	<ul style="list-style-type: none">This covers the preparation and reporting of cost estimates at the different stages of design. It includes an understanding of:The purpose of Order of cost EstimatesThe different types of Order of Cost Estimate such as feasibility, budget or pre-tender estimatesThe basis of an estimate, such as functional unit rate, elemental, detailed quantitiesThe components of an estimateSources, use and adjustment of dataBenchmarking techniquesReporting cost estimatesThe difference between a cost estimate, a cost plan and a cost analysis <p>It also includes:</p> <ul style="list-style-type: none">Calculating unit rates for items from first principlesBase datesConstruction and tender inflationLocation factorsSite/location specific conditions [e.g. ground conditions and site constraints]ProgrammeSustainability requirementsProfessional and statutory feesPreliminaries and overheads and profitRisk allowancesInclusions and exclusions	<ul style="list-style-type: none">Design economics and cost planningQuantification and costing [of construction works]

Element	Component	Core competency
Estimating Level 1	Candidates should have knowledge of how an Order of Cost Estimate is prepared.	Knowing
Estimating Level 2	<p>Candidates should have experience in the preparation of a cost estimate.</p> <p>They should have measured building work items, compiled unit rates and compiled the final cost estimate report, which is presented to the client and members of the project team.</p> <p>Where they have not experienced a component they should have a detailed practical understanding of how that component works.</p> <p>For example:</p> <p>A candidate might have compiled an Order of Cost Estimate on a functional unit or elemental basis, but not have undertaken a pre-tender estimate (PTE). They should still understand how to carry out a PTE in practice.</p>	Doing
Estimating Level 3	<p>Ideally candidates should have presented an estimate to a client and members of the project team in a manner that clearly articulates the key aspects of the estimate. They should also have responded to an interrogation of the estimate by the team.</p> <p>However, if they have not had the opportunity to do this they should be able to demonstrate a detailed understanding of the requirements.</p>	Advising

Element	Component	Core competency
Cost planning	<p>This covers an understanding of the cost planning process from setting the client's budget to design completion. It involves preparing, issuing and presenting cost plans at the different stages of design.</p> <p>It includes an understanding of:</p> <ul style="list-style-type: none">▪ The purpose of elemental cost planning▪ Setting a budget▪ The components of an elemental cost plan▪ The terminology used including cost limit, cost target, functional element, element unit quantity and rate▪ Measurement rules relating to cost planning▪ Sources of data▪ Benchmarking techniques▪ Use of value management, value engineering and life cycle costing techniques▪ Factors affecting the cost efficiency of a design, e.g. wall / floor ratio and storey heights▪ Reporting of cost plans <p>It also includes:</p> <ul style="list-style-type: none">▪ All items listed under the estimating element▪ RIBA or other design stages.	<ul style="list-style-type: none">▪ Design economics and cost planning▪ Quantification and costing (of construction works)

Element	Component	Core competency
Cost planning Level 1	Candidates should have knowledge of how an Order of Cost Estimate is prepared.	Knowing
Cost planning Level 2	<p>Candidates should have experience in the preparation of a cost estimate.</p> <p>They should have measured building work items, compiled unit rates and compiled the final cost estimate report, which is presented to the client and members of the project team.</p> <p>Where they have not experienced a component they should have a detailed practical understanding of how that component works.</p> <p>For example</p> <p>A candidate might have joined the cost planning process after the budget has been set and the outline cost plan completed. Their work was to monitor the design and produce further cost plans, managing risk and value engineering the design where necessary. The candidate should still understand how budgets are set and how an outline cost plan is developed and benchmarked.</p> <p>Note: It is not considered that the measurement of elements alone will be sufficient to meet the requirements</p>	Doing
Cost planning Level 3	<p>Candidates should have presented a cost plan to the client and members of the project team in a manner which clearly articulates the key aspects of the document. They should then have taken the team through the process of interrogating the cost plan and engineering the design/project to meet the budget. This would also include demonstrating how their project benchmarks against other similar schemes and identifying the possible cost drivers.</p> <p>However, if they have not had the opportunity to do this they should be able to demonstrate a detailed understanding of the components such that they could undertake this process</p>	Advising

Element	Component	Core competency
Procurement	<p>This covers developing a procurement strategy and includes giving advice on the most appropriate procurement route to be adopted, covering in particular:</p> <ul style="list-style-type: none">▪ Traditional▪ Design and Build▪ Management contracting and construction management <p>In relation to this, it includes the detailed consideration of how the following factors influence the selection of the procurement route:</p> <ul style="list-style-type: none">▪ Contractual relationships▪ Roles and responsibilities of the parties▪ Time certainty, quick start or earliest finish▪ Cost certainty, cost control, competition, or demonstration of value for money▪ Quality management▪ Change management▪ Risk allocation and management <p>It should be noted that the use of the most appropriate contract[s] to suit the chosen procurement route is covered separately under Contract selection, whilst the implementation of the tendering process through to appointment of the contractor is covered separately under Tendering.</p>	Procurement and tendering

Element	Component	Core competency
Procurement Level 1	Candidates should have an understanding of all the main components as they represent the most common procurement methods used in the industry.	Knowing
Procurement Level 2	<p>Candidates should have experience of the selection of a procurement route on a single project, or as part of a series of projects and should have given consideration to all of the above components in making that selection. This includes the variances under each of the procurement routes above, e.g. develop and construct under the design and build route.</p> <p>It is unlikely that a candidate will have direct experience of all of the main procurement routes used in the industry. Where they have experience of just one or two routes they should have an awareness of how all of the other types of procurement work in practice. They should also be aware of how a procurement route might be adapted for use in different situations.</p> <p>For example:</p> <p>If a candidate has only worked on design and build procurement, they should still have an understanding of how the other procurement routes work.</p>	Doing
Procurement Level 3	Ideally candidates should have given advice direct to a client or project team on the selection of a procurement route. However, if they have not had the opportunity to do this they should be able to demonstrate a detailed depth of understanding of the components listed above such that they could give reasoned and practical advice.	Advising

Element	Component	Core competency
Tendering	<p>This covers the implementation of a chosen procurement route through to the selection of the contractor/supplier and the establishment of a basis for contract. It includes:</p> <ul style="list-style-type: none">▪ Single stage tendering▪ Two stage tendering▪ Negotiated tenders <p>In particular, it covers:</p> <ul style="list-style-type: none">▪ Compiling a tender list and pre-qualification▪ Preparation of tender documentation▪ Issuing tender documents, including e-tendering▪ Management of the process during the tender period▪ Tender opening procedures▪ Evaluation of tenders▪ Dealing with errors and qualifications▪ Compiling a tender report <p>In carrying out the above, this will also include an understanding of:</p> <ul style="list-style-type: none">▪ Rules of tendering - codes of practice or procedure▪ Regulations governing the client▪ Public sector regulations▪ EU or other international regulations [as they apply to the candidate's world region] <p>It should be noted that the choice of procurement route is covered separately under Procurement and use of the most appropriate contract(s) to suit the chosen procurement route is covered separately under Contract selection. Also, it should be noted that the production of pricing documentation is covered under Quantification.</p>	Procurement and tendering

Element	Component	Core competency
Tendering Level 1	Candidates should have an understanding of all of the main components, as they represent the most common methods of tendering.	Knowing
Tendering Level 2	<p>Candidates should have experience of the complete tendering process, from compiling the tender list through to the appointment of the contractor/supplier. Ideally they will have experienced different types of tendering, such as single and two-stage.</p> <p>However, where a candidate has experienced only one type of tendering they should have an awareness of how the components listed above work in other situations.</p> <p>For example:</p> <p>A candidate might have experience of single stage selective tendering, but they should also understand how the other forms of tendering work.</p> <p>A candidate might have been brought into the tendering process to put together the tender documents, after the lender list had been established. A candidate might have been brought into the tendering process to put together the tender documents, after the lender list had been established.</p>	Doing
Tendering Level 3	Ideally candidates should have given advice direct to the client on the selection of contractors for the tender list and then ultimately the recommendation to the client on which contractor to appoint. However, if they have not had the opportunity to do this they should be able to demonstrate a detailed depth of understanding of the components listed above such that they could give reasoned and practical advice.	Advising

Element	Component	Core competency
Contract selection	<p>This covers giving advice on the most appropriate form of contract to be used. This involves main, sub and package contracts from the standard suites of contract commonly used in the industry within the candidate's particular geographical region.</p> <p>Knowledge and experience of different forms of contract may include:</p> <ul style="list-style-type: none">▪ FIDIC▪ JCT▪ NEC▪ ACA▪ ICC▪ IChemE <p>It also includes a general knowledge of how the main contracts work in respect of:</p> <ul style="list-style-type: none">▪ Roles and responsibilities of the parties▪ Pricing options▪ Risk allocation▪ Client specific considerations on selection <p>It should be noted that the selection of the most appropriate procurement route is covered separately under Procurement, whilst the implementation of the tendering process is covered separately under Tendering. The detailed application of these contracts is covered under Contract procedures.</p>	<ul style="list-style-type: none">▪ Contract practice▪ Procurement and tendering

Element	Component	Core competency
Contract selection Level 1	Candidates should have an understanding of the forms of contract commonly used in the industry, together with the main components	Knowing
Contract selection Level 2	Candidates should have been involved with the selection of a suitable contract for a procurement route. Where a candidate has not been directly involved with this process they should thoroughly investigate how the form of contract was selected on the project(s) they have worked on.	Doing
Contract selection Level 3	Ideally candidates should have given advice direct to the client and their legal advisors on the selection of the most appropriate form of contract. A candidate is unlikely to have experience of working with all of the various forms of contract available in their sector, but they should have sufficient awareness of those that are available so that they can consider all possibilities and give informed advice to their client or the project team	Advising

Element	Component	Core competency
Post contract cost control [For surveyors working in a consulting environment in either the public or private sector]	<p>This covers the financial management of a project during the construction phase [generally the post contract phase]. It covers cost control procedures and reporting. In particular:</p> <ul style="list-style-type: none">▪ Forecasting and cash flows▪ Managing change control procedures▪ Valuing change▪ Expenditure of provisional and prime cost sums▪ Expenditure of risk allowances▪ Carrying out interim valuations▪ Managing risk▪ Value engineering▪ Dealing with claims▪ Authentication of actual costs▪ Reporting regimes and protocols▪ Final accounts <p>It should be noted that an understanding of the basic contract mechanisms relating to the above is covered separately under Contract procedures. This element deals with the practicalities of implementing and managing these mechanisms.</p> <p>Note: the measurement and pricing of works is covered under the quantification element.</p>	<ul style="list-style-type: none">▪ Contract practice▪ Project finance [control and reporting]▪ Quantification and costing [of construction works]

Element	Component	Core competency
Post contract cost control Level 1	Candidates should have knowledge of all the main components as they represent the most common procedures used in the industry.	Knowing
Post contract cost control Level 2	<p>Candidates should have experienced as many of the above components as possible, in relation to the contract(s) they have been involved with. Where they have not experienced a component they should have a strong theoretical knowledge of the practical procedures involved.</p> <p>For example:</p> <p>A candidate might have worked exclusively on projects where there was very little change instructed, all of which had costs agreed in advance. They still need to be aware of the potential problems with managing change on projects. They need to know what steps they might take to prevent such problems arising.</p> <p>A candidate might not have had to produce a cash flow for a project, but they should still understand how this would be done.</p> <p>A candidate might not have worked on a project where risk management has been implemented, but they should still understand how the process works and how they would report changes to the risk register in their cost reports.</p>	Doing
Post contract cost control Level 3	Candidates should have given advice to a client or the project team on the selection or implementation of at least some of the above components. However, where they have not had the opportunity to do this they should be able to demonstrate a detailed depth of understanding of the components listed above such that they could give reasoned and practical advice.	Advising

Element	Component	Core competency
Contract procedures	<p>This covers the establishment of construction contracts and the mechanisms that are typically found within them. In particular it involves the understanding of these mechanisms and how they impact on the work of a quantity surveyor. It covers:</p> <p>Establishing a contract:</p> <ul style="list-style-type: none">▪ Basic contract law▪ Current contract legislation▪ Common standard forms of contract and sub-contract in use▪ Contract documentation▪ Letters of intent▪ Third-party rights <p>Contract mechanisms:</p> <ul style="list-style-type: none">▪ Roles of the parties under the contract▪ Conflict avoidance and dispute resolution▪ Contractor designed works▪ Sub-contracting▪ Payment provisions▪ Change procedures▪ Bonds / Parent company guarantees▪ Insurances▪ Retention – including retention bonds▪ Liquidated or delay damages▪ Claims – extensions of time, acceleration, loss and expense▪ Early possession and phasing▪ Termination of contract and insolvency▪ Final accounts▪ Defects / rectification <p>It should be noted that the selection of the most appropriate contract[s] to suit a chosen procurement route is covered separately under Contract selection.</p>	Contract practice

Element	Component	Core competency
Contract procedures Level 1	<p>Candidates should have knowledge of all the main components, as they represent the most common contract procedures used in the industry. In particular they should have a thorough knowledge of how these components work within the contract[s] used on the candidate's project[s].</p>	Knowing
Contract procedures Level 2	<p>Candidates should have experienced as many of the above components as possible, in relation to the contract[s] they have been involved with. Where they have not experienced a component they should have a strong theoretical knowledge of both the contractual and the practical procedures involved.</p> <p>Ideally a candidate should have experience of a number of different forms of contract. However, where their experience is on only one form, they should have a thorough understanding of all of the components as they relate to that form.</p> <p>Where a candidate's experience relates only to a bespoke form of contract they should have a detailed knowledge of the standard form on which the bespoke form is based, or if it is not based on a standard form, then on at least one of the major standard forms commonly used in the industry.</p> <p>For example:</p> <p>A candidate might not have worked on a project where a letter of intent was used, or a claim for loss and expense was made, but they should still have knowledge of these components.</p> <p>A candidate might not have experienced insolvency of a contractor on a project, but they should have knowledge of the provisions within the contract[s] used on their project[s] and what they as the project QS would do in the event of insolvency.</p> <p>A candidate might not have worked with a contract that provides for the use of liquidated [and ascertained] damages, but they should still know about them and how they work in other commonly used contracts. Where the bespoke form is not based on any standard form, they should pick a major commonly used form.</p>	Doing
Contract procedures Level 3	<p>Candidates should have given advice to a client or the project team on the selection or implementation of at least some of the above components. However, where they have not had the opportunity to do this they should be able to demonstrate a detailed depth of understanding of the components listed above such that they could give reasoned and practical advice.</p>	Advising

Element	Component	Core competency
Commercial management of contracts [For surveyors working in a commercial or contracting environment. This might also apply to surveyors working in management contracting and construction management]	<p>This covers the commercial management of contracts where the surveyor is working on the contracting or sub-contracting side of the profession, or where they are involved in fee based contracting such as construction management or management contracting.</p> <p>It includes:</p> <ul style="list-style-type: none">▪ Handover of estimate and setting up of the construction budget▪ Cash flow forecasting▪ Financial management of supply chain, including: procurement, interim payments, valuation of change, ascertainment of loss and expense, agreement of final accounts▪ Administration of sub-contract and supplier agreements▪ Cost evaluation of alternative design and construction processes including value engineering▪ Reconciliation of value and cost▪ Cost to completion forecasting and reporting▪ Managing risk allowances▪ Alternative profit recognition conventions [current / final margin basis]▪ Preparation of information for internal/ external audit▪ Internal and external cost reporting▪ Forecasted final account projections.	<ul style="list-style-type: none">▪ Commercial management [of construction works]▪ Contract practice

Element	Component	Core competency
Commercial management of contracts Level 1	Candidates should have knowledge of all the main components as they represent the most common procedures used in the industry.	Knowing
Commercial management of contracts Level 2	<p>Candidates should have experienced as many of the above components as possible, in relation to the contract(s) they have been involved with. Where they have not experienced a component they should have a strong theoretical knowledge of the practical procedures involved.</p> <p>For example:</p> <p>A candidate might have carried out cost value reconciliation for part of their project but not all of it.</p> <p>They will need to investigate how the remainder of the project is dealt with so that they have a thorough understanding of this component.</p> <p>They might only have experienced financial management of the supply chain, but they should still be aware of how cost value reconciliation is carried out and its use in preparing monthly accounts at either project or business level.</p>	Doing
Commercial management of contracts Level 3	<p>Ideally candidates should have given advice on suitable commercial management procedures. They should be able to compare and contrast different techniques and their relevance to a given project.</p> <p>If they have not had an opportunity to do this they should be able to demonstrate a depth of understanding of the components listed above, sufficient to be able to give advice on a specific project.</p>	Advising

Element	Component	Core competency
Quantification of works	<p>This covers the measurement of works for the purpose of:</p> <ul style="list-style-type: none">Preparing estimates and cost plansProducing tender and contract documentation, such as elemental sum analyses, schedules of works, bills of quantitiesValuing works for interim payments, change and final accounts <p>It includes understanding:</p> <ul style="list-style-type: none">The purpose of measurementThe need for a standardised approach to measuringMeasurement rulesDifferent ways in which floor areas can be measured and reportedBuild-up of unit rates and prices from first principles, i.e. labour, plant, materials, etc.Build-up of costs in respect of preliminaries – note that merely applying a percentage addition is not sufficientQuantification of overheads and profitQuantification of risk and calculation of a risk allowanceForecasting tender and construction inflation <p>It also includes an understanding of the importance of the description that accompanies any numeric data and having a knowledge of the different categories of measurement, such as:</p> <ul style="list-style-type: none">Floor AreaFunctional UnitElementalComposite quantitiesDetailed quantities.	<ul style="list-style-type: none">Design economics and cost planningQuantification and costing (of construction works)

Element	Component	Core competency
Quantification of works Level 1	Candidates should have an understanding of the reasons for measuring construction work and the rules of measurement commonly used in the industry. They should also understand the different approaches used and their application to measuring work.	Knowing
Quantification of works Level 2	<p>Candidates should have experience of measuring construction work for the purpose of preparing cost estimates, cost plans, tender/ contract pricing documents and valuing change.</p> <p>For example:</p> <p>A candidate might not have been involved with the preparation of a bill of quantities, but they should have been involved with producing some sort of pricing document, whether it is a schedule of works or an elemental analysis.</p>	Doing
Quantification of works Level 3	Ideally candidates should be able to demonstrate that they are capable of explaining approaches to measurement and when they should be used, to clients and project team members.	Advising

Element	Component	Core competency
Construction technology	<p>This covers an understanding of design and construction technology and methodology. It is considered that an understanding of this is essential in order to appreciate its effect on the cost of a project and to be able to quantify works in order to manage costs.</p> <p>This will typically include the following:</p> <ul style="list-style-type: none">▪ Demolition and site preparation▪ Foundation systems and substructures▪ Superstructures, such as frames or bridges▪ Building envelopes, such as external walls and roofs▪ Internal structures, such as partitions and doors▪ Finishes, fixtures and fittings▪ Services installations, including underground drainage and transportation systems▪ External works and landscaping▪ Road, pavement and rail track works▪ Major earthworks and tunnelling. <p>In respect of all the above, it will also include the particular impact of the following on the methods of construction and materials selected:</p> <ul style="list-style-type: none">▪ Building Regulations or Codes and other related legislation▪ Sustainability requirements.▪ Modern methods of construction including prefabrication	Construction technology and environmental services

Element	Component	Core competency
Construction technology Level 1	Candidates should have a basic understanding of all the main components as they represent the most common elements that make up buildings/structures.	Knowing
Construction technology Level 2	<p>Candidates should have experience of all of the components listed above as they relate to their work in respect of estimating, production of pricing documents, compilation of tender and contract documents, interim valuations, valuing change and compiling final accounts. Where a candidate has not experienced a component they should have an understanding of how that component works in respect of their sector.</p> <p>For example:</p> <p>A candidate might only have worked on one type of substructure, but they should be aware of other solutions. A candidate working on low rise residential projects might never have been involved with a structural frame. However, they should still understand the basic principles of how a frame works.</p>	Doing
Construction technology Level 3	<p>Ideally candidates should have advised clients on elements of the design where the selection of particular methods of construction and or materials have had a significant impact on the cost. This should also have considered practical alternatives to that specified by the professional team.</p> <p>However, if they have not had the opportunity to do this they should be able to demonstrate a detailed understanding of the components listed above such that they could give reasoned and practical advice.</p>	Advising

Selecting optional competencies

In addition to the core competencies, candidates are required to choose two other competencies at Level 2. These must be selected from the closed list of competencies for the quantity surveying and construction pathway. The following is a guide to the selection of optional competencies.

What the guides say

The RICS Requirements and competencies guide says:

"It is important that you give careful thought to your choice and combination of competencies. Your choice will inevitably reflect the work you do in your day-to-day environment (driven by the needs of your clients/employer). Your choice and combination of competencies will be a reflection of your judgment. At the final assessment interview, the assessors will take these choices into account. They will expect you to present a sensible and realistic choice that reflects the skills needed to fulfil the normal role of a surveyor in your field of practice."

Making your choice

You should discuss your likely workload with your supervisor and/or counsellor before selecting the competencies. They can advise you, but the final choice is yours.

Beware: Do not bend the definition of a competency to fit your work or invent a story that stretches an assessor's view of the competency beyond what might be considered reasonable. You can change your optional competencies at any time up to final assessment. When you first select a competency it will be with the expectation of gaining experience in that area. If, however, the expected experience does not materialise, you can change the competency to match your actual experience.

Capital allowances

Candidates selecting this competency must fully understand the subject. Extracting contract cost data to populate forms provided by an accountant is not enough. Whilst this activity might provide suitable experience, candidates will need to do background reading to understand the subject in a broader context.

Commercial management (of construction works)

If a candidate has selected Design Economics and Cost Planning as a core competency, they can select this as an optional competency. The candidate will need to have had experience in a contracting or commercial environment, perhaps on a seconded basis.

Conflict avoidance, management and dispute resolution procedures

This is a mandatory competency to level 1. All candidates should be aware of how conflict is avoided on projects as well as formal dispute resolution procedures. Candidates selecting this competency should have had some involvement with formal dispute resolution procedures, or an increased depth of knowledge on the subject.

Contract administration

This competency requires candidates to have an understanding of all aspects of construction contracts and how they are administered. Quantity surveying candidates might gain experience in this competency when acting as an assistant to, or as the employer's agent on a design and build contract. They should not however use this competency as a duplication of Contract practice.

Corporate recovery and insolvency

Candidates should select this competency if they have been involved in dealing with insolvency on one of their projects. They will be expected to understand the various ways in which insolvency can be dealt with by an insolvency practitioner and how a quantity surveyor can assist.

Design economics and cost planning

If a candidate has selected Commercial Management of Construction as a core competency, they can select this as an optional competency. The candidate will need to have had experience of estimating in the context of setting budgets and of cost planning activities as they are carried out in a consulting environment.

Due diligence

This competency should be selected by candidates who have carried out a due diligence exercise whilst acting as a fund/ project monitor, or in a monitoring capacity on projects using management forms of procurement.

Insurance

All candidates will be expected to have an understanding of the insurance provisions on their projects. Candidates selecting this competency should have a deeper understanding of insurance matters generally and have been involved with an insurance claim or have dealt with a loss adjuster.

Programming and planning

Candidates selecting this competency should have had involvement with the programming or scheduling of work. Candidates working in a contracting environment are most likely to gain experience in

this competency. Candidates working in private practice may engage with this competency when working in the role of employer's agent, when analysing preliminaries or dealing with claims.

Project feasibility analysis

Candidates selecting this competency should have been involved with feasibility studies or development appraisals and should understand how all aspects of these exercises work.

Risk management

In addition to a general understanding of how risk is dealt with in construction, candidates selecting this competency should have been involved with formal risk management processes on a project. They should be able to carry out a quantitative risk analysis as part of the overall risk management process.

Sustainability

This is a mandatory competency to Level 1. In addition to a general awareness of sustainability issues in construction, candidates selecting this competency should have some further specialist knowledge or experience in this subject. They should have had experience in the costing of sustainability.

Study checklist

In this section the competencies are broken down into a list of topics to help candidates make sure they have covered everything that is appropriate to their journey through the pathway competencies. The lists are not meant to be prescriptive. They are not comprehensive, nor must a candidate necessarily cover every topic. Candidates should be aware that they must consider how the law in their world region impacts on each of the individual competencies. This list is not exhaustive.

Generally, you should be reading articles in current copies of:

- RICS Modus and Construction Journal
- RICS communications
- Other construction and property journals
- Quality newspapers

Mandatory competencies

Accounting principles and procedures

Level 1

- Balance sheets/profit and loss account
- Taxation
- Revenue and capital expenditure
- Cash flows
- Auditing
- Ratio analysis
- Credit control
- Profitability

- Insolvency
- Legislation

Business planning

Level 1

- Legislation
- Types of business – Partnerships, Limited companies, Limited Liability Partnerships (LLP)
- Short/long term strategies
- Market analysis
- Five year plans
- Objectives – markets, clients, turnover, staffing, acquisitions
- Resourcing – recruitment, training, financing, accommodation
- SWOT analysis
- Human resources
- Data management
- Administration
- Health and safety
- Equality
- Legislation

- Establishing client's brief
- Site investigation
- Feasibility studies
- Procurement reports
- Project programme
- Communication strategy
- Key Performance Indicators
- Stakeholder management

Communication and negotiation

Level 2

- Oral communication:
- Phone calls
- Telephone/video conferencing
- Reporting at meetings
- Facilitating/chairing meeting
- Client and bid presentations
- Staff presentations
- Contractor/consultant interviews
- Public speaking at seminars etc.
- Listening skills
- Written/graphical communication
- Letters, emails and other electronic communication
- Report writing
- Programming
- Using drawn information – checking scales and revisions
- Using CAD documents
- Using BIM [Building Information Modelling]

Client care

Level 2

- Appointment documents
- Fees
- Prequalification Questionnaires (PQQ)
- Invitation to Tender (ITT)
- Complaints procedures
- Insurance
- Understanding client objectives

Negotiation

- Establishing authority
- Establishing objectives
- Setting strategy
- Collecting and presenting evidence
- Record keeping

Ethics, Rules of Conduct and professionalism**Level 3**

- RICS Rules of Conduct [for individuals and firms]
- Conduct befitting a Chartered Surveyor
- Registration of firms
- Complaints procedure
- Conflicts of interest
- Gifts
- Professional Indemnity Insurance
- Client accounts
- Regulation
- Disciplinary procedures
- Lifelong learning – CPD
- Current RICS structure
- Professional Group
- Current RICS issues and initiatives

Conflict avoidance, management and dispute resolution procedures**Level 1**

See *Optional competencies*

Data management**Level 1**

- BCIS/BMI or other external sources
- Employer's in-house cost data storage and filing
- Pricing books
- Elemental analysis
- Data base use generally
- Business management systems
- Scheduling
- Libraries
- Storage of project data
- Building Information Modelling (BIM)
- Project intranets and extranets
- Appropriate legislation dictating the storage and sharing of information

Health and safety**Level 2**

- Personal health and safety at work – RICS publication 'Surveying Safely' Personal safety procedures when visiting a construction site
- Common health and safety risks in construction
- Health and safety legislation:
- Generally
- At work
- Construction specific
- Sector specific
- Client specific
- Asbestos and other hazardous materials

Sustainability**Level 1**

See *Optional competencies*

Diversity, inclusion and team working**Level 1**

- Equality
- Understand the role of team members
- Appointing the project team
- Relationships with other team members
- Communicating with other team members
- Partnering and collaborative working
- RACI matrix
- Strategic alliance
- Supply chain management
- Legislation on selecting project teams
- Accountability and responsibility

Inclusive environments**Level 1**

- Recognising diverse user needs in respect of age, gender, ability, ethnicity, religion, etc.
- Equality legislation
- Planning legislation and requirements
- Building regulations and codes
- Accessibility
- Visual clarity
- Audibility systems
- Employment law
- Impact of health and safety regulations
- Corporate policy
- Ethical considerations as opposed to legal requirements

Leadership**Level 2**

- Self-management
- Leadership styles

- The role of a leader
- Organising
- Planning techniques
- Setting goals
- Decision making
- Communication
- Negotiation
- Supervision

Managing people

Level 2

- Recruitment
- Appraisals
- Personnel development
- Incentive schemes
- Communication
- Employment law
- Employment policy
- Human rights legislation
- Delegation
- Empowering
- Mentoring
- HR policy
- Stakeholder management

Managing resources [excluding human resources]

Level 2

- Data communication systems
- Stationery
- Secretarial/administration support services
- Space planning
- Facilities management
- Hot desking
- Homeworking

Core Competencies

Commercial management [of construction works]

Level 3

- Estimating
- Tendering
- Profitability
- competitiveness
- Establishing budgets
- Cash flows
- Reporting financial progress against budget
- Procurement of labour
- Procurement of plant and materials
- Procurement of sub-contracts
- Financial management of supply chain
- Financial management of multiple projects
- Earned Value management
- Cost Value Reconciliation (CVR)

Contract practice

Level 3

- Principles of contract law
- Legislation
- Current case-law – look out for cases reported in journals
- Standard forms of main and sub contract – e.g. FIDIC, JCT, NEC, ICC, ACA, IChemE, etc.
- Roles & responsibilities of parties – Client, Contract Administrator/Employer's Agent/Project manager/Engineer, Contractor, Sub-contractors, Quantity Surveyor
- Assignment/Novation
- Third party rights – Legislation/Collateral Warranties

- Letters of intent – Comfort letters/Consent to spend /Recognition of contract
- Performance security – Bonds/Parent Company Guarantees
- Insurances
- Advance payments
- Interim valuations and payment provisions
- Materials on/off site
- Fluctuations
- Retention – retention bonds
- Change procedures
- Valuing change – variations/compensation events
- Extensions of time
- Claims/Loss and Expense
- Dispute avoidance and resolution
- Named/Nominated subcontractors
- Sectional Completion/Partial Possession
- Design Portions/Performance specified works
- Determination
- Final Accounts
- Completion
- Liquidated/delay damages
- Defects liability/rectification period
- Construction technology and environmental services

Construction technology and environmental services

Level 3

Buildings:

- Substructures – basements, types of piling, etc.
- Superstructures
- Comparison of concrete/steel frames
- Floor structures

- External walls, windows and doors
 - Cladding/glazing
 - Roof structures and coverings
 - Partitioning systems and doors
 - Finishes and fixtures
 - Hard and soft landscaping
 - Services technology
 - Electrical systems
 - Mechanical systems
 - Internal/external drainage
 - Mains services
 - Air-conditioning/ventilation systems
 - Fire safety systems
 - Security systems
 - Environmental systems and controls
 - Data systems
 - Building types and other structures
 - Building regulations and codes
 - Planning legislation and procedures
 - Party wall issues/rights of light
 - Dangerous/banned substances – asbestos etc.
 - Pre-fabrication
 - Disability legislation
- Engineering structures:
- Bridges
 - Tunnels
 - Roads
 - Railways
 - Water ways
 - Sea defences
 - Earthworks
 - Sewage treatment plants
- Energy plants and installations:
- Processing plant

Design economics and cost planning

Level 3

- Economics of design – site density, wall/floor ratio, storey heights, room sizes, letable/non-letable
- Sources of cost data – BCIS/in-house database/other external sources
- Inflation (tender/construction)
- Location factors, regional variations
- Currency fluctuations
- Order of Cost Estimates
- Elemental Cost Plans
- Cost Planning
- Life cycle costing – capital/running costs/replacement
- Whole life costing
- Value Engineering
- Value Management
- Risk Management and Analysis (contingency)
- State of the construction market
- State of the economy generally – locally and globally
- Interest rates
- New Rules of Measurement (NRM 1 and 3)
- BCIS Standard Form of Cost Analysis
- Building Information modelling (BIM)
- RICS Code of Measurement Practice
- International Property measurement Standards (IPMS)
- International Construction Measurement Standards (ICMS)

Procurement and tendering

Level 3

- Types of procurement:
- Traditional
- Design and Build
- Management Contracting
- Construction Management
- Financial basis
- Lump sum
- Re-measured
- Cost Reimbursable
- Target cost
- Management contracts
- Tendering
- Standard rules of tendering – codes of practice, practice notes
- Single/two-stage tendering – competitive/ne-gotiated
- Electronic tendering
- Compilation of tender lists – pre-qualifying contractors
- Compilation of tender documents
- Pre and Post tender estimates
- Tender analysis
- Tender reports
- Partnering – project and strategic

Project finance (control and reporting)

Level 3

- Post contract cost control
- Change control procedures
- Change control forms
- Cost reporting
- Final accounts

- Loss and expense
- Risk management and quantification
- Cash flows
- Value engineering
- Benchmarking/Best value

Quantification and costing [of construction works]

Level 3

- Methods of measurement
- New Rules of Measurement (NRM Volumes 1 to 3)
- Other methods of measurement – e.g. CESMM, POMI
- RICS Code of Measurement Practice
- International Property Measurement Standards (IPMS)
- BIM
- Inputting data in to BIM
- Extracting data from BIM
- Preparation of pricing documents
- Tender documents generally
- Bill of quantity
- Schedule of works
- Schedule of rates
- Provisional Sums/Prime Cost Sums
- Analysis of price
- Tender returns
- Target cost – Pain/Gain mechanisms
- Loss and expense
- Preliminaries
- Day works
- Valuation of works

- Interim valuations
- Valuing change
- Loss and expense
- Final account
- Reporting on cost
- Tender report
- Correcting errors in tenders
- Post contract financial reporting

Conflict avoidance, management and dispute resolution procedures

- How standard forms of contract deal with conflict avoidance and dispute resolution
- Conflict avoidance
- Partnering
- Negotiation
- Mediation
- Conciliation
- Adjudication
- Arbitration
- Pre-action Protocol
- Litigation
- Expert Witness
- Independent Expert Determination
- Scott schedules

Optional competencies

Capital allowances

- Current legislation
- Capital and revenue expenditure
- Taxation
- Capital Allowances legislation
- Claiming capital allowances
- Plant and machinery
- Integral features
- Industrial buildings
- Hotels
- Research and development
- Enterprise zones
- First year allowances
- Enhanced capital allowances

Commercial management [of construction works]

(If not selected as a Core competency – see above)

Contract administration

- Standard forms of Contract – e.g. FIDIC, JCT, NEC, ACA, ICC, IChemE, etc.
- Roles and responsibilities of parties – client, contractors, designers, Q.S
- Role and responsibilities of person administering the contract – e.g. Contract Administrator, Architect, Employer's Agent, Project Manager, Engineer, Client Representative etc.
- Co-ordination of parties
- Design co-ordination
- Planning and building regulatory controls
- Health & Safety
- Monitoring progress
- Monitoring quality
- Insurances

- Bonds/Parent Company Guarantees
- Third party rights
- Payment provisions
- Change procedures
- Sectional Completion/Partial Possession
- Nominated/Named Subcontractors
- Extensions of time/loss and expense
- Materials on/off site
- Determination
- Liquidated/delay damages
- Completion
- Defects/rectification period

Corporate recovery and insolvency

- Types of Insolvency
- Bankruptcy
- Individual voluntary arrangement
- Liquidation
- Administrative receivership/Fixed charge receivership
- Company voluntary arrangement
- Role of the QS if insolvency occurs
- Termination and suspension of contracts
- Assignment/novation
- Ownership of material and plant
- Bonds and guarantees
- Set-off
- RICS Information Paper on Construction Insolvency

Design economics and cost planning

(If not selected as a Core competency – see above)

Due Diligence

- Project monitoring on management style contracts
- Fund monitoring
- Feasibility study
- Planning and building regulatory control
- Suitability of team
- Suitability of procurement route
- Tendering
- Contractual arrangements
- Third-party rights
- Suitability of programme
- Cash flows
- Interim payments
- Draw-down
- Final accounts
- Risk

Insurance

- Professional Indemnity Insurance – generally and RICS requirements
- Indemnifying the employer
- Third-party liability – persons and property
- Insurance of the works – joint names
- Subrogation
- Non-negligence insurance
- Setting level of cover
- In the aggregate/each and every event
- Excess
- Net contribution clause
- Performance bonds
- Fire insurance valuations

Programming and planning

- Project programming
- Multi-project programming
- Flow diagrams
- Activity schedules
- Gantt charts
- Critical path
- Key milestones
- Float
- Cash flows
- Progress monitoring
- Project handbook
- Project Execution Plans – PEP
- Establishing team
- Roles and responsibilities
- Commissioning/handover procedure
- Close-out reports

Project feasibility analysis

- Appraisal methods
- Residual value
- Value/income
- Valuation of property/rental values
- RICS Red Book
- Costs
- Land acquisition
- Construction costs
- Fees
- Finance costs
- Taxation, grants, capital allowances
- Profitability
- Planning

Risk management

- Workshops
- Identification
- Register
- Management plan
- Mitigation
- QS contribution to risk management
- Risk analysis
- Probability and impact
- Expected Monetary Value – EMV
- Monte Carlo Simulation
- Central Limit Theory – CLT
- Route Mean Square – RMS
- Quantified risk allowances

Sustainability

- Sustainable development/construction
- National and international regulations
- Environmental assessment methods – e.g. SKA Rating, LEED, BREEAM, National Technical Standards, etc.
- Building Regulations and Codes
- Contaminated land
- Waste management
- Recyclable materials
- Sustainable materials
- Building environmental management systems
- Water conservation
- Energy generation
- Energy conservation
- Life cycle cost studies
- Whole life cost studies
- Cost benefit analysis
- Carbon estimating
- Energy Performance Certificates
- Display Energy Certificates



Confidence through professional standards

RICS promotes and enforces the highest professional qualifications and standards in the valuation, development and management of land, real estate, construction and infrastructure. Our name promises the consistent delivery of standards – bringing confidence to markets and effecting positive change in the built and natural environments.

Americas

Latin America
ricsamericalatina@rics.org

North America
ricsamericas@rics.org

Asia Pacific

ASEAN
ricsasean@rics.org

Greater China (Hong Kong)
ricshk@rics.org

Greater China (Shanghai)
ricschina@rics.org

Japan
ricsjapan@rics.org

Oceania
oceania@rics.org

South Asia
ricsindia@rics.org

EMEA

Africa
ricsafrica@rics.org

Europe
ricseurope@rics.org

Ireland
ricsireland@rics.org

Middle East
ricsmiddleeast@rics.org

United Kingdom RICS HQ
contactrics@rics.org

rics.org