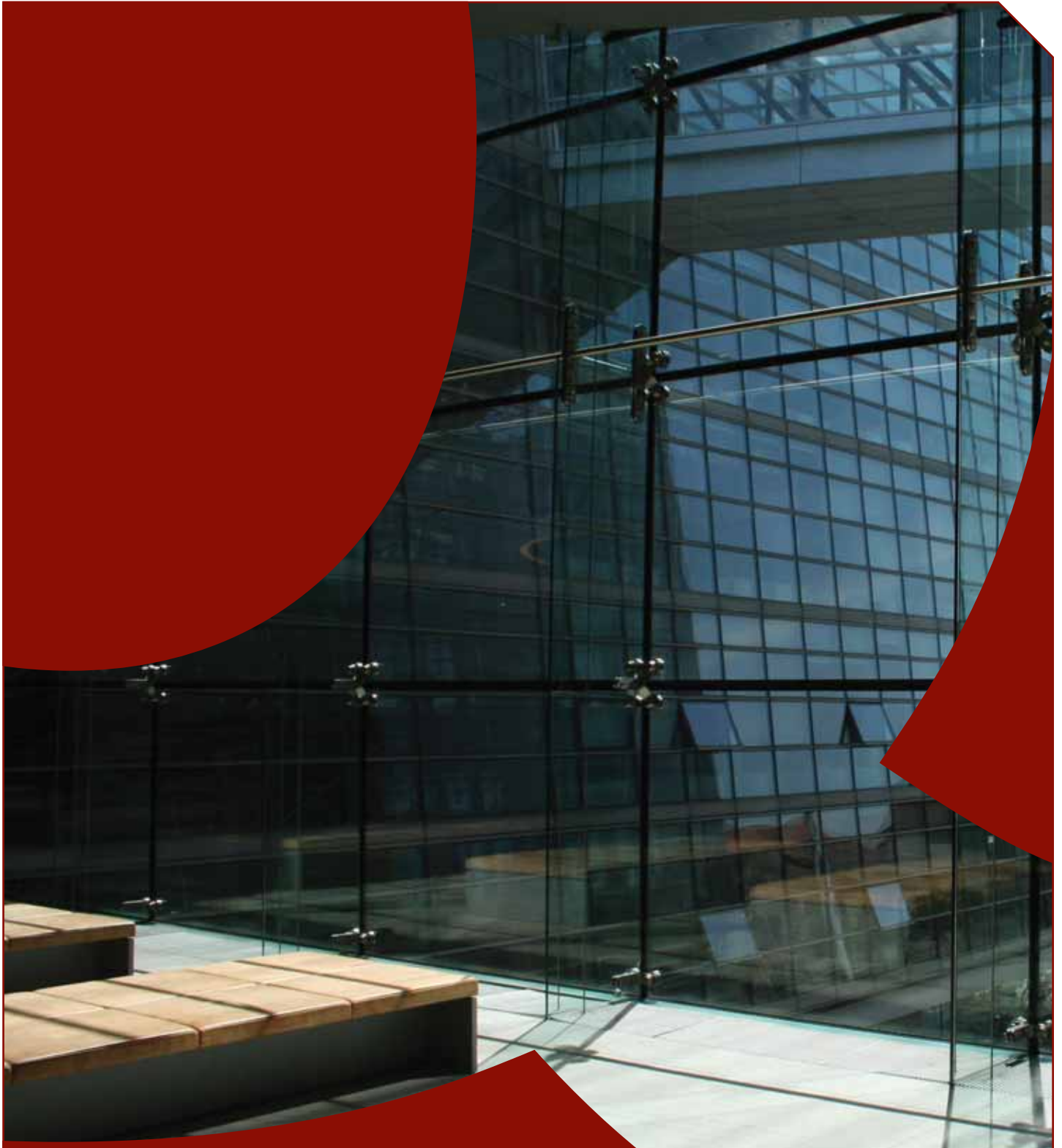


Your pathway to qualifying in

# Quantity Surveying and Construction

- Assessment of Professional Competence
- Assessment of Technical Competence

July 2006



# Quantity Surveying and Construction

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RICS Built Environment Group

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This guide is produced by the RICS Quantity Surveying and Construction Faculty in conjunction with RICS Education and Training.

Published in November 2006 to support the 2006 Assessment of Professional Competence and Assessment of Technical Competence.

# Introduction



## About the APC and ATC

The RICS Assessment of Professional Competence (APC) and Assessment of Technical Competence (ATC) ensure that those applying for RICS membership are competent to practise and meet the high standards of professionalism required by RICS. There is a wide range of pathways available to qualify as an RICS member covering 19 different areas of practice, at APC – (Chartered), and ATC – (Technical) level.

The APC and ATC normally consists of:

- a period of structured training
- a final assessment.

The structured training is based on candidates achieving a set of requirements or competencies. These are a mix of technical, professional, interpersonal, business and management skills.

## How to use this guide

This guide supports the core 2006 APC and ATC documentation. It is designed to help you understand more about qualifying as an RICS member in quantity surveying and construction. The guide is based on UK market practice and may be unsuitable for candidates based in other countries. The material is set out in three sections.

**Section one** – provides information on this area of practice with a general overview of the quantity surveying and construction pathways.

**Section two** – lists the competency requirements of the quantity surveying and construction APC and ATC pathways (as set out in the *APC/ATC Requirements and competencies guide July 2006*).

**Section three** – describes the main technical competencies associated with quantity surveying and construction, providing expanded sector specific guidance on each of them. This forms the main part of the guide.

**You MUST use this guide in conjunction with the 2006 core APC and ATC documentation which is available on the RICS website and comprises:**

- *APC/ATC Requirements and competencies guide – July 2006.*
- *Candidate guides (2006)* – (the particular candidate guide you need will depend on your route to membership).
- *Guide for supervisors, counsellors and employers – graduate route to membership, July 2006.*



## About the competencies

The APC/ATC aims to assess that you are competent to carry out the work of a qualified chartered/technical surveyor. To be competent is to have the skill or ability to perform a task or function. The RICS competencies are not just a list of tasks or functions, they are also based upon attitudes and behaviours. The competencies have been drawn up in a generic way so that they can be applied to different areas of practice and geographical locations. This guide is designed to help you interpret these competencies within the context of quantity surveying and construction.

The competencies are defined at three levels of attainment and each APC or ATC pathway has its own specific combination of competencies that you must achieve at the appropriate level. You must reach the required level in a logical progression and in successive stages:

**Level 1** – knowledge and understanding

**Level 2** – application of knowledge and understanding

**Level 3** – reasoned advice and depth of technical knowledge.

**The competencies are in three distinct categories:**

**Mandatory competencies** – the personal, interpersonal, professional practice and business competencies common to all pathways and compulsory for all candidates. These are explained in more detail in the *APC/ATC Requirements and competencies guide – July 2006*.

**Core competencies** – the primary competencies of your chosen APC/ATC pathway.

**Optional competencies** – a set of competencies selected by the candidate from a list defined for the particular pathway. In most cases there is an element of choice. These are mostly technical competencies, but certain mandatory competencies also appear on the optional competency list and candidates are permitted to select one of these at a higher level.

**This guide only deals with the principal core and optional competencies associated with this area. It does not cover the mandatory competencies.**

## 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.

## How to find help

RICS has a fully trained Contact Centre team who will be able to help you with any general APC or ATC queries:

**T** +44 (0)870 333 1600

**F** +44 (0)20 7334 3811

contactrics@rics.org

**www.rics.org**

## About Quantity surveying and construction

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, waterways, airports, sea ports, 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.



## RICS qualification pathways in this sector:

### Quantity surveying and construction APC

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 (eg 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.

### Quantity surveying and construction ATC

*RICS also offers an ATC pathway in quantity surveying and construction to individuals wishing to achieve the Tech RICS designation.*

Candidates pursuing the ATC will be involved in similar types of activities to those on the APC, but the ATC places more emphasis on achieving level two, rather than level three, in the competencies.

An individual with the tech RICS qualification may be working within a technical role but is unlikely to be providing strategic advice to clients or stakeholders.

### Chartered alternative designations related to this pathway

All candidates qualifying under the Quantity surveying and construction APC pathway, whether they work in private practice or for a contractor, will be entitled to use the designation 'Chartered Quantity Surveyor'.

# Pathway requirements

## Quantity surveying and construction APC

### Mandatory competencies

You must achieve the minimum levels as set out in the mandatory competencies.

### Core competencies

Level 3

- Commercial management of construction or Design economics and cost planning\*
- Contract practice
- Construction technology and environmental services
- Procurement and tendering
- Project financial control and reporting
- Quantification and costing of construction works.

### Optional competencies

Two competencies at Level 2 from the list below.

- Capital allowances
- Commercial management of construction or Design economics and cost planning (whichever is not selected as a core competency)
- Contract administration
- Corporate recovery and insolvency
- Due diligence
- Insurance
- Programming and planning
- Project evaluation
- Risk management
- Conflict avoidance, management and dispute resolution procedures or Sustainability.

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### Notes

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 the RICS Contact Centre.

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

\*Quantity surveyors working in a commercial or contracting environment will probably choose Commercial management of construction to Level 3. Quantity surveyors working in a consulting environment within either the public or private sector will probably choose Design economics and cost planning to Level 3.



# Quantity surveying and construction ATC

## **Mandatory competencies**

You must achieve the minimum levels as set out in the mandatory competencies.

## **Core competencies**

Level 2

- Commercial management of construction or Design economics and cost planning\*
- Construction technology and environmental services
- Contract practice
- Procurement and tendering
- Project financial control and reporting
- Quantification and costing of construction works.

## **Optional competencies**

Two competencies to Level 2 from the list below.

- Capital allowances
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# Competency guidance

The pages that follow are intended to provide guidance for users on the main competencies associated with quantity surveying and construction.

The guidance has been drawn up by experienced practitioners and aims to give you a clear and practical understanding of how to apply the listed core and optional competencies in the context of quantity surveying and construction. The guidance does not cover the mandatory competency requirements.

The official competency definitions (at levels one, two and three) are provided, followed by a description of the key knowledge and activities that are likely to fall within the scope of each competency.

The information provided is designed to be helpful but informal guidance. The knowledge and activities described under each competency are not exhaustive, and should not be relied upon as any form of revision list. Candidates must satisfy themselves and their employers that they have reached the required level of attainment before applying for final assessment.

The competencies are arranged in alphabetical order.

The full list of RICS competencies and pathway requirements can be found in the *APC/ATC Requirements and competencies guide – July 2006*.

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# Capital allowances

Reference no. T008

## Description of competency in context of this sector

This competency covers the taxation incentives/capital allowances available on property and structures in order to prepare claims and give advice to clients. Candidates should have an awareness of the various types of capital allowance that are available in accordance with capital allowances legislation. They 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, 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 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

Reference no. T010

## Description of competency in context of this sector

This competency covers the commercial management of construction works. Candidates should have an awareness of how 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
- Understanding of the effect that the design and construction processes have on the cost
- Awareness of the techniques used to reconcile the cost against income
- Awareness of 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 activities and 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

Reference no. M006

## Description of competency in context of this sector

This competency covers the quantity surveyor's involvement with the avoidance, management and resolution of disputes in construction projects. Candidates should be aware of 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 APC/ATC 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 activities and knowledge comprised within this level are:

- Developing further knowledge of the relevant law governing conflict avoidance and management and dispute resolution procedures
- Being involved with adjudication procedures in particular and have an understanding of the default procedures where a construction contract does not make provision for adjudication
- Being involved with other dispute resolution procedures
- 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 the various circumstances referred to above.

#### Examples of activities and knowledge comprised within this level are:

- Developing an in depth knowledge of law governing conflict avoidance and management and dispute resolution procedures, including relevant legislation and case law
- Giving reasoned advice on different dispute resolution procedures having reference to particular project circumstances
- 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

Reference no. T013

## Description of competency in context of this sector

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 the building work and inter-relate
- The process of constructing the works
- Operational and maintenance processes post contract.

### 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 piling 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

Reference no. T016

## Description of competency in context of this sector

This competency covers the role of a surveyor administering a construction contract. Candidates should be aware of 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 for the smooth running of a construction contract.

#### Examples of activities and 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

Reference no. T017

## Description of competency in context of this sector

This competency covers the various forms of contract used in the construction industry. Candidates should have an awareness of 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 activities and 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 and ascertained 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

Reference no. T020

## Description of competency in context of this sector

This competency covers the involvement and actions of a quantity surveyor when insolvency occurs on a construction project. Candidates should have an awareness of 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 Chartered 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 his 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 activities and 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 property 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 an insolvency.

# Design economics and cost planning

Reference no. T022

## Description of competency in context of this sector

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. Candidates should have an awareness of 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 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 activities and knowledge comprised within this level are:

- Producing estimates and cost plans
- Carrying out life cycle costing exercises
- Applying value engineering processes
- 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 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

Reference no. T025

## Description of competency in context of this sector

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. Candidates should have an awareness of 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 activities and 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.

# Health and safety

Reference no. M008

## Description of competency in context of this sector

This competency covers the relationship between the work of the quantity surveyor and health and safety issues within the construction industry. Candidates should be aware of legal, practical and regulatory requirements. They 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
- The impact on health and safety of:
  - Design
  - Construction processes
  - Building maintenance
  - 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.

### 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
  - Current legislation.

# Insurance

Reference no. T045

## Description of competency in context of this sector

This competency covers specific insurance provisions related to property and development. Candidates should be aware of 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 activities and knowledge comprised within this level are:

- Developing specialist knowledge in areas such as asbestos and 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

Reference no. T062

## Description of competency in context of this sector

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 activities and knowledge comprised within this level are:

- Implementing procurement routes such as traditional, design and build, management forms, term and serial contracting and other types
- 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

Reference no. T063

## Description of competency in context of this sector

This competency covers a surveyor's involvement with the programming and planning of construction projects. Candidates should have an awareness of 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:

- Understand the need for pre-contract planning and programming techniques
- Different planning techniques eg 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.

### Level 2

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

#### Examples of activities and 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 PERT network analysis as appropriate to determine the longest path
- Identifying the impact of contractual provisions on the effective planning of projects.

### 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 (eg 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 eg financing provisions, time of construction, scope changes
- Advising on a project programme when determining different procurement options.

# Project evaluation

Reference no. T066

## Description of competency in context of this sector

This competency covers the financial aspects of feasibility studies and development appraisals. Candidates should be aware of 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 town planning aspects associated with a development appraisal.

#### Examples of knowledge comprised within this level are:

- Understand the process of carrying out a development appraisal using techniques such as residual valuation
- Understand the various financial elements of a development appraisal such as land and construction costs, fees, finance costs, value or income stream and profit
- Awareness of the impact of non-financial factors such as town planning on an appraisal
- Understand the basic principals 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 activities and 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 financial control and reporting

Reference no. T067

## Description of competency in context of this sector

This competency covers the effective cost control of construction projects during the construction phase. Candidates should be aware of 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 contingencies/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 activities and 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/contingencies/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

Reference no. T074

## Description of competency in context of this sector

This competency covers the measurement and definition of construction works in order to value and control costs. Candidates should have an awareness of 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.

#### 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.

### 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.

#### Examples of activities and 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 dayworks.

### 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 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

Reference no. T077

## Description of competency in context of this sector

This competency covers the management of risk on construction projects. Candidates should be aware of 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.

### 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 activities and 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 their 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

Reference no. (M009)

## Description of competency in context of this sector

This competency covers the role of the quantity surveyor in dealing with the impact of sustainability issues on development and construction. Candidates should have an awareness 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.

### Level 2

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

#### Examples of activities and knowledge comprised within this level are:

- 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.



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