Undergraduate Certificate in Civil Engineering Quantity Surveying (United Kingdom)

Construction Contracts

Contract is the fundamental legal instrument that sets out the rights, obligations and remedies of the parties involved in a construction project. In the United Kingdom the most widely used forms are the JCT (Joint Contracts Tribunal) suite, the NEC (New Engineering Contract) suite and the FIDIC (International Federation of Consulting Engineers) suite. A contract typically contains a pre-amble, a scope of works, a schedule of payments, a risk allocation matrix and a series of conditions that govern the relationship between the parties. Understanding the structure of a contract is essential for a quantity surveyor because it determines how costs are measured, how variations are priced and how disputes are resolved.

Employer refers to the client who commissions the construction works. The employer may be a public authority, a private developer or a corporate entity. The employer's responsibilities include providing the project brief, securing financing, appointing the design team and, in many cases, appointing a contract administrator or a project manager. The employer's risk exposure is often limited through the use of performance bonds and insurance policies, but the employer remains ultimately accountable for the delivery of the project within the agreed budget and time frame.

Contractor is the party who undertakes the construction works in exchange for payment. The contractor may be a main contractor who directly executes the works, or a consortium of specialist contractors. The contractor's primary obligations are to execute the works in accordance with the contract documents, to manage health and safety on site, to submit regular payment applications and to cooperate with the employer's representatives. The contractor's financial health is monitored through mechanisms such as retention, interim payments and the provision of a performance bond.

Sub-contractor is a specialist trade or service provider engaged by the main contractor to perform a portion of the works. Sub-contractors are bound by the main contractor's contract terms, but they may also have direct agreements with the employer in certain procurement routes, such as design-and-build. The subcontractor's scope of work is usually defined by a schedule of rates or a bill of quantities (BoQ) and is subject to variations and extensions of time as directed by the main contractor.

Consultant is the professional adviser appointed by the employer to provide design, technical and contractual advice. In a traditional design-bid-build route the consultant is typically an architect or a chartered engineer, while in design-and-build projects the consultant may be part of the contractor's design team. The consultant's responsibilities include preparing the design brief, issuing the drawings and specifications, and acting as the contract administrator for the employer. The consultant's role in certifying payments and assessing variations is critical to the quantity surveyor's work.

Quantity Surveyor (QS) is the specialist who manages the financial aspects of a construction project. The QS

prepares the BoQ, monitors cost against budget, evaluates tender submissions, advises on procurement strategy, prepares interim payment applications, assesses variations, and prepares the final account. The QS also plays a key role in risk analysis, value engineering and dispute resolution. Mastery of contract terminology enables the QS to interpret the contract provisions accurately and to protect the employer's and contractor's financial interests.

Specification is the written description of the quality, performance and standards required for each element of the works. Specifications are usually divided into sections such as general, workmanship, materials, execution and testing. They are often prepared in accordance with the BS EN 1990 (Eurocode) framework for structural design and the BS 8000 series for construction. The specification works hand-in-hand with the drawings to define the required outcomes and is a primary source of information for measuring variations.

Drawings are the graphic representation of the design, including plans, elevations, sections and details. The drawings are issued in a set, typically at the design stage, and may be revised during the construction phase. The quantity surveyor uses the drawings together with the specification to develop the BoQ and to verify that the contractor's work complies with the design intent.

Bill of Quantities (BoQ) is a detailed schedule that lists the quantities of each work item and the corresponding unit rates. The BoQ is used as the basis for tendering, for measuring work on site and for valuing variations. A typical BoQ is organised by work sections following the Standard Method of Measurement (SMM) or the New Rules of Measurement (NRM). The QS must ensure that the BoQ accurately reflects the design intent, that it is free from ambiguities, and that the measurement rules are applied consistently throughout the project.

Schedule of Rates is an alternative to a BoQ, where the contractor provides unit rates for each type of work and the quantity is measured on site. This approach is common in contracts that involve a high degree of uncertainty, such as civil engineering works where ground conditions may vary. The schedule of rates is often used in conjunction with a re-measurement clause that allows the contract sum to be adjusted based on the actual quantities measured.

Lump Sum contract is a fixed-price arrangement where the contractor agrees to complete the works for a predetermined amount. The lump sum is derived from the BoQ or from a negotiated price and is intended to provide certainty for the employer. However, any variations to the scope of work will usually result in a change order and a corresponding adjustment to the contract sum.

Re-measurement is the process of determining the quantities of work actually performed, often used in contracts based on schedules of rates. The quantity surveyor carries out re-measurement by comparing the as-built conditions to the design drawings and by using measurement tools such as laser scanning or digital take-off software. Accurate re-measurement is essential to avoid disputes over the amount payable for measured work.

Unit Rate is the price per unit of measurement, such as £120 per cubic metre of concrete. Unit rates are

established during the tender stage and may be subject to price escalation clauses that link them to indices such as the BCIS (Building Cost Information Service) or the RPI (Retail Price Index). The quantity surveyor must review unit rates for reasonableness and ensure that they reflect current market conditions.

Provisional Sum is an allowance included in the contract for work that cannot be fully defined at the time of tender. The provisional sum is a fixed amount that the contractor may spend, and any remaining balance is either retained by the employer or transferred to the contractor depending on the contract terms. Provisional sums are commonly used for specialist items such as mechanical and electrical services where detailed design may be incomplete.

Contingency is a budgetary provision for unforeseen costs. Unlike provisional sums, which are allocated to specific items, contingencies are general reserves that can be drawn upon to cover unexpected events, such as ground condition surprises or price inflation. The quantity surveyor is responsible for establishing an appropriate contingency level, typically expressed as a percentage of the contract sum, based on risk analysis.

Variation (also known as a change order) is any alteration to the scope, quality, or timing of the works that is instructed by the employer or the employer's representative. Variations may be initiated by design changes, site conditions, or statutory requirements. The contract will set out the procedure for notifying, pricing and authorising variations. A variation may be priced by a lump sum, a re-measurement, or an adjustment to a schedule of rates. The quantity surveyor must assess the impact of each variation on cost, time and risk.

Instruction is a formal directive issued by the contract administrator or the employer's representative that commands the contractor to carry out a specific action. Instructions may be used to initiate variations, to enforce compliance with health and safety requirements, or to address defects. The contractor is usually required to acknowledge receipt of an instruction and to confirm the effect on the contract sum and programme.

Notice is a written communication that triggers contractual rights or obligations. Common notices include the notice of intention to claim, the notice of delay, and the notice of suspension. The contract will prescribe strict time limits for serving notices; failure to comply can result in loss of the right to claim additional time or money. The quantity surveyor must maintain a comprehensive notice register to track all contractual communications.

Claim is a formal request for additional payment or an extension of time. Claims are usually submitted in response to a variation, a delay event, or a disruption caused by the employer or a third party. A well-structured claim includes a detailed narrative, supporting documentation, a cost breakdown, and a schedule impact analysis. The contract may require the claim to be submitted within a specified period, often 28 days from the event.

Extension of Time (EOT) is a contractual concession that allows the contractor additional days to complete the works without incurring liquidated damages. An EOT is typically granted when the contractor can

demonstrate that the delay was caused by events outside of its control, such as a client-ordered change, adverse weather, or a force-majeure event. The quantity surveyor must quantify the impact of the delay on the critical path and provide a substantiated justification for the extension.

Liquidated Damages are a pre-agreed sum per day that the contractor must pay to the employer if the project is not completed by the agreed completion date. Liquidated damages are intended to compensate the employer for loss and inconvenience, and they are enforceable as long as they are a genuine pre-estimate of loss. The quantity surveyor must monitor progress closely and advise the contractor on the financial consequences of any delay.

Performance Bond is a guarantee issued by a bank or an insurer that ensures the contractor will fulfil its contractual obligations. If the contractor defaults, the bond can be called upon to provide financial compensation to the employer. The bond amount is usually a percentage of the contract sum, commonly 10 %. The quantity surveyor may be asked to assess the adequacy of the bond and to manage the bond release process upon practical completion.

Retention is a portion of each payment that is held back by the employer as security against defects. Typically, 5 % of each interim payment is retained, with half released upon practical completion and the remainder upon final certification after the defects liability period. Retention can cause cash-flow challenges for contractors, especially smaller firms, and the quantity surveyor must plan for the impact on the contractor's working capital.

Payment Schedule is a document issued by the employer in response to a contractor's payment application. The schedule must state the amount the employer proposes to pay and any reasons for withholding part of the claimed amount. Under the Housing Grants, Construction and Regeneration Act 1996 (as amended), the payment schedule must be served within 15 days of receipt of the payment application. Failure to do so results in an deemed acceptance of the claimed amount. The quantity surveyor must ensure that payment applications are accurate and that any discrepancies are promptly addressed.

Interim Payment is an application for payment for work performed to date, usually submitted on a monthly basis. An interim payment must be supported by a measurement statement, a copy of the contractor's invoice, and any required supporting documents such as test certificates. The quantity surveyor prepares the interim payment, checks the measurement against the BoQ or schedule of rates, and certifies the amount payable.

Final Account is the concluding financial statement that records the total cost of the works, incorporating all variations, adjustments, and retained amounts. The final account is prepared after practical completion, following the resolution of all outstanding claims and the completion of the defects liability period. The final account may be subject to dispute if the parties disagree on the valuation of variations or the extent of the contractor's obligations.

Dispute Resolution mechanisms are built into contracts to provide a structured approach to handling

disagreements. Common methods include adjudication, arbitration, mediation and litigation. The Housing Grants, Construction and Regeneration Act 1996 introduced a mandatory adjudication process that must be initiated within 28 days of a dispute arising. The quantity surveyor may act as an expert witness in adjudication, providing detailed cost analysis and supporting documentation.

Arbitration is a private, binding form of dispute resolution where an independent arbitrator makes a decision after hearing evidence from both parties. Arbitration is often chosen for its confidentiality and relative speed compared with court proceedings. The contract may specify a particular arbitration institution, such as the Chartered Institute of Arbitrators (CIArb) or the International Chamber of Commerce (ICC). The arbitrator's award is enforceable in the courts.

Mediation is a collaborative process in which a neutral mediator assists the parties in reaching a mutually acceptable settlement. Mediation is non-binding, but it can preserve relationships and reduce legal costs. In many UK contracts, mediation is required before proceeding to adjudication or arbitration. The quantity surveyor may prepare a mediation brief that summarises the financial position and outlines the desired outcome.

Adjudication is a rapid, interim dispute resolution method introduced by the 1996 Act. An adjudicator is appointed to decide the dispute within 28 days, and the decision is binding unless and until it is overturned by arbitration or litigation. The adjudicator's decision is enforceable as a payment notice, and parties must comply with the award immediately. The fast-track nature of adjudication makes it a popular choice for payment disputes.

JCT (Joint Contracts Tribunal) provides a family of standard forms that are widely used for building and civil engineering projects in the United Kingdom. The JCT suite includes the Standard Building Contract, the Design and Build Contract, and the Minor Works Contract. Each form contains a set of general conditions, a set of particular conditions and a schedule of amendments that allow the parties to tailor the contract to their project.

NEC (New Engineering Contract) is a family of contracts that promote collaboration, flexibility and proactive risk management. The NEC suite includes the Engineering and Construction Contract (ECC), the Professional Services Contract (PSC) and the Term Service Contract (TSC). The NEC contract is characterised by its use of plain-English language, its "early warning" mechanism, and its emphasis on joint problem solving. Quantity surveyors working on NEC contracts must be familiar with the "compensation events" regime and the method for pricing them.

FIDIC contracts, such as the Red Book (Construction) and the Yellow Book (Plant and Design-Build), are internationally recognised forms that are used on large infrastructure projects. FIDIC contracts contain a detailed risk allocation matrix, a "engineer" who acts as the contract administrator, and a robust dispute resolution clause. The quantity surveyor may encounter FIDIC contracts when working on cross-border projects or on projects funded by international bodies.

Standard Form contracts are pre-approved templates that provide a consistent set of terms and conditions. The advantage of standard forms is that they reduce negotiation time, provide legal certainty and facilitate benchmarking of costs. However, they may also limit flexibility, and parties often need to amend the standard forms with particular conditions to suit the unique aspects of their project.

Conditions of Contract are the clauses that govern the rights and duties of the parties. They are usually divided into general conditions, which apply to all projects, and particular conditions, which are project-specific. The general conditions cover matters such as payment, variations, extensions of time, defects, and termination. The particular conditions may modify the general conditions, add new provisions or incorporate statutory requirements.

General Conditions include provisions on the interpretation of the contract, the responsibilities of the parties, the procedures for making payments, the mechanisms for assessing variations, and the rules for dealing with disputes. They form the backbone of the contract and are often the source of the most frequent contractual issues.

Particular Conditions are bespoke clauses that address the specific needs of a project. Examples include site-specific health and safety requirements, environmental constraints, unique procurement arrangements, or special performance guarantees. The quantity surveyor must read the particular conditions carefully because they may alter the standard risk allocation and affect the cost of the project.

Time at Large is a legal concept that arises when the contractual mechanism for granting extensions of time is unavailable or has been excluded. When time at large applies, the contractor is no longer bound by the original completion date, and any delay cannot be penalised through liquidated damages. This situation often results from a failure to serve a proper notice of delay or from an ambiguous contract clause. Quantity surveyors should be vigilant in monitoring notice periods to avoid the inadvertent creation of time at large.

Force Majeure refers to events that are beyond the control of the parties and render performance impossible or impracticable. Typical force-majeure events include natural disasters, war, terrorism, and sudden changes in law. Most contracts contain a force-majeure clause that excuses performance for the duration of the event and may provide for an extension of time but not for additional payment, unless the event also causes additional costs. The quantity surveyor must assess whether an event qualifies as force majeure and the consequent financial impact.

Termination can be for convenience or for default. Termination for convenience allows the employer to end the contract without fault, usually subject to payment of a termination sum that covers the contractor's costs and profit on work performed. Termination for default occurs when one party breaches a fundamental term of the contract, such as failing to pay or failing to complete works. The contract will set out the procedures for giving notice, for curing the breach and for the consequences of termination. The quantity surveyor must calculate the termination sum, including any outstanding variations, demobilisation costs and loss of profit.

Suspension is a temporary halt to the works that may be ordered by the employer, the contract administrator or the contractor. Suspension can be for cause (e.G., Safety concerns) or for convenience (e.G., Awaiting design clarification). During suspension, the contractor is generally not entitled to payment for the period of suspension but may be entitled to compensation for additional costs incurred, such as site maintenance. The quantity surveyor must assess the contractor's entitlement under the contract and advise on the appropriate claim.

Defects are any shortcomings or failures to meet the contract specifications. Defects are usually identified during inspections, snagging walks or by the employer's team. The contract will define a defects liability period (DLP) during which the contractor must remedy any defects at its own cost. The quantity surveyor assists in tracking defects, preparing a defects schedule and ensuring that the contractor's remedial work is correctly measured and paid.

Snagging is the process of compiling a list of minor defects, incomplete items or unfinished works at the stage of practical completion. The snagging list is used to confirm that the contractor has fulfilled its obligations before the final account is prepared. The quantity surveyor may be involved in measuring the cost of rectifying snags and in negotiating any adjustments to the final account.

Defects Liability Period (DLP) is the time frame after practical completion during which the contractor is obliged to repair or replace any defective work. The length of the DLP is typically 12 months for building contracts, but it may be longer for specialist works such as mechanical plant. The DLP can be extended by agreement or by a variation. The quantity surveyor must monitor the DLP to ensure that any defect-related costs are captured before the final account is settled.

Practical Completion is the point at which the works are sufficiently complete for the employer to occupy or use the building for its intended purpose, even though minor defects may remain. The contract administrator issues a certificate of practical completion, which triggers the release of the final retention sum and marks the start of the DLP. The quantity surveyor must verify that all major variations and payments have been accounted for before practical completion is certified.

Occupancy Certificate is a statutory document issued by the local authority confirming that the building complies with building regulations and is safe to occupy. The certificate is required before the building can be legally used and may be a condition precedent to final payment. The quantity surveyor may need to coordinate with the client's team to ensure that the certificate is obtained in a timely manner.

Insurance is a critical component of construction risk management. Typical policies include public liability, employer's liability, professional indemnity, contractor's all-risk (CAR) and erection all-risk (EAR) insurance. The contract will specify which parties are required to maintain each type of insurance and the minimum limits. The quantity surveyor may be tasked with reviewing insurance certificates to confirm compliance and to advise on any gaps in coverage.

Public Liability insurance protects the contractor against claims for injury or property damage caused to

third parties as a result of the construction activities. The policy limits are often set at £5 million or higher for large projects. The quantity surveyor may need to verify that the contractor's public liability cover is in place before commencing works.

Professional Indemnity insurance safeguards the design team against claims arising from professional negligence. For example, an architect may be liable if a design error leads to structural failure. The contract will require the design professionals to hold professional indemnity cover, and the quantity surveyor may review the policy limits and exclusions.

Risk is the exposure to potential loss, damage or liability. In construction contracts, risk is allocated between the employer and the contractor through the contract conditions. Common risk categories include design risk, site risk, cost risk, time risk, and environmental risk. The quantity surveyor conducts a risk register, identifies risk owners, assesses probability and impact, and develops mitigation strategies.

Risk Register is a living document that records identified risks, their potential impact, the likelihood of occurrence, and the mitigation measures. The register is updated throughout the project lifecycle and is used by the project team to monitor and manage risk. The quantity surveyor contributes to the register by providing cost estimates for risk events and by tracking the financial implications of risk mitigation actions.

Allocation of risk is a central theme in contract drafting. The aim is to allocate each risk to the party best placed to manage it, thereby reducing overall project cost. For example, design risk is typically allocated to the employer, while site execution risk is allocated to the contractor. The quantity surveyor must understand the risk allocation to anticipate potential cost overruns and to advise on appropriate contingency levels.

Insurance also features in the form of warranties and guarantees. A performance guarantee may be provided by a bank, while a warranty may cover the quality of materials for a specified period. The quantity surveyor may need to assess the cost of obtaining these guarantees and to ensure that they are factored into the overall project budget.

Warranty is a promise by the contractor that the works will meet certain performance standards for a defined period after completion. Warranties may cover structural integrity, waterproofing, or mechanical equipment. The warranty period may be separate from the defects liability period and may involve a different set of payment conditions. The quantity surveyor must track warranty obligations to avoid unexpected costs after the project has been handed over.

Substantial Completion is a term used primarily in US-derived contracts but also appears in UK practice, particularly in large infrastructure projects. It represents a stage where the project is sufficiently complete to allow the employer to start using the works for its intended purpose, even though minor works may remain. Substantial completion often triggers the start of the defects liability period and the release of a portion of the retention. The quantity surveyor should be aware of the timing of substantial completion to schedule final payments accurately.

Insurance considerations also extend to environmental liabilities. For projects with potential contamination, a pollution insurance policy may be required. The policy covers costs associated with remediation, legal fees and third-party claims. The quantity surveyor must factor the premium cost into the project budget and may need to advise the client on the adequacy of the coverage.

Risk Register is used by the project team to monitor both financial and non-financial risks. For each risk, the quantity surveyor may assign a monetary value, such as the cost of a potential delay or the expense of remedial works. By aggregating these values, the QS can provide a more realistic forecast of the total project exposure.

Allocation of risk is not static; it may evolve as the project progresses. For instance, a design risk that was initially allocated to the employer may shift to the contractor if the design is handed over incomplete. The contract may contain provisions for re-allocation of risk through variation instructions. The quantity surveyor must keep track of such changes to adjust cost forecasts accordingly.

Termination for convenience can be a strategic tool for the employer, but it may expose the contractor to significant financial loss. The contract will typically require the employer to pay a termination sum that reflects the contractor's incurred costs, the value of completed work, and a reasonable profit margin. The quantity surveyor is responsible for calculating this sum, ensuring that all variations, demobilisation costs and loss of profit are included.

Suspension orders may be initiated by the employer for reasons such as safety concerns, site access restrictions, or waiting for design clarification. The contract may provide for compensation for costs incurred during suspension, such as site overheads, material storage, and additional supervision. The quantity surveyor must quantify these costs accurately and prepare a claim that complies with the contractual procedures.

Defects are often identified during the commissioning stage. For mechanical and electrical systems, performance testing may reveal that a pump does not meet the required flow rate, or that a fire alarm system fails to achieve the stipulated coverage. The quantity surveyor must capture the cost of remedial works, which may involve re-testing, replacement of equipment, or additional labour. Accurate measurement of these items is essential for fair settlement.

Snagging lists are typically prepared by the client's representative and may contain dozens or hundreds of items. Common snag items include missing fixings, incomplete paint finishes, or improperly installed glazing. The quantity surveyor reviews the snag list, assesses the cost of each item, and negotiates with the contractor to agree on the final payment for snagging works.

Defects Liability Period is a time when the contractor remains liable for correcting any defects, but the employer's ability to claim for major defects may be limited by the contract's limitation period. For example, latent defects that become apparent after the DLP may be subject to a separate warranty claim. The quantity surveyor advises the client on the appropriate timeframe for raising such claims.

Practical Completion certificates often include a list of outstanding items that must be completed within a specified period, known as the “defects list”. The contractor is required to complete these items before final payment can be made. The quantity surveyor monitors progress against this list and ensures that any additional costs are captured in the final account.

Occupancy Certificate may be delayed if the building fails to meet fire safety requirements. In such cases, the contractor may incur additional costs for remedial works, additional testing and re-inspection. The quantity surveyor must include these costs in the final settlement and may need to advise the client on the impact on the overall project schedule.

Insurance requirements are often tied to statutory regulations. For example, the Construction (Design and Management) Regulations 2015 (CDM 2015) require that contractors hold a CAR policy that covers the works from the start of construction until practical completion. The quantity surveyor verifies that the insurance cover is in place before mobilising the site and may be required to provide evidence of cover to the client.

Public Liability insurance limits may be scrutinised by lenders as part of the financial due diligence process. If the insurer’s limit is below the lender’s threshold, the lender may require the contractor to increase the cover, which can affect the project’s cash flow. The quantity surveyor may need to model the impact of higher premiums on the overall project budget.

Professional Indemnity coverage is essential for the design team. In the event of a design error that leads to structural failure, the client may sue the architect for breach of contract. The professional indemnity policy will cover the legal costs and any damages awarded, subject to policy limits. The quantity surveyor may need to assess whether the policy limits are sufficient for the scale of the project.

Risk registers are also used to track opportunities, which are positive risks that could provide cost savings or schedule acceleration. For example, early procurement of long-lead items may enable the contractor to start installation sooner, reducing the overall project duration. The quantity surveyor evaluates such opportunities and quantifies the potential financial benefit, which can be incorporated into the project forecast.

Allocation of risk often involves the use of contractual clauses such as “force majeure”, “concurrent delay”, “no damages for delay”, and “liquidated damages”. Each clause shifts the responsibility for certain events to one party or the other. The quantity surveyor must interpret these clauses to determine whether a particular event gives rise to a claim for additional time or money.

Force Majeure events are increasingly relevant in the context of climate change. Extreme weather events, such as flooding or heatwaves, may disrupt construction schedules. Many modern contracts now include specific provisions for “climate change events” that allow for extensions of time without penalty. The quantity surveyor must document the impact of such events on the critical path and provide evidence to support any extension claim.

Termination for default may arise if the contractor fails to meet payment obligations, leading the employer to issue a notice of breach. The contract will set out a cure period, after which the employer may terminate the contract and engage a replacement contractor. The quantity surveyor must prepare a detailed account of the costs incurred up to termination, including any costs for engaging a new contractor, and advise the employer on the financial implications.

Suspension for cause may be triggered by a health and safety incident on site. In such cases, the contractor may be entitled to claim for additional site overheads and for any material that has been stored on site but not yet installed. The quantity surveyor must calculate the additional costs, referencing the relevant contract clause that governs suspension compensation.

Defects can also arise from the use of non-conforming materials. If a supplier delivers concrete with a compressive strength lower than specified, the contractor may need to undertake remedial works, such as additional reinforcement or replacement of the concrete. The quantity surveyor must assess whether the defect is the contractor's responsibility or whether the supplier's liability should be pursued, and accordingly allocate the cost.

Snagging processes are often facilitated by digital tools that allow the client's representative to record photographs, notes and locations of each snag item. These tools can generate a measurement report that the quantity surveyor can use to price the remedial works. The use of technology improves accuracy and speeds up the settlement of snagging claims.

Defects Liability Period may be extended by mutual agreement if the contractor needs additional time to rectify complex defects. The extension may be accompanied by a variation that adjusts the contract sum to reflect the extra work. The quantity surveyor must evaluate whether the extension is justified and ensure that any additional costs are captured in the variation.

Practical Completion is often linked to the issuance of the "Final Account". The contractor may submit a final statement that includes all variations, the value of any remaining retention, and a summary of any outstanding claims. The client's representative reviews the final account, raises any objections, and ultimately certifies the final payment. The quantity surveyor plays a central role in preparing, reviewing and negotiating the final account.

Occupancy Certificate may be conditional on the completion of certain fire safety tests, such as fire alarm system commissioning and fire door certification. If these tests fail, the contractor may need to undertake remedial work, which can cause a delay in obtaining the certificate and, consequently, a delay in the client's ability to occupy the building. The quantity surveyor assesses the cost of the remedial work and quantifies any associated delay damages.

Insurance policies may contain clauses that require the insured to give notice of a claim within a specified period. Failure to give timely notice can result in denial of coverage. The quantity surveyor must ensure that any claim for loss or damage arising from a defect or a delay is reported to the insurer promptly, and that

supporting documentation is compiled in accordance with the policy terms.

Public Liability insurance may also be required for temporary works, such as scaffolding or site hoardings. These temporary structures can pose a risk to the public, and the contractor must maintain adequate coverage. The quantity surveyor may need to verify that the temporary works insurance is in place before the erection of scaffolding, as part of the overall risk management process.

Professional Indemnity coverage may be limited by a "run-off" period after the project's completion, during which the designer remains liable for claims arising from design errors. The quantity surveyor advises the client on the appropriate run-off period and ensures that the professional indemnity policy extends for the required duration.

Risk management also involves the use of "risk-sharing" contracts, such as alliancing or integrated project delivery (IPD). In an alliance, the employer, contractor and designer share both risk and reward, often through a target cost and a gain-share mechanism. The quantity surveyor monitors the cost performance against the target, calculates the share of any savings or overruns, and facilitates the distribution of gains or losses among the parties.

Risk Register entries for alliance contracts may include "cost overruns on design development", "schedule slippage due to regulatory approvals", or "benefits from early procurement". The QS quantifies each entry, tracks actual performance, and reports to the alliance board, ensuring transparency and fairness in the risk-sharing arrangement.

Allocation of risk in a traditional design-bid-build contract typically places design risk on the employer and construction risk on the contractor. However, the employer may wish to shift some construction risk to the contractor by including performance guarantees, such as a warranty period that extends beyond the defects liability period. The quantity surveyor evaluates the cost of such guarantees and advises the employer on whether the risk shift is financially advantageous.

Force Majeure clauses have been tested by the COVID-19 pandemic, which caused widespread disruptions to supply chains, labor availability and site access. Many contracts invoked force majeure to justify extensions of time and, in some cases, additional compensation for increased costs. The quantity surveyor was required to compile evidence of the pandemic's impact, assess the contractual entitlement to extensions, and negotiate with the employer on the appropriate adjustment to the contract sum.

Termination for default may also involve the appointment of a "replacement contractor". The original contractor may be liable for the cost difference between the original contract price and the price quoted by the replacement contractor, plus any additional costs incurred due to the delay. The quantity surveyor prepares a detailed claim for these costs, supporting it with market price data and documentation of the delay.