RICS PRACTICE INFORMATION

NRM 2

New rules of measurement

Detailed measurement for building works

RICS®

2nd edition UK
October 2021

NRM 2: Detailed measurement for building works

RICS practice information UK

2nd edition, October 2021

Effective from 1 December 2021

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Introduction to NRM

New rules of measurement (NRM) is a suite of documents written to provide a standard set of measurement rules that are understandable by anyone involved in a construction project. They comprise rules for the measurement of the construction, repair, renewal, maintenance and demolition of built assets.

The suite provides essential guidance to all those involved in the cost management of construction projects.

The NRM suite comprises the following three volumes:

- *NRM 1: Order of cost estimating and cost planning for capital building works*
- *NRM 2: Detailed measurement for building works*
- *NRM 3: Order of cost estimating and cost planning for building maintenance works*.

The main reason for the new edition of NRM is the publication of:

- **International Cost Management Standards (ICMS): Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions**
- **International Property Measurement Standards** (IPMS)
- **Cost prediction**
- *RIBA Plan of Work 2020* and
- *RIBA Digital Plan of Work* (DPoW).

RICS standards framework

RICS' standards setting is governed and overseen by the Standards and Regulation Board (SRB). The SRB's aims are to operate in the public interest, and to develop the technical and ethical competence of the profession and its ability to deliver ethical practice to high standards globally.

The RICS Rules of Conduct set high-level professional requirements for the global chartered surveying profession. These are supported by more detailed standards and information relating to professional conduct and technical competency.

The SRB focuses on the conduct and competence of RICS members, to set standards that are proportionate, in the public interest and based on risk. Its approach is to foster a supportive atmosphere that encourages a strong, diverse, inclusive, effective and sustainable surveying profession.

As well as developing its own standards, RICS works collaboratively with other bodies at a national and international level to develop documents relevant to professional practice, such as cross-sector guidance, codes and standards. The application of these collaborative documents by RICS members will be defined either within the document itself or in associated RICS-published documents.

Document definitions

Document status	Definition
RICS professional standards	**Set requirements or expectations for RICS members and regulated firms about how they provide services or the outcomes of their actions.** RICS professional standards are principles-based and focused on outcomes and good practice. Any requirements included set a baseline expectation for competent delivery or ethical behaviour. They include practices and behaviours intended to protect clients and other stakeholders, as well as ensuring their reasonable expectations of ethics, integrity, technical competence and diligence are met. Members must comply with an RICS professional standard. They may include: • mandatory requirements, which use the word 'must' and must be complied with, and/or • recommended best practice, which uses the word 'should'. It is recognised that there may be acceptable alternatives to best practice that achieve the same or a better outcome. In regulatory or disciplinary proceedings, RICS will take into account relevant professional standards when deciding whether an RICS member or regulated firm acted appropriately and with reasonable competence. It is also likely that during any legal proceedings a judge, adjudicator or equivalent will take RICS professional standards into account.
RICS practice information	**Information to support the practice, knowledge and performance of RICS members and regulated firms, and the demand for professional services.** Practice information includes definitions, processes, toolkits, checklists, insights, research and technical information or advice. It also includes documents that aim to provide common benchmarks or approaches across a sector to help build efficient and consistent practice. This information is not mandatory and does not set requirements for RICS members or make explicit recommendations.

Introduction

NRM 2 provides standard detailed rules for the measurement and description of building works, in order to prepare bills of quantities (BQs) and quantified schedules of works. It addresses all aspects of BQ production, including setting out the information required from the employer and other construction consultants, as well as dealing with the quantification of non-measurable work items, contractor-designed works and risks. It provides a uniform basis for measuring and describing building works and sets out good practice. Guidance is also provided on the content, structure and format of BQs, as well as their benefits and uses.

BQs produced in accordance with the elemental work breakdown structure in NRM 1 can also be mapped to *ICMS*, a principles-based international standard that provides consistency in classifying and analysing and presenting global construction cost data at a project, regional, state, national or international level. NRM 1 is linked to the *International Property Measurement Standards* (IPMS) – both IPMS 1 (external) and IPMS 2 (internal), which set the rules for measuring gross external floor areas (GEFA) and gross internal floor areas (GIFA), respectively.

NRM 2 also takes account of both the *RIBA Plan of Work 2020* and the RIBA DPoW. The NRM 1 and NRM 3 estimating and formal cost planning stages have been aligned to both these frameworks, as well as with the OGC Gateway Process, which is still used by some public sector organisations.

ICMS: Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions

ICMS: Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions (ICMS) is a principle-based international standard that sets out how to classify, define, measure, record, analyse, present and compare construction project life cycle costs in a structured and logical format.

It provides a high-level structure and format for classifying, defining, measuring, recording, analysing and presenting construction and other life cycle costs, which is to be applied worldwide. It promotes consistency and transparency across international boundaries.

ICMS is a construction and life cycle cost classification tool and therefore does not include detailed measurement rules for building components, systems and installations. Detailed measurement in connection with order of cost estimates and cost plans is to be in accordance with NRM 1, whole life costs (e.g. renewal, maintenance and operational costs) in accordance with NRM 3.

The NRM 1 elemental cost breakdown structure can be mapped to the ICMS high-level cost structure. ICMS mapping can be done at Level 4 (Cost sub-group level) to the NRM 1 elemental cost breakdown structure (elemental classification) as shown in Figure 0.1. A PDF version of Appendix A of the **ICMS User Guide** is available as an Excel version from the **RICS website**.

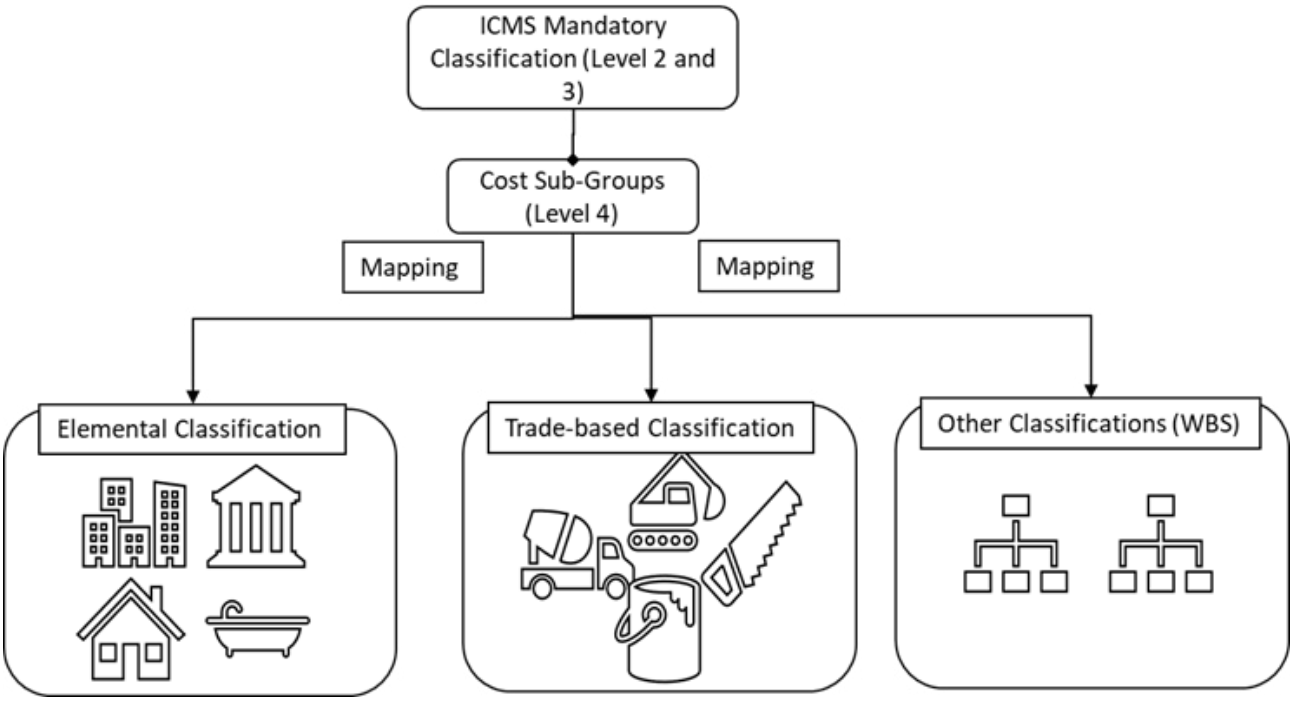

Figure 0.1: ICMS mapping

The hierarchy of the various documents in the suite is:

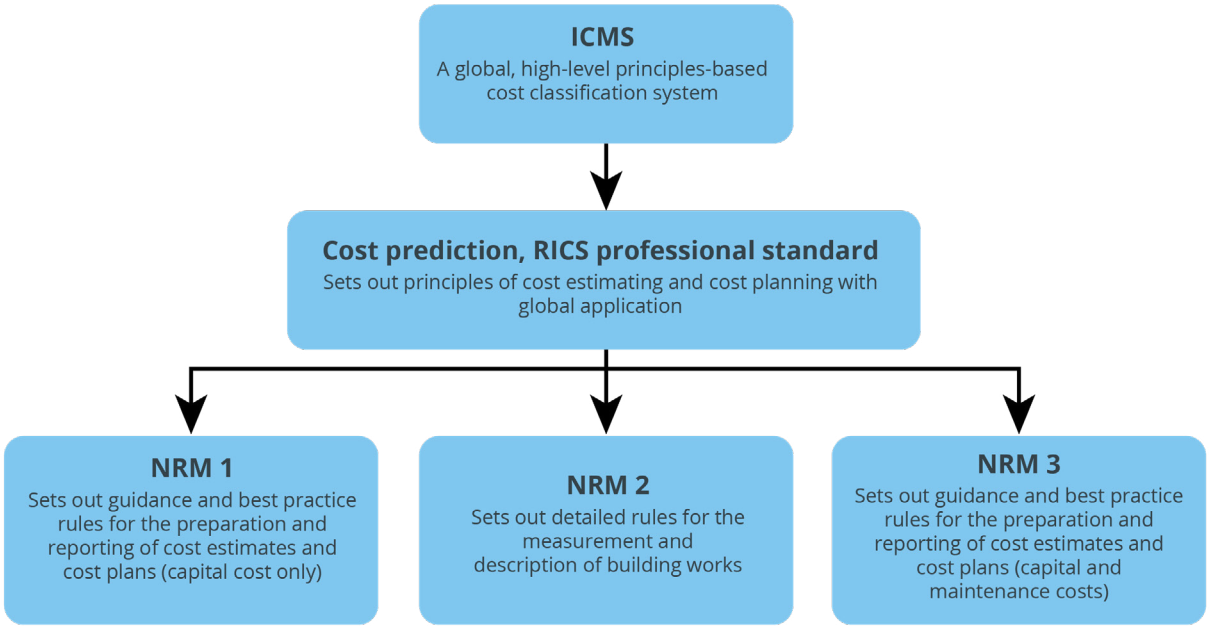

Figure 0.2: NRM hierarchy

Glossary

Symbols used for measurement	
ft²	square foot
ha	hectare
kg	kilogramme
kN	kilonewton
kW	kilowatt
m	linear metre
m²	square metre
m³	cubic metre
mm	millimetre
nr	number
t	tonne

Abbreviations	
ACMs	Asbestos-containing materials
BIM	Building information modelling
BQ	Bill of quantities
CSR	Corporate and social responsibilities
DPoW	RIBA Digital Plan of Work
ICMS	International Cost Management Standard (formerly International Construction Measurement Standards)
IPMS	International Property Measurement Standards
LV	Low voltage
OGC	Office of Government Commerce (although Office no longer exists, the acronym OGC has not been changed and remains a recognised phrase in the UK construction industry).

Abbreviations	
PC sum	Prime cost sum
RIBA	Royal Institute of British Architects

Definitions	
Bill of quantities (BQ)	A list of items that gives detailed identifying descriptions and firm quantities of the work comprising a contract.
Client (or employer)	The person(s) or entity that pays for the works and services provided.
Construction information	Information used to construct the building systems on site. This information can be prepared by the design team or a specialist subcontractor and must comprise prescriptive information. See also the definitions of building systems and prescriptive information.
Cost breakdown structure (CBS)	In the context of bills of quantities (BQs), the CBS represents the cost breakdown of a building project into cost targets for elements or works packages.
Cost target	In the context of bills of quantities (BQs), the cost target is the total expenditure for an element or works package.
Credit	A refund offered by the contractor to the employer in return for the benefit of taking ownership of materials, goods, items, mechanical and electrical plant, equipment, etc. arising from demolition or strip-out works.
Daywork	The method of valuing work on the basis of the time spent by the contractor's team, the materials used and the plant employed.
Defined provisional sum	A sum provided for work that is not completely designed but for which the following information is provided: • the nature and construction of the work • a statement of how and where the work is fixed to the building, and what other work should be fixed • a quantity or quantities that indicate the scope and extent of the work, and • any specific limitations, etc. identified.

Definitions	
Descriptive information	The means by which the design team describe a building system or component in a manner that enables a specialist subcontractor to design the system or component.
Design team	Architects, engineers and technology specialists responsible for the conceptual design aspects and developing these into drawings, specifications and instructions required for construction of the building or facility and associated processes. The design team is a part of the project team.
Director's adjustment	A reduction or addition to the tender price derived by the specific contractor's estimating team, offered by the director(s) of the maintenance contractor.
Element	A major part of a group element (e.g. the elements that create group element 3: Internal finishes are 3.1: Wall finishes, 3.2: Floor finishes and 3.3: Ceiling finishes). A separate cost target can be established for each element. Note also the use of the term 'cost group' or 'cost sub-group' in the context of ICMS.
Final specifications	The specifications issued at RIBA Stage 4 (Technical Design). These specifications can be descriptive or prescriptive.
Fixed charge	Work for which the cost should be considered independently from the duration.
Group element	The main headings used to describe the facets of an elemental cost plan. Note also the use of the term 'cost group' or 'cost sub-group' in the context of ICMS.
Main contractor (or prime contractor)	The primary/principal contractor appointed by the client to coordinate the construction/site production phase of a project, which may involve more than one subcontractor. The term prime contractor is often used to mean main contractor in central civil government and the defence sector. The terms are used synonymously, irrespective of the contract strategy used (e.g. traditional, design and build, design and construct, design and manage or management contracting).

Definitions	
Main contractor's overheads and profit	The main contractor's costs associated with head office administration proportioned to each building contract plus the main contractor's return on capital investment.
Main contractor's preliminaries	Items that cannot be allocated to a specific element, sub-element or component.
Manufacturing information	Information prepared for the manufacture of building systems and/or components during RIBA Stage 4 (Technical Design).
Office of Government Commerce (OGC)	The names of UK government departments are frequently changed. This applies in the case of the Office of Government Commerce, which does not exist anymore. However, the acronym OGC has not been changed in this document as it remains a recognised phrase in the construction industry.
OGC Gateway Process (or other equivalent Project Gateway Process)	A process that examines programmes and projects at key decision points in their life cycle. It looks ahead to provide assurance that the employer can progress to the next stage. Project reviews are carried out under OGC Gateway Reviews 1 to 5. The process is best practice in UK central government, the health sector and the defence sector.
OGC Gateways (or other equivalent Project Gateways)	Key decision points within the OGC Gateway Process.
Other project costs	Costs that are not necessarily directly associated with the cost of constructing the building, but form part of the total cost of the building project to the employer (e.g. land acquisition costs, fees for letting agents, marketing costs and contributions associated with planning permission).
Post-tender estimate	A cost estimate carried out after the evaluation of tenders to corroborate the funds required by the employer to complete the building maintenance contract.
Pre-tender estimate	A cost estimate prepared immediately before calling tenders for servicing, maintenance and life cycle replacement works.

Definitions	
Prescriptive information	Complete, instructive information used to manufacture and construct building systems and components, produced by the design team or the construction team.
Prime cost sum (PC sum)	A sum of money included in a unit rate to be expended on materials or goods from suppliers (e.g. supply-only ceramic wall tiles at £50/m^2, supply-only door furniture at £120/door or supply-only facing bricks at £480/1,000). It is a supply-only rate for materials or goods where the precise quality of those materials and goods is unknown. PC sums exclude all costs associated with fixing or installation, all ancillary and sundry materials, and goods required for the fixing or installation of the materials or goods, subcontractor's design fees, subcontractor's preliminaries, subcontractor's overheads and profit, main contractor's design fees, main contractor's preliminaries and main contractor's overheads and profit.
Project	A single, or a series of, construction intervention(s) with a single purpose or common purposes to create a single asset or a series of assets commissioned by a client, or group of clients, with defined start and end dates. A project may comprise several sub-projects.
Project information	Information, including models, documents, specifications, schedules and spreadsheets, issued between parties during each RIBA Stage and in formal information exchanges at the end of each RIBA Stage.
Project team	Client/employer, project manager, quantity surveyor/ cost manager, design team and all other consultants responsible for the delivery of the building project on time, on cost and to the required performance criteria (design and quality). The project team includes the main contractor where one has been engaged by the employer to provide pre-construction services.
Provisional quantity	A quantity that cannot be accurately determined (i.e. an estimate of the quantity).

Definitions	
Provisional sum	A sum of money set aside to carry out work that cannot be fully described and given in quantified items in accordance with the tabulated rules of measurement. A provisional sum should be identified as either defined or undefined (see definitions of defined provisional sum and undefined provisional sum).
Residual risk (or retained risk)	The risks retained by the client. Could also be defined by reference to the effect of uncertainty on objectives (ISO 31000). An uncertain event or condition that, should it occur, will have an impact on project objectives or business goals.
RIBA Plan of Work	Refers to *RIBA Plan of Work*, a framework setting out the stages of a building project. It consists of eight Stages. The *RIBA Plan of Work* specifies the tasks to be undertaken by the project team at each Stage.
RIBA Stage	The stage the project is at. The RIBA Plan of Work consists of eight Stages identified by the numbers 0 to 7. Tendering and the awarding of works contracts is treated as a variable task, as they depend on the selected procurement route and can occur at any time between Stages.
Site area (SA)	The total area of the site within the site title boundaries (or the total area within the site title boundaries defined by the client as the site for the building), measured on a horizontal plane.
Statutory undertaker	Organisations such as water, gas, electricity and telecommunications companies that are authorised by statute to construct and operate public utility undertakings.
Subcontractor	A contractor who undertakes specific work within the building project. They are known as specialist-, works-, trade-, works package- and labour-only subcontractors.
Sub-project	A subdivision of a project that can be described by a single set of attributes and values.
Temporary works	Non-permanent work or activity that is necessary for the completion of permanent construction work.
Time-related charge	A charge for work, the cost of which should be considered dependent on duration.

Definitions	
Undefined provisional sum	A sum provided for work that is not completely designed, but for which the information required for a defined provisional sum cannot be provided.
Work breakdown structure (WBS)	In the context of BQs, the WBS is used to subdivide a building project into meaningful elements or works packages.
Works package contractor	A specialist contractor who undertakes identifiable aspects of maintenance or replacement work, e.g. maintenance of non-specialist mechanical and electrical engineering services; maintenance of specialist installations (such as building management systems and fuel installations); maintenance of building fabric, structure, finishes and fittings, furnishings and equipment; landscaping management and grounds maintenance works; or labour-only. Depending on the contract strategy, works contractors can be employed directly by the client or by the maintenance contractor.
Works package contractor preliminaries	Preliminaries that relate specifically to the work that is carried out by a works package contractor.

1 General

1.1 Introduction

This section places order of cost estimating and cost planning in context with the *RIBA Plan of Work* and the OGC Gateway Process.

1.2 Measurement in context with the RIBA Plan of Work and OGC Gateway Process

The *RIBA Plan of Work* is a UK construction industry recognised framework that organises the process of managing and designing building projects and administering building contracts into several key Stages. The *RIBA Plan of Work* organises the designing, constructing, maintaining, operating and use of buildings and built assets into eight Stages. However, the Plan is procurement neutral, as it recognises that the appointment of contractors can occur before or during any of the design Stages.

In addition to the *RIBA Plan of Work*, the RIBA has introduced a *Digital Plan of Work* (DPoW) for use with projects where building information modelling (BIM) processes are to be used. All DPoW Stages correspond with the *RIBA Plan of Work* Stages, as highlighted in Table 1.1.

An alternative to the *RIBA Plan of Work* is the OGC Gateway Process, which some UK government departments and other public sector organisations have adopted as best practice for managing and designing building projects. The process examines programmes and projects at key decision points in their life cycle. It looks ahead to provide assurance that the client can progress to the next stage. Project reviews are carried out under OGC Gateway Reviews 1 to 5. Typically, a project will undergo three reviews before commitment to invest, and two more looking at service implementation and confirmation of the operational benefits. Both the *RIBA Plan of Work* and OGC Gateway Process are recognised frameworks for managing and designing building projects in the UK.

Cost estimates and cost plans will need to be prepared by the quantity surveyor/cost manager at various Stages of the *RIBA Plan of Work* or at various Gateways in the OGC Gateway Process, whichever management process is applicable. To address this requirement RICS has developed a series of formal cost estimating and elemental cost planning stages, shown in Table 1.1 in the context of the RIBA Stages, the RIBA DPoW and the OGC Gateways and information stages.

Although Table 1.1 only considers certain well-known design and management processes, any other processes (i.e. in-house or country specific) can be easily aligned with the RICS formal cost estimating and cost planning stages, and the RICS information stages.

RIBA project Stages			RICS formal cost estimating and cost planning stages	RICS information stages (RICS Cost prediction PS)	OGC Gateways	
Plan of Work 2020		Digital Plan of Work (DPoW)				
0	Strategic Definition	Strategy	**Rough order of cost estimate**	**Level 1 Estimate**	1	Business Justification
1	Preparation and Briefing	Brief	**Order of cost estimate(s)** (option costs) **Elemental cost estimate**	**Level 2 Estimate**	2	Delivery strategy
					3A	Design Brief and Concept Approval[1]
2	Concept Design	Definition	**Formal cost plan 1**	**Level 3 Estimate**		
3	Spatial Coordination		**Formal cost plan 2**[2]	**Level 4 Estimate**	3B	Detailed Design Approval[1]
4	Technical Design	Design	**Formal cost plan 3**[2]	**Level 5 Estimate**		
	Contractor Engagement	Contractor Engagement	**Pre-tender estimate**[3] **Pricing documents**[3] (for obtaining tender prices) **Post-tender estimate**[4]	**Level 5 Estimate(s)**	3C	Investment Decision[1]
5	Manufacturing and Construction	Build and Commission				
6	Handover	Handover and Closeout	**Formal cost plan 4**[5] (renew/maintain) (measured in accordance with NRM 3)	**Level 6 Estimate**	4	Readiness for Service
7	Use	Operation			5	Operations Review and Benefits Realisation
		End of Life				

Table 1.1: Relationship between RICS formal cost estimating and cost planning stages and the RIBA Stages, DPoW Stages, OGC Gateways and RICS information stages

Notes on Table 1.1:

1 A prerequisite of OGC Gateway Review 3 (Investment Decision) is that the design brief, concept design and detailed design have been approved and signed off by the client. To compare the OGC Gateway Process with the RIBA Stages, these two decision points are

referred to as OGC Gateway 3A (Design Brief and Concept Approval) and OGC Gateway 3B (Detailed Design Approval); with OGC Gateway 3C representing the final OGC Gateway Review 3 (Investment Decision).

2 The requirement to prepare formal cost plans 2 and 3 depends on the Stage at which tenders are sought. For example, if tenders are sought after the completion of Stage 3 (Spatial Coordination), it is unlikely that formal cost plan 3 will be required.

3 Pre-tender estimates and pricing documents are prepared at the commencement of contractor engagement, which can occur after Stage 2 (Concept Design), Stage 3 (Spatial Coordination), or Stage 4 (Technical Design), i.e. following completion of the Stage after which tenders are sought.

4 Post-tender estimates are prepared during contractor engagement and included in the report on tenders.

5 Cost plans addressing the life cycle renewal and maintenance costs of built assets can also be prepared in conjunction with cost plans dealing with capital costs (i.e. formal cost plans 1, 2 and 3). Both cost plans can then be used to inform the whole life costs of a built asset at each Stage, thereby enabling informed decisions to be made by clients during design development.

1.3 Purpose

NRM 2 addresses the production of BQs both for entire building projects and for discrete works packages. While it is aimed mainly at the preparation of BQs, quantified schedules of works and quantified work schedules, NRM 2 will also be invaluable when designing and developing standard or bespoke schedules of rates for the purpose of:

- discrete contracts
- term contracts and
- framework arrangements.

Where a BQ has been prepared in accordance with NRM 2, this should be stated in the BQ.

1.4 Use

NRM 2 provides a standard set of measurement rules for the procurement of building works that are understandable by all those involved in a construction project, including the client. It provides rules of measurement for the preparation of BQs and quantified schedules of works. NRM 2 also provides a framework that can be used to develop bespoke and standard schedules of rates.

1.5 Effective date

This document is effective from 1 December 2021.

2 Detailed measurement of building works

This section describes the different types of bills of quantities (BQs), gives guidance on the preparation and composition of BQs and specifies the information needed to prepare a BQ. It also discusses measurement of building items and how to deal with preliminaries, non-measurable works and contractor-designed works, as well as risks, overheads and profit and credits.

In addition, this section deals with other aspects of BQ production, including price fluctuations, director's adjustments, daywork and VAT. Guidance is also provided on the codification of BQs, the use of BQs for cost control and cost management, and the analysis of a BQ to provide cost data.

Where 'main contractor' is used in this section, this also refers to a works package contractor where applicable.

2.1 Definition and purpose of a bill of quantities

A BQ is a list of the items that make up the component parts of a building, with detailed identifying descriptions and quantities.

The purpose of a BQ, which becomes a contract document, is:

- to provide a coordinated list of items, with their identifying descriptions and quantities, that comprise the works, in order to enable contractors to prepare tenders efficiently and accurately, and
- when a contract has been entered into, to provide a basis for the valuation of:
  - work executed for the purpose of making interim payments to the contractor and
  - varied work.

2.2 Benefits of a bill of quantities

Irrespective of which contract strategy is used, at some stage in the procurement process, one party – whether that is the client's quantity surveyor/cost manager or the main contractor – will need to quantify the extent of works to be executed for the purpose of:

- obtaining a price for completing building works
- valuing the extent of work completed, for the purposes of payment
- valuing variations in the content or extent of building works or
- supporting applications for tax or other financial incentives.

Consequently, detailed measurement for producing BQs is beneficial for a number of reasons.

- It saves the cost and time of several contractors measuring the same design to calculate their bids for competition.
- It provides a consistent basis for obtaining competitive bids.
- It provides an extensive and clear statement of the work to be executed.
- It provides a strong basis for budgetary control and accurate cost reporting of the contract (i.e. post-contract cost control), including:
  - the preparation of cash flow forecasts
  - a basis for valuing variations and
  - a basis for the preparation of progress payments (i.e. interim payments).
- When BQ items are codified, it allows reconciliation and any necessary transfers and adjustments to be made to the cost plan.
- When priced, it provides data to support claims for tax benefits (e.g. capital allowances and VAT) and grants.
- It provides one of the best sources of real-time cost data, which can be used for estimating the cost of future building projects (historic cost information; see section 2.10) as it provides a cost model in a single document.

2.3 Types of bills of quantities

The use of BQs in support of a contract is the traditional and proven means of securing a lump sum price for undertaking building works. BQs can be:

- firm (to obtain a lump sum price for a fully designed building project) or
- approximate (subject to remeasurement as built).

2.3.1 Firm bill of quantities

The reliability of the tender price will increase in relation to the accuracy of the quantities provided (i.e. the more precisely the work is measured and described). In theory, if there were no design changes, a firm BQ would provide a price at the tender stage, which would equal the final cost. In practice, there will be changes and the BQ provides a good basis for cost control, since the direct cost of change can be assessed with reference to the BQ rates. The firmer the BQ, the better it is as a means of financial control.

2.3.2 Approximate bill of quantities

Approximate BQs are used when there is not enough detail to prepare a firm BQ, or where it is decided by the client that the time or cost of producing a firm BQ is not warranted. Such contracts do not provide a lump sum price, but rather tender price totals (i.e. a quantified schedule of rates), since the quantities are subject to remeasurement on completion by the quantity surveyor/cost manager. These contracts are usually subject to greater variation than lump sum contracts and therefore should only be used where time is a limiting factor or where there is great uncertainty in certain elements, such as major excavation and earthworks.

The initial resource cost of an approximate BQ is likely to be lower than that of a firm BQ, but the need for remeasurement invariably results in an overall higher resource cost. Although the quantities are approximate, the descriptions of work items should be correct.

2.4 Preparation of bills of quantities

BQs are produced at the Contractor Engagement RIBA Stage.

The information and documents needed for the preparation of BQs are described in section 2.7. Guidance on the preparation of a BQ is given in Appendix A.

BQs for a lump sum contract based on firm or approximate quantities will normally be prepared by the client's quantity surveyor/cost manager. Under a design and build contract however, the client's project team will prepare the client's requirements, and the BQ or quantified schedules of work will be prepared by either the main contractor or, more likely, the works package contractors. The choice of who quantifies building works is solely down to the client's preference of contract strategy (see Table 2.1).

Contract strategy	Basis of invitation documents	Prepared by
Traditional lump sum	Firm BQ	Client's quantity surveyor/cost manager.
	Approximate BQ	
Design and build	Employer's requirements	Client's project team (normally the client's quantity surveyor/cost manager). Note: Quantification of the employer's requirements will be carried out either by the main contractor or works package contractor, who will prepare a firm or approximate BQ or quantified schedules of work as appropriate.
Management	Firm BQ	Client's quantity surveyor/cost manager, or main contractor if the invitation documents prepared by the client's quantity surveyor/cost manager or contractors respectively are based on either specification and drawings or unquantified schedule of works (i.e. unquantified information).
	Approximate BQ	
Management (design and manage)	Firm BQ	
	Approximate BQ	
Construction management	Firm BQ	
	Approximate BQ	

Table 2.1: Responsibility for quantifying building works

2.5 Composition of bills of quantities

BQs usually comprise the following sections:

- form of tender (including certificate of bona fide tender)
- summary
- preliminaries
- measured works
- non-measurable works

- provisional sums
- contractor-designed works
- risks
- credits (for materials arising from the works)
- dayworks (provisional) and
- annexes.

2.5.1 Form of tender

This is a document that is used to record the main contractor's price for completing the building project (their tender price). If accepted by the client, the tender price will become the 'contract sum'. The form of tender can be a separate document.

A separate certificate of bona fide tender is sometimes inserted after the form of tender. This is completed by the main contractor to confirm that they have not communicated their tender to other parties. Alternatively, the client's requirements for confirming that bona fide tender has been submitted by the main contractor can be incorporated in the form of tender.

2.5.2 Summary

The summary, sometimes called the main summary, is made at either the beginning or end of the BQ and comprises a list of the bills that form the entire BQ. The total price for each section of the BQ is carried forward and inserted against the applicable item listed in the summary. A summary for an elemental bill will address all or some of the headings set out in section 2.5.

Where the measured work has been divided into work sections, the work sections should be listed instead of elements.

At the end of the summary, provision is made to ascertain the total price and transfer that total to the form of tender, which, subject to verification and any necessary adjustments, will become the contract sum referred to by the conditions of contract.

2.5.3 Preliminaries

Preliminaries address and communicate to the contractor items that are not directly related to any component, element or work section (i.e. measured works). The information provided will enable the contractor to ascertain their price for, among other things, management of the building project, site establishment, security, safety, environmental protection and common user mechanical plant, as well as the client's completion and post-completion requirements. The preliminaries are divided into two sections:

- information and requirements and
- pricing schedule.

Information and requirements

This is the descriptive part of the preliminaries, which:

- sets out the project particulars (e.g. the project title, the site address and the names and contact details of the client and the client's project team)
- identifies the drawings on which the BQ was based

- depicts the boundary of the construction site
- provides information about existing buildings and existing mains services on or adjacent to the site, and about any existing records that will inform the main contractor of any known or potential hazards that need to be considered
- identifies known constraints and restrictions that might impact the main contractor's methodology for constructing the building or buildings
- describes the building project in general
- specifies the standard form of contract, the contract particulars and any amendments and/or supplementary or special conditions to the standard form of contract that should be entered into by the contracting parties, as well as the client's requirements for insurances, parent company guarantees, performance bonds and collateral warranties
- explains the documents provided, their content and how they are to be used
- confirms the method of measurement (NRM 2), how to interpret the BQ and any special methods of measurement (where the method of measurement has deviated from the specified rules)
- sets out the client's specific requirements for:
  - management of the works by the main contractor, including progress reporting, programme management and cost reporting requirements
  - quality standards to be achieved and quality control requirements to be met by the main contractor, including inspection, testing and commissioning requirements
  - security, safety and protection measures to be provided by the main contractor
  - facilities, temporary works and services required by the client
  - advertising, the provision of a marketing suite or a topping-out event
  - specific limitations on method, sequence and timing of the works imposed by the client, including working out of normal hours and phasing requirements and
  - operation and maintenance (O&M) of the finished building, including O&M manuals, familiarisation training, tools and spare parts.

Instructions to tendering contractors and other information relating to the tender process (e.g. information required to be submitted with the tender, site visits, confidentiality, etc.) form part of the invitation documents but will not form part of the contract documents. Therefore, these should be addressed in a separate document (e.g. conditions of tender).

The items to be considered when drafting the main contractor's preliminaries are included in Part A of work section 1 in Part 4.

Pricing schedule

It is not possible for the quantity surveyor/cost manager to quantify the main contractor's preliminaries. This is because it is for the contractor to interpret the information provided as part of the tender invitation documentation. From the information provided, the main contractor will ascertain their method of working and the resources required to complete the building project, as well as identify any other cost items that should be recovered.

The preliminaries bill should therefore include a pricing schedule that lists the headings under which the main contractor prices the items of their preliminaries. Pricing schedule templates

for preliminaries (condensed and expanded versions) are included in Appendices B and C respectively.

The pricing schedule is a list of cost centres incorporated into the BQ, in which the main contractor will insert their charges relating to preliminaries.

The pricing schedule for main contractor's preliminaries is divided into two main cost centres:

1 employer's requirements and

2 main contractor's cost items.

The items that comprise these two cost centres for main contractors are listed and defined in Part B of work section 1 in Part 4.

As part of the priced BQ submitted by the main contractor, the quantity surveyor/cost manager should obtain a full and detailed breakdown that clearly identifies the items and shows how the price for each item and the total price for preliminaries have been calculated.

Accordingly, as part of the conditions of tender, the quantity surveyor/cost manager should instruct the main contractor to return, along with their tender, a detailed breakdown that shows how the total price for preliminaries has been calculated. It should be requested that the main contractor append this information to their priced BQ. To ensure that the detailed supporting calculations are presented in a format that is easy to read and logical, the main contractor should be instructed to ascertain the price for preliminaries in accordance with the rules of measurement for their preliminaries (refer to Part B of work section 1 in Part 4).

The quantity surveyor/cost manager should also make it clear to the main contractor in the preliminaries bill and/or preliminaries pricing schedule that costs relating to items not specifically identified by the main contractor in their breakdown will be assumed to have no cost implications, or have been included elsewhere in their rates and prices.

2.5.4 Measured works

This is the main part of the BQ, which lists all the items of work to be undertaken. The quantities and descriptions of items should be determined in accordance with the tabulated rules of measurement in Part 3. Various methods can be used to present the measured work (bill breakdown structures – see section A.1 in Appendix A).

2.5.5 Non-measured works

Provisional sums

Provisional sums are sums included for any items of work that are anticipated, but for which no firm design has been developed, including sums listed for any items of work that are to be executed by a statutory undertaker.

Therefore, this part of the BQ lists items of work that cannot be entirely foreseen or detailed accurately at the time tenders are invited (i.e. non-measurable items). Sums of money determined by the quantity surveyor/cost manager are set against each item to cover their cost.

Where building components/items cannot be measured and described in accordance with the tabulated rules of measurement, they should be given as a provisional sum and identified as either defined work or undefined work as appropriate.

A provisional sum for defined work is a sum provided for work that is not completely designed but for which the following information should be provided:

- the nature and construction of the work
- a statement of how and where the work is fixed to the building, and what other work should be fixed
- a quantity or quantities that indicate the scope and extent of the work, and
- any specific limitations identified.

Where provisional sums are given for defined work, the contractor should be assumed to have made due allowance in their programming, planning and pricing preliminaries. Any provisional sum given for defined work that does not comprise the information listed in this section should be construed as a provisional sum for undefined work, irrespective of the fact that it was given in the BQ as a provisional sum for defined work.

Where any aspect of the information listed in this section cannot be given, work should be described as an undefined provisional sum. Where provisional sums are given for undefined work, the contractor should be assumed not to have made any allowance in programming, planning and pricing preliminaries.

Provisional sums should be exclusive of overheads and profit. Separate provision should be made in the BQ for overheads and profit (refer to section 2.5.7).

Contractor-designed works

Contractor-designed works include any works that are designed by a contractor, whether directly or via a subcontractor. The client should be assumed to be responsible for works not clearly identified as contractor-designed works. Contractor-designed work is sometimes referred to as the contractor-designed portion (CDP).

Where the contractor is required to take responsibility for the design of discrete parts of the building, such as piled foundations, windows, precast concrete components, roof trusses and/or mechanical and electrical engineering services, the work items should be identified as contractor-designed works.

The method of quantifying contractor-designed works is dependent on the nature of the work. Where contractor-designed works can be measured and described in accordance with the tabulated rules of measurement (e.g. windows and precast concrete components), the performance objectives or criteria that the contractor will be required to meet should be clearly defined by way of a preamble to the work items that comprise the contractor-designed works. Detailed documents defining the performance objectives and/or criteria to be met should be incorporated as an annex to the BQ and clearly cross-referenced in the preamble.

Where contractor-designed works comprise a complete element or works package (e.g. the entire mechanical and electrical engineering services for the building), the works should be measured and described as one or more item. The number of items is at the discretion of the quantity surveyor/cost manager but should be enough to provide an analysis of the price of

the contractor-designed works. In the case of elemental BQs, the basis of analysis will be the elements defined in NRM 1 (see Table 2.2). Irrespective of the structure of the analysis, the quantity surveyor/cost manager should obtain a full and detailed breakdown that clearly shows how the contractor has calculated their price for each item in the analysis.

5.1	Sanitary installations	£236,000
5.2	Services equipment	£199,500
5.3	Disposal installations	£99,000
5.4	Water installations	£142,000
5.5	Heat source	£88,000
5.6	Space heating and air conditioning	£396,000
5.7	Ventilation	£345,500
5.8	Electrical installations	£458,000
5.9	Fuel installations	£163,000
5.10	Lift and conveyor installations	£689,000
5.11	Fire and lightning protection	£222,300
5.12	Communication, security and control systems	£181,500
5.13	Specialist installations	£148,600
5.14	Builder's work in connection with services	£59,600
	Total (carried to main summary):	**£3,428,000**

Table 2.2: Price analysis for contractor-designed works (based on group element 5: Services, from NRM 1)

The quantity surveyor/cost manager should obtain details of performance objectives and/or criteria from the relevant design consultant (refer to section 2.7.1).

In addition to all costs referred to in section 3.2.2, contractor-designed works should be assumed to include all costs in connection with design, design management and design and construction risks in connection with contractor-designed works. Moreover, the contractor should be assumed to have made due allowance in their programming and planning for all design works in connection with contractor-designed works.

Works to be carried out by statutory undertakers

Works that are required to be carried out by a statutory undertaker should be given as a provisional sum, with the scope of works to be executed by the statutory undertaker described.

The contractor should be assumed to have made due allowance in their programming, planning and pricing preliminaries for all general attendance on statutory undertakers.

Provisional sums for work to be carried out by statutory undertakers should be exclusive of overheads and profit. Separate provision should be made in the BQ for overheads and profit (refer to section 2.5.7 for further information).

2.5.6 Risks

This section of the BQ comprises a list of residual risks (unexpected expenditure arising from risks that materialise, such as disposal of contaminated ground material), which the client wishes to transfer to the contractor. The contractor is required to provide a lump sum fixed price for taking, managing and dealing with the consequences of the identified risk if it materialises.

At the time of preparing a BQ, a quantified schedule of works, or other quantity-based document – whether for a complete building project or discrete works package – there will still be a number of risks to be managed by the client and their project team. This is called the client's residual risk exposure (or residual risks). A risk response should only be decided after its possible causes and effects have been considered and fully understood. It will take the form of one or more of the following:

- risk transfer to the contractor
- risk sharing by both the client and contractor, or
- risk retention by the client.

Risks that can be designed out or avoided should have been addressed by this stage of the design development process. However, if time does not permit these risks to be designed out or properly dealt with, the risk should be managed using one of these risk response strategies.

Risk transfer to the contractor

The objective of transferring risk is to pass the responsibility to another party who is able to control it better. If the risk materialises, the consequences are carried by the other party.

Whenever a risk is transferred, there is usually a premium to be paid (effectively the contractor's valuation of the cost of the risk). Risk transfer will usually give the client cost certainty for that aspect of the works. However, in return for price/cost certainty, the client is required to pay the risk premium to the contractor, irrespective of whether the risk transferred does or does not materialise.

Risks that the contractor is required to manage, if they materialise, should be fully described so that the extent of services and/or works the client is paying for is clear. Risks to be transferred to the contractor should be listed in the BQ under the heading 'Schedule of construction risks'. A template for a schedule of construction risks can be found in Appendix F.

The contractor should be assumed to have made due allowance in their risk allowances for programming, planning and pricing preliminaries.

Risk allowances inserted by the contractor should be exclusive of overheads and profit. Separate provision should be made in the BQ for this (refer to section 2.5.7 for further information).

Risk sharing by client and contractor

Risk sharing occurs when a risk is not entirely transferred and some elements of it are retained by the client. It is important that both the client and the contractor know the value of the risk for which they are responsible. The objective should be to improve control and to reduce or limit the cost of the risk to the client, if it materialises.

Risks that are to be shared by both client and contractor will normally be dealt with using provisional quantities, with the pricing risk being taken by the contractor and the quantification risk being taken by the client.

Risk retention by the client

Where risks are to be retained by the client, the applicable risk allowances included in the cost plan will be retained and managed by the client or, if empowered by the client, the project team.

Before deciding to retain a particular risk, the client might wish to find out what the premium would be if the contractor were to be paid for resolving the risk if it materialises. The client can then decide whether to pay a premium for a defined scope of work. If the client is content to pay a premium for transferring the risk, it is dealt with as a risk transfer.

Risks retained by the client are not necessarily controllable.

2.5.7 Overheads and profit

Provision should be made in the BQ for the contractor to apply their required percentage addition for overheads and profit on the following:

- preliminaries
- measured work, including contractor-designed works
- risk allowances and
- work resulting from the expenditure of provisional sums (defined provisional sums, undefined provisional sums and works to be undertaken by statutory undertakers).

When required, overheads and profit can be treated as two separate cost items.

2.5.8 Credits (for materials arising from the works)

This section of the BQ comprises a list of materials arising from the works for which the client requires the contractor to offer a credit. Credits are normally only applicable where the building project comprises the refurbishment or rehabilitation of an existing building, or for demolition works. This provides the client with an opportunity to seek credits for:

- old building materials
- components and items
- mechanical and electrical plant, and
- fittings, furnishings and equipment that arise from the stripping out or demolition works, and for which the client is content to pass ownership to the contractor for reuse.

Credits can be based on a pre-prepared list of items, which is incorporated in the BQ, and the contractor is invited to insert the amount of credit they will give for each item. Alternatively, the contractor can be invited to list items for which they are willing to offer a credit and the amount of credit they will give for each item.

A template for credits is provided in Appendix F.

2.5.9 Dayworks (provisional)

This section of the BQ gives provision for the contractor to competitively tender rates and prices for works. Instruction might be given for these works to be carried out on a daywork basis. Daywork is a method of valuing work on the basis of time spent by the contractor's employees, the materials used and the plant employed.

If required, a schedule of dayworks should be incorporated into the BQ. The schedule of dayworks should comprise a list of the various classifications of labour, estimates of the number of hours against each classification and estimated lump sums for materials and plant, for which daywork rates and percentage additions for overheads and profit should be inserted by the contractor. A statement of the conditions under which the contractor will be paid for work executed on a daywork basis should be given in either the preliminaries bill or schedule of dayworks.

The method of calculating labour time charge rates for work carried out in normal working hours (i.e. productive time) and work carried out outside of normal working hours (i.e. non-productive time) should be defined in the schedule of dayworks. The definition of normal working hours should be given in either the preliminaries bill or schedule of dayworks.

The total amount included for daywork by the contractor should be omitted from the contract sum. The rates and percentage additions included in the BQ should be used to calculate the price of extra works that are authorised to be valued on a daywork basis.

The total price derived from the schedule of dayworks can be included in or excluded from the contract sum. When included, it should be treated as a provisional sum. When excluded, it should be clearly stated that the rates, prices and percentage adjustments tendered are included in the contract.

2.5.10 Annexes

The annexes comprise information referred to in the BQ where that information is not contained in, or to be issued as, a separate document. Examples include:

- performance specifications (if not included in the project specification)
- copies of quotations and
- copies of communications with statutory undertakers.

2.6 Other considerations

2.6.1 Price fluctuations

The cost to the contractor of labour, materials, etc. used in the works will be subject to price fluctuations during the contract period. Costs might fall but are more likely to rise. The risk of fluctuating prices can be dealt with as follows:

- the contractor prices the risk (a fixed-price contract) or
- provision is allowed for the contractor to recover full or limited fluctuations on certain prices (a fluctuating price contract).

Most standard forms of contract conditions allow for either alternative to be used by providing clauses that may be included or deleted.

Fixed-price contracts are contracts in which the prices of labour, materials and plant are not subject to fluctuations. Fixed-price contracts are also referred to as fixed-price lump sum contracts, firm-price contracts or firm-price lump sum contracts.

In the absence of any provision in the contract, or where the provision for recovering price fluctuations has been deleted, the contractor will be required to take the risk (i.e. price the risk) of price fluctuations during the contract period. To cover themselves, the contractor will make an estimate of the likely increase in costs and include this in their tender price. Where there is no provision for recovering price fluctuations, separate provision should be incorporated in the BQ for the contractor to tender their fixed-price adjustment for pricing the risk. Such provision should be referred to as either the main contractor's fixed-price adjustment or the works package contractor's fixed-price adjustment, whichever is applicable. When preparing BQs, the quantity surveyor/cost manager should ensure that no contract conditions relating to the recovery of price fluctuations exist.

Fluctuating price contracts are contracts in which adjustment is allowed for fluctuations in the prices of labour, materials, etc. Various degrees of fluctuations are allowed under the provisions of standard contract conditions. The extent to which fluctuations are allowed will have a significant effect on the contractor's tender price.

Where fluctuations are allowed, no provision for the main contractor's fixed-price adjustment or the works package contractor's fixed-price adjustment is required.

2.6.2 Director's adjustment

It is the responsibility of the contractor's directors, or other senior managers, to secure work for the company. Therefore, before submitting a tender price, the contractor's directors will undertake a commercial review of the project and the estimated price. This review might result in the contractor's directors requiring adjustment to the estimated price, referred to as a director's adjustment. The director's adjustment will include adjustments for commercial matters such as financing charges, cash flow, opportunities and competition. This is a sum added to or omitted from the estimated price to arrive at a tender price. Separate provision should be incorporated in the BQ for the contractor to insert a director's adjustment.

2.6.3 VAT

VAT should be excluded from BQs. However, if required by the client, provision for the contractor to provide a VAT assessment as part of their tender return can be incorporated in the form of tender.

2.7 Information requirements for measurement

The accuracy of a BQ is dependent on the quality of the information supplied to the quantity surveyor/cost manager by the client, designers and other project team members: the more information provided, the more reliable the outcome will be. Where little or no information is provided, the quantity surveyor/cost manager will need to seek decisions from the client as to

how the uncertainty should be managed and the work that remains undefined at that point might be procured (refer to section 2.6.1).

To enable the quantity surveyor/cost manager to prepare a BQ, the information in sections 2.7.1 to 2.7.4 should be included.

2.7.1 Specification

A specification defines what the client wishes to buy and what the contractor is expected to supply.

There are two main types of specification used.

1 **Prescriptive specifications:** These are required to prepare a firm BQ. The function of a prescriptive specification is to prescribe the materials and workmanship required for a building project in as much detail as possible. Specific products and materials will be named, and the assembly of the building will be described and supported with drawn information and schedules (see sections 2.7.2 and 2.7.3). Where materials are not named, reference will be made to published standards governing their composition (e.g. British standards or other country-specific standards).

2 **Performance specifications:** A performance specification describes the requirements of a product (e.g. windows), equipment (e.g. chiller plant), system or installation (e.g. mechanical and electrical installations) in terms of the performance objectives or criteria.

The main difference between a performance specification and a prescriptive specification is who is responsible for the design. Where a prescriptive specification is used, the contractor will not carry any design responsibility. With a performance specification, the contractor is responsible for design development of the specification to meet the performance requirements.

The benefit of performance-specified work to the client is that the design will not need to be advanced before inviting tenders from contractors.

It should be noted that some standard forms of contract conditions do not include provision for contractor-designed work. Therefore, care should be taken to ensure that the contract conditions used for the building project clearly transfer design responsibility for contractor-designed work to the contractor (e.g. by incorporating supplementary contract conditions or other amendments to the standard forms of contract conditions used). Failure to do this will result in design responsibility remaining with the client, even though the client did not undertake the design.

Usually, the quantity surveyor/cost manager will be faced with a combination of both types of specification, which needs to be organised in the BQ (i.e. separated into measured works and non-measured works).

Insufficient or poorly described information can mislead contractors, resulting in contract variations and potential time-related and/or cost-related claims.

2.7.2 Drawn information

Drawn information is required to describe the assembly of the building, as well as any temporary works. Drawings should be to a suitable scale.

Drawn information should include the following.

- General arrangement drawings (sometimes known as location drawings), comprising:
  - a block plan: this should identify the site and locate the outlines of the building works in relation to the town plan or other wider context
  - a site plan: this should locate the position of the building works in relation to the setting out points, the means of access and the general layout of the site, and
  - plans, sections and elevations: these should show the position occupied by the various spaces in a building and the general construction and location of the principal elements and components. The extent of elevations and sections should be as appropriate to cover all major building zones.
- Component drawings (sometimes known as detail or assembly drawings): these should show the information necessary for manufacture and assembly of a component, including key details and interfaces (e.g. interface between curtain walling system and structure, balconies, etc.).
- Schematic drawings: these show how something works and the relation between the parts (e.g. the wiring of an electrical system).
- Record drawings (sometimes known as existing, as-built or as-installed drawings): these are a set of drawings that depict the actual as-built conditions of an existing building or structure, including mechanical and electrical engineering services installed. These are required for building projects involving the refurbishment or the demolition (partial or complete) of an existing building or structure.

Specific requirements for drawn information are further defined in the tabulated rules of measurement in Part 3.

2.7.3 Schedules

Schedules that provide the information for the tabulated rules should be assumed to be drawings. Schedules include:

- room data sheets (including coordinated mechanical and electrical services engineering data sheets)
- door schedules, including ironmongery
- window schedules, including ironmongery
- reinforcement (bar bending) schedules
- landscaping and planting schedule (for internal and external works)
- drainage schedules
- fittings, furnishings and equipment schedules
- luminaires schedules
- control schedules for mechanical and electrical engineering services
- primary mechanical and electrical plant and equipment schedules
- duties, outputs and sizes of primary mechanical and electrical plant and equipment
- builder's work in connection with mechanical and electrical engineering services, and

- other scheduled information necessary to specify the works.

This list is not meant to be definitive or exhaustive, but simply a guide.

2.7.4 Reports and/or other information

Reports and/or other information required for the preparation of a BQ will be dependent on the nature of the building project. However, such documents normally include some or all of the following:

- drawings showing the site boundary and all known site constraints and restrictions, including:
  - the means of access
  - restrictive covenants
  - party walls
  - rights of light issues and
  - rights of access.
- a statement of and drawing(s) detailing phasing requirements
- a statement of and drawing(s) detailing construction sequencing requirements
- details of residual design development and construction risks (i.e. risk register or risk log)
- a schedule of gross external areas (GEA), gross internal floor areas (GIFA), net internal areas (NIA –usable area for shops, supermarkets and offices) and site area
- site survey reports, including archaeological survey, ecological survey, invasive plant growth survey, etc.
- details of wildlife, including protected species and protection measures
- geotechnical report(s) describing the intrusive ground and groundwater investigations completed, with the results of, for example, trial pits, auger holes, window samplers, boreholes, cone penetration tests and standard penetration tests
- environmental report(s) describing the sampling and analysis of soils, with the results giving information about the soil, groundwater and gases
- details of any other facilitating works (e.g. soil stabilisation measures)
- remediation plan describing the method of dealing with contaminated materials and/or invasive plant growth (e.g. Japanese knotweed and giant hogweed), including requirements for post-remediation validation sampling
- refurbishment and demolition survey reports, providing details of any asbestos-containing materials (ACMs) and/or other hazardous materials, with the scope of removal or encapsulation works to be undertaken as part of the building works
- details of any party wall awards or other agreements with adjoining owners and statutory undertakers, specifically detailing any requirements of the award to which the contractor should comply to ensure that the client does not breach any agreement
- temporary works methodology, drawings and sketches
- details of which condition of contract should be used for the building project

- details of any planning conditions or informative notes that the contractor should comply with
- the client's requirements for insurances
- the client's requirements for the contractor to collect and report cost data to support claims for capital allowances, grants, VAT recovery and other tax incentives
- the client's policy documents that the contractor will be required to comply with (e.g. site rules and regulations, environmental, corporate social responsibilities and health and safety policies)
- hoarding requirements, including design where this is a client's requirement
- details of the client's post-completion requirements (e.g. operation and maintenance of completed building (i.e. works and services)) and
- all other information necessary to construct the preliminaries bill for the building project or works package (refer to work section 1 in Part 4).

This list is not meant to be definitive or exhaustive, but merely a guide. It should be used by the quantity surveyor/cost manager to help identify the types of reports and other information required to prepare a robust BQ.

2.8 Codification of a bill of quantities

2.8.1 BQ breakdown structures

Before attempting to prepare a BQ for a building project, the composition of the building project needs to be determined and the structure of the BQ planned. The composition of a BQ can be viewed as a work breakdown structure (WBS). This is a tree structure that can be used to define and divide a building project into key facets. It is developed by starting with the end objective (WBS Level 0 is the entire building project) and subdividing it into the main components and subcomponents that make up the entire building project, providing a hierarchical breakdown. A WBS also initiates the development of the cost breakdown structure (CBS), which can be used to allocate costs to every facet of the building project. Together, the WBS and CBS provide a frame of reference for the cost management of a building project during the construction phase (post-contract). In the context of a BQ, the WBS is referred to as the BQ breakdown structure (BQBS).

The WBS for the building project will have been initiated by the quantity surveyor/cost manager when preparing the initial order of cost estimates and developed during the formal cost planning stages (i.e. the cost plan breakdown structure). As part of this process, the CBS will have evolved. The key benefit of the cost breakdown structure is its ability to uniquely identify by a code all group elements, elements, sub-elements and components (i.e. building components/items) in a numerical and logical way, providing a codification framework for the cost management, control and reporting of costs. With a unique code, all building components/items can be linked to components, components to sub-elements, sub-elements to elements, elements to group elements and group elements to the cost limit (i.e. the total estimated cost of the building project). This makes it easier to retrieve, manage and restructure information (i.e. costs and building components/items). Details of the codification framework, including the numbering logic, recommended for cost planning can be found in NRM 1.

For the quantity surveyor/cost manager to manage the cost plan during the procurement and construction phases of the building project (by reconciling tender prices and project outturn costs against the cost plan), the codification framework used for cost planning should be used as the basis for the codification of building components/items and components in the BQ.

There are three principal breakdown structures for a BQ.

1 **Elemental**: measurements and descriptions are ordered by group elements, following the logical arrangement for elemental cost planning defined in NRM 1. Each group element forms a separate section of the BQ, irrespective of the order of work sections in NRM 2. Group elements are divided into elements, which are further subdivided into sub-elements.

2 **Work section**: measurements and descriptions are divided into the work sections defined in the tabulated rules in Part 3.

3 **Works package**: measurements and descriptions are divided into client- or contractor-defined works packages. Works packages can be based on either a specific trade package or a single package comprising a number of different trades.

These BQBS are described in more detail in section A.1 in Appendix A.

2.8.2 Elemental breakdown structure

When preparing an elemental BQ, the BQBS is based on the group elements defined by NRM 1 (facilitating works; substructure; superstructure; internal finishes; fittings, furnishings and equipment; services; prefabricated buildings and building units; work to existing buildings; and external works).

The identification numbers used to formulate codes for cost planning are described in NRM 1. The coding system advocated by NRM 1 is numeric, but alphabetical codes can also be used. It is recommended that the same approach be used in codifying building components/items (i.e. components and subcomponents) in the BQ.

For practical purposes, five levels of code are considered enough in cost planning to achieve the desired level of pre-contract cost control of a building project. The main identification number levels are as follows:

- **Level 0: project number** – most building projects will be given a project number, and a project title or name, to distinguish them from all other projects the company might be working on.
- **Level 1: cost plan number** – where a building project comprises more than one building or facet, a discrete cost plan will most likely be prepared for each building and key facet, culminating in a summary cost plan. Therefore, an identification number will be required to distinguish cost plans. This code will not be required for a single cost plan.
- **Level 2: group element** – identification number predefined by NRM 1.
- **Level 3: element** – identification number predefined by NRM 1.
- **Level 4: sub-element** – identification number predefined by NRM 1.
- **Level 5: component** – user-defined (building components/items).

For BQs, level 1 will be renamed 'Bill number'.

Because building components/items are described and quantified in greater detail in a BQ than those for cost planning, user-defined level 6 identification numbers will need to be introduced for each subcomponent of a component that is measured in accordance with NRM 2. Table 2.3 shows how a code can be expanded to include a level 6 identification number for subcomponents.

Level	Description	Item	Identification number	Resultant codes
0	Project number		DPB27	
1	Bill number	Bill no. 3	3	
2	Group element	Substructure	1	
3	Element	Foundations	1	
4	Sub-element	Piled foundations	2	
5	Component	Pile cap	1	
6	Subcomponent	Excavation	1	DPB27-3.1.1.2.1.1
6	Subcomponent	Disposal	2	DPB27-3.1.1.2.1.2
6	Subcomponent	Concrete	3	DPB27-3.1.1.2.1.3
6	Subcomponent	Reinforcement	4	DPB27-3.1.1.2.1.4
6	Subcomponent	Formwork	5	DPB27-3.1.1.2.1.5

Table 2.3: Example of codes used for codifying components and subcomponents in an elemental bill of quantities

It might not be necessary to prefix the code for components and subcomponents with the project number throughout the BQ.

The resultant codes can be inserted in the right-hand column of the bill paper or in brackets after the bill description.

2.8.3 Work sectional breakdown structure

Where a work sectional breakdown structure is used to construct the BQ, the work sections will be those defined in the tabulated rules in Part 3. However, for the purposes of cost management and cost control, it is important that the work sectional breakdown structure can be easily reconciled with the original cost plan breakdown structure.

The method recommended by the rules involves the provision of a secondary code that acts as a suffix to the primary code used for a BQ based on an elemental breakdown structure described in section 2.8.2. Examples of suffix codes are illustrated in Table 2.4.

Serial number	Work section	Suffix
1	Preliminaries	/01
2	Off-site manufactured materials, components and buildings	/02
3	Demolitions	/03
4	Alterations, repairs and conservation	/04
5	Excavating and filling	/05
6	Ground remediation and soil stabilisation	/06
7	Piling	/07
8	Underpinning	/08
9	Diaphragm walls and embedded retaining walls	/09
10	Crib walls, gabions and reinforced earth	/10
11	'In situ' concrete works	/11
12	Precast/composite concrete	/12
13	Precast concrete	/13
14	Masonry	/14
15	Structural metalwork	/15
16	Carpentry	/16
17	Sheet roof coverings	/17
18	Tile and slate roof and wall coverings	/18
19	Waterproofing	/19
20	Proprietary linings and partitions	/20
21	Cladding and covering	/21
22	General joinery	/22
23	Windows, screens and lights	/23
24	Doors, shutters and hatches	/24
25	Stairs, walkways and balustrades	/25
26	Metalwork	/26

Serial number	Work section	Suffix
27	Glazing	/27
28	Floor, wall, ceiling and roof finishings	/28
29	Decoration	/29
30	Suspended ceilings	/30
31	Insulation, fire stopping and fire protection	/31
32	Furniture, fittings and equipment	/32
33	Drainage above ground	/33
34	Drainage below ground	/34
35	Site works	/35
36	Fencing	/36
37	Soft landscaping	/37
38	Mechanical services	/38
39	Electrical services	/39
40	Transportation	/40
41	Builder's work in connection with mechanical, electrical and transportation installations	/41

Table 2.4: Example of suffix codes used for codifying work sections in work sectional bill of quantities breakdown structure

As with elemental BQs, it may not be necessary to prefix the code for components and subcomponents with the project number throughout the BQ.

Using the examples of subcomponents given in Table 2.3, the resulting codes for a work sectional breakdown structure will be:

- Excavation: DPB27-3.1.1.2.1.1/04
- Disposal: DPB27-3.1.1.2.1.2/04
- Concrete: DPB27-3.1.1.2.1.3/04
- Reinforcement: DPB27-3.1.1.2.1.4/04
- Formwork: DPB27-3.1.1.2.1.5/04

2.8.4 Works package breakdown structure

Both NRM 1 and NRM 2 recognise that cost plans will need to be restructured from elements to works packages for procurement. However, they make no attempt at standardising works packages. This is because the content of works packages is likely to be different from one building project to another, as they are often based on the perception of risk to those ultimately liable for the construction works. For example, for one building contract, it might be appropriate to have all concrete work carried out by a single subcontractor. However, for another building contract, because of the perceived risks associated with the drainage passing through the ground floor construction, it may be more appropriate to include the construction of pile caps, ground beams, base slab and belowground drainage in the works package for groundworks.

For that reason, the number and content of works packages needs to be carefully planned by the cost quantity surveyor/cost manager before preparing the BQ. Once the works package breakdown structure has been established, the provision of a secondary code that acts as a suffix to the primary code (that used for the BQ, based on an elemental breakdown structure described in section 2.8.2) can be applied.

Table 2.5 provides a typical example of part of a works package breakdown structure to which suffix codes have been applied. An example of a full works package breakdown structure is given in Appendix G. The example is not meant to be definitive or exhaustive, but simply for guidance.

Serial no.	Works package title/content	Suffix
1	Preliminaries	/01
2	Intrusive investigations: Asbestos and other hazardous materials Geotechnical and environmental investigations Attendance on archaeological investigations Preliminaries (main contract)	/02 /01.2
3	Demolition works: Asbestos and other hazardous materials removal/treatment works Soft strip of building components and subcomponents Soft strip of mechanical and electrical engineering services Demolition Preliminaries (works package contract)	/03 /01.2

Serial no.	Works package title/content	Suffix
4	Groundworks: Contaminated ground material removal Preparatory earthworks Excavation and earthworks, including basement excavation, earthwork support and disposal Temporary works – propping of existing basement retaining walls Belowground drainage Ground beams Pile caps Temporary works – piling mats/platforms Ground bearing base slab construction, including waterproofing Basement retaining wall structures, including waterproofing Preliminaries (works package contract)	/04 /01.2
5	Piling: Piling works Preliminaries (works package contract)	/05 /01.2
6	Concrete works: Frame Upper floors, including roof structure Core and shear walls Staircases Preliminaries (works package contract)	/06 /01.2
7	Roof coverings and roof drainage	/07
8	External and internal structural walls	/08
9	Cladding	/09
10	Windows and external doors	/10
11	Mastic	/11

Serial no.	Works package title/content	Suffix
12	Non-structural walls and partitions	/12
13	Joinery	/13
14	Suspended ceilings	/14
15	Architectural metalwork	/15
16	Tiling	/16
17	Painting and decorating	/17
18	Floor coverings	/18
19	Fittings, furnishings and equipment	/19
20	Combined mechanical and electrical engineering services	/20
21	External works	/21

Table 2.5: Typical example of suffix codes used for codifying works packages when a works package bill of quantities breakdown structure is used

Only works packages 1 to 6 have been expanded to illustrate the typical content of the works package.

As with elemental BQs, it is not necessary to prefix the code for components and subcomponents with the project number throughout the BQ.

Again, using the examples of subcomponents given in Table 2.3, the resulting codes for a works package breakdown structure will be the same as in section 2.8.3.

As all subcomponents relate to the construction of pile caps, they will all be incorporated in the works package for groundworks, and all be given the same suffix.

2.9 Cost management/control

The main purpose of a BQ is to present a coordinated list of components/items, with their identifying descriptions and quantities, that encompass the building works so that the tendering contractors are able to prepare tenders efficiently and accurately, as well as ensuring parity of tendering. In addition, BQs are a vital tool that the quantity surveyor/cost manager can use to manage and control the costs of the building project. Cost management and control uses include:

- pre-tender estimates
- post-tender estimates
- cost planning

- pricing variations and
- interim valuations and payment.

2.9.1 Pre-tender estimate

Pre-tender estimates are prepared immediately before calling the first tenders for construction. This is the final cost check undertaken by the quantity surveyor/cost manager before tender bids for the building project, or any part of the building project, are obtained. When a BQ is the basis of obtaining a tender price, the pre-tender estimates will be based on the BQ.

2.9.2 Post-tender estimate

A post-tender estimate is prepared at the Contractor Engagement RIBA Stage or OGC Gateway 3C (Investment Decision), after all the construction tenders have been received and evaluated. It is based on the outcome of any post-tender negotiations, including the resolution of any tender qualifications and tender price adjustments. The post-tender estimate will include the actual known construction costs and any residual risks. The aim of this estimate is to corroborate the funding level required by the client to complete the building project, including cost updates of project and design team fees as well as other development and project costs where they form part of the costs being managed by the cost manager. When reporting the outcome of the tendering process to the client, the quantity surveyor/cost manager should include a summary of the post-tender estimate(s). The post-tender estimate should be fairly accurate because the uncertainties of market conditions have been removed. Post-tender estimates are used as the control estimate during construction.

2.9.3 Cost planning

Cost planning is an iterative process, which is performed in steps of increasing detail as more design information becomes available. A cost plan provides both a WBS and a CBS which, by codifying, can be used to redistribute works in elements to works packages for procurement and cost control during the construction phase of the building project.

The third formal cost plan stage (completed at RIBA Stage 4) is based on technical designs, specifications and detailed information for construction. Formal cost plan 3 will provide the frame of reference for appraising tenders. It also provides the frame of reference for reconciling actual costs against cost targets. This is beneficial where building works are being procured piecemeal (i.e. procuring discrete works packages as their design is completed). The proper use of the cost plan will allow the reprofiling of cost targets as necessary to ensure that the overall cost limit (i.e. the client's authorised budget) is maintained by the project team.

2.9.4 Pricing variations

The rates in a priced BQ provide a basis for the valuation of varied work. Pro rata and analogous rates can also be ascertained from the base rates tendered to calculate the prices of other components not specifically described in the BQ.

2.9.5 Interim valuations and payment

Many building projects require interim payments to be paid to the contractor. This is to relieve the contractor of the burden of financing the whole of the building works until completion, especially for works that may take many months or years to complete. In each contract, there

should be clauses that set out the administrative rules under which the quantity surveyor/cost manager, architect (or contract administrator, project manager or quantity surveyor/cost manager), client and contractor should operate. In many contracts, while the completion and calculation of the value are important, the method and procedure of the interim valuations and payment that the contractor receives are equally important.

A priced BQ provides a comprehensive list of building components/items. Consequently, when a contract has been entered into, by assessing the building components/items in the BQ, the priced BQ can be used to ascertain periodic valuation of works properly executed in accordance with the provisions of the contract for the purpose of interim valuations and payment.

2.10 Analysis, collection and storage of cost data

Priced BQs make one of the best sources of real-time cost data available, which can be used by quantity surveyors/cost managers to provide expert advice on the likely cost of future building projects. Moreover, they afford a complete cost model in a single document.

The cost data provided in a BQ can be retrieved, analysed, stored and reprocessed in various ways (e.g. as distinct rates, detailed elemental cost analyses, element unit rates, cost/m^2 of GIFA, and/or functional unit rates) for use in order of cost estimates and cost plans. It can also be used for benchmarking purposes.

NRM 1 can be used as a basis for measuring element unit quantities for preparing detailed cost analyses of building projects.

Sections 2.8 to 2.10 should be considered in the context of the cost classification system contained in ICMS, by reference to the provisions of NRM 1 and NRM 3 (as applicable).

3 Rules of measurement for building works

This section contains:

- information about how to use the rules of measurement
- information about the preliminaries section of the BQ and
- the rules of measurement for building components/items.

3.1 Using the tables

The rules of measurement for building works are set out in tables, which are divided into two categories:

- preliminaries and
- measurement of building components/items.

Horizontal lines divide the tables into zones to which different rules apply.

Where rows have a choice of units or ways of measuring the work, the method chosen should be the best to suit the situation.

3.1.1 Preliminaries

Work section 1 comprises the rules for describing and quantifying preliminaries and reflects the structure of a BQ (see section 2.5.3).

The information and requirements tables are structured as follows.

- The Item column lists the items that should be considered under each main heading.
- The Subitem column lists the subitems that should be considered under each subheading.
- The Description column lists the information that should be included in the descriptions.
- The Supplementary information/notes column lists additional information that might need to be included in the descriptions of the preliminaries and provides guidance on the drafting of preliminaries statements.

The pricing schedule tables are structured as follows.

- The Component column lists the preliminaries items that should be considered under each main heading.
- The Included/notes on pricing column lists the subitems that form part of each item.
- The Unit column lists the units of measurement for preliminaries items.
- The Pricing method column stipulates whether the component is a fixed charge, a time-related charge or a combination of both.

- The Excluded column describes the items excluded from a component. Where exclusions are stated, cross-references to the appropriate component are given.

3.1.2 Building components/items

Work sections 2 to 41 comprise the rules of measurement for building components/items.

Number	Work section
2	Off-site manufactured materials, components or buildings
3	Demolitions
4	Alterations, repairs and conservation
5	Excavating and filling
6	Ground remediation and soil stabilisation
7	Piling
8	Underpinning
9	Diaphragm walls and embedded retaining walls
10	Crib walls, gabions and reinforced earth
11	In situ concrete works
12	Precast/composite concrete
13	Precast concrete
14	Masonry
15	Structural metalwork
16	Carpentry
17	Sheet roof coverings
18	Tile and slate roof and wall coverings
19	Waterproofing
20	Proprietary linings and partitions
21	Cladding and covering
22	General joinery
23	Windows, screens and lights
24	Doors, shutters and hatches
25	Stairs, walkways and balustrades
26	Metalwork

Number	Work section
27	Glazing
28	Floor, wall, ceiling and roof finishings
29	Decoration
30	Suspended ceilings
31	Insulation, fire stopping and fire protection
32	Furniture, fittings and equipment
33	Drainage above ground
34	Drainage below ground
35	Site works
36	Fencing
37	Soft landscaping
38	Mechanical services
39	Electrical services
40	Transportation systems
41	Builder's work in connection with mechanical, electrical and transportation installations

Each table is structured as follows.

- The first section sets out:
  - drawn information for each work section to enable measurement, which should accompany the BQ when issued
  - information that should be provided in each work section
  - minimum information that should be shown on the drawings or any other document that accompanies each work section and
  - works and materials that are not measured, but are included in the building components/items measured in each work section.
- The Item or work to be measured column lists the building components/items commonly encountered in building works.
- The Unit column lists the unit of measurement for building components/items.
- The Level one column lists the information, including any dimension information, that should be included in the description of the building components/items.
- The Level two and Level three columns list additional information requirements

- The Notes column explains the work included in specific building components/items, clarifies the approach to quantification and description of building components/items and contains definitions of terms used in connection with the building components/items.

The building components/items listed in the tables comprise those commonly encountered in building works. The lists are not intended to be exhaustive.

3.2 Measurement rules for building works

BQs should fully describe and accurately represent the quantity and quality of the works to be carried out. Where necessary, more detail should be given to define the nature and extent of the work.

3.2.1 Quantities

The rules for quantifying building components/items are as follows.

- Measurement and billing:
  - measure work net as fixed in position, unless otherwise stated
  - net quantity measured should include all additional material required for laps, joints, seams, etc. as well as any waste material
  - curved work should be measured on the centre line of the material unless otherwise stated
  - dimensions should be measured to the nearest 10mm; 5mm and over should be regarded as 10mm, and less than 5mm should be disregarded
  - except for quantities measured in tonnes (t), quantities should be given to the nearest whole number. Quantities smaller than one unit should be given as one unit. Quantities measured in tonnes should be given to two decimal places.
- Voids:
  - unless otherwise stated, minimum deductions for voids refer only to openings or wants within the boundaries of the measured work
  - always deduct openings or wants at the boundaries of measured areas, irrespective of size
  - do not measure separate items for widths not exceeding a stated limit where these widths are caused by voids.

3.2.2 Descriptions

Each work section of a BQ should begin with a heading and a description stating the nature and location of the work.

Headings for groups of building components/items (i.e. components and subcomponents) in a BQ should be read as part of the descriptions of the items to which the headings apply.

Descriptions should state the building components/items being measured (taken from the first column of the tabulated rules) and include all level one, two and three information applicable to that item. Where applicable, the relevant information from the Notes column should be included in the description.

Unless stated otherwise in the BQ or in these tables, descriptions for building components/ items should include:

- type and quality of the material
- critical dimension(s) of the material(s)
- method of fixing, installing or incorporating the goods or materials into the work where not at the discretion of the contractor, and
- nature or type of background.

Where the nature or type of background should be identified, the description of the building components/items should state one of the following:

- timber (includes all types of hard and soft building boards)
- plastics
- masonry (includes brick, concrete, block, natural and reconstituted stone)
- metal, of any type
- metal-faced timber or plastics and
- vulnerable materials (includes glass, marble, mosaic, ceramics, tiled finishes, material finishes, etc.).

Dimensions given as part of the description should be:

- stated in the order of length, width and height; where ambiguity could arise, the dimensions should be identified in the description and
- the finished lengths, widths and heights specified or shown on the drawings, with no allowance made for overlaps, scarcements, etc.

Thicknesses given as part of the description should be the finished thickness of the material after compaction, and should exclude the thickness of adhesives and/or bedding materials unless otherwise stated.

Where the rules state that work should be described as 'curved' with the radius stated, details should be given of the curved work, including whether it is:

- concave or convex
- conical or spherical and
- to more than one radius.

It should also state the radius or radii. The radius should be the mean radius measured to the centre line of the material, unless otherwise stated.

The information required by these rules may be given by a unique cross-reference to another document (e.g. to a specification or to a catalogue).

Where other components and subcomponents are referred to in other documents (e.g. a specification states that vinyl sheet flooring should be laid on a plywood lining), each component and/or subcomponent should be measured and described separately (e.g. the vinyl sheet flooring and the plywood lining should be measured as separate items).

Separate components or subcomponents may be combined to form single composite building components/items. In such cases, the description of the composite building components/items should clearly state what is included and how each component and/or subcomponent should be incorporated. Any component, subcomponent or other element of the work not clearly included in the description will not be included as part of the composite building components/items.

Unless specifically stated as otherwise in the BQ or in these tables, each building component/item should include the cost of:

- labour and all related costs
- materials and goods, and all related costs
- assembling, installing, erecting, fixing or fitting materials or goods in position
- plant and all related costs
- waste of goods or materials
- all rough and fair cutting
- establishment charges and
- compliance with all legislation related to the work measured, including health and safety, disposal of waste, etc.

3.2.3 Work of special types

Work of each of the following special types should be separately identified:

- work to existing buildings: defined as work on, in or immediately under work existing before the current building project
- work carried out and subsequently removed
- work outside the curtilage of the site
- work carried out in extraordinary conditions, including:
  - in, on or under water, stating whether river, canal, lake or sea and, where applicable, stating the mean spring levels of high and low water
  - in tidal conditions
  - underground, stating mean depth
  - in compressed air, stating the pressure and means of entry and exit, and
  - in other types of extraordinary conditions.

Specific details about each of these special types of work should be given at the start of each applicable work section.

The additional rules for special types of work should be read in conjunction with the rules in the appropriate work sections.

Details of the additional preliminaries that are relevant to the special types of work should be given in the description, drawing attention to any requirements specific to the nature of the work.

3.2.4 Measurable work not covered by the tables

Building components/items not covered by the tables should, if possible, be measured by rules for similar types of work. Rules of measurement adopted for such building components/items should be clearly stated and defined in either the preliminaries or in the BQ (against the building components/items or items to which the rule relates). Such rules should, as far as possible, conform to those given in the tables for similar building components/items. Where it is not possible to derive the method of measurement from the tables, the rules chosen may be bespoke. In such cases, the rule or rules derived should be reiterated in full in either the preliminaries or in the BQ (above the building components/items or items to which the rule relates).

3.2.5 Where work cannot be quantified

For the rules relating to work that cannot be quantified, refer to section 2.5.5.

3.2.6 Where the type of product or component is not specified

Where the exact type of product or component cannot be specified, an estimated price for the product or component should be given in the description as a prime cost price (PC price). For example, state 'Allow the PC price of £x per thousand delivered to site', 'Allow the PC price of £y per m^2 delivered to site' or 'Allow £z for each delivered to site'.

Unless stated otherwise in the BQ or in these tables, the contractor should allow for all items listed in section 3.2.2 in their priced rate for each building component/item, incorporating a PC price.

PC prices should exclude any allowance for the main contractor's overheads and profit, which are dealt with separately.

3.2.7 Where the quantity of work cannot be accurately determined

Where work can be described and given in items in accordance with the tables, but the quantity of work cannot be accurately determined, an estimate of the quantity should be given and identified as a 'provisional quantity'.

Work items identified as a 'provisional quantity' should be subject to remeasurement when they have been completed. The 'provisional quantity' should be substituted by the 'firm quantity' measured, and the total price for that item adjusted to reflect the change in quantity. Where the variance between the 'provisional quantity' and the 'firm quantity' measured is less than 20%, the rate tendered by the contractor will not be subject to review. Where the variance is significant (i.e. 20% or more), the rate can be reviewed to ensure that the rate is fair and reasonable to both the client and contractor.

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Work section 1: Preliminaries

Part A: Information and requirements

A.1 Project particulars

Item	Subitem	Description	Supplementary information/notes
1 Project particulars.	**1** Name of project.	State the short project title.	
	2 Nature of project.	Give a short description.	
	3 Location of project.	State the full postal address.	
	4 Length of contract.	State the period (in weeks).	Where this should be stated by the contractor, insert 'To be confirmed'.
	5 Names, addresses and points of contact of employer's consultants.	State the function (e.g. architect), name of organisation, address, point of contact, telephone number and email address. Include: **a** employer **b** project sponsor (e.g. employer's internal project manager) **c** contract administrator **d** project manager (if applicable) **e** principal contractor (under CDM Regulations) **f** person empowered by the contract to act on behalf of the employer (give person's job title, e.g. contract administrator, employer's agent, project manager) **g** principal designer (under CDM Regulations) **h** designers **i** quantity surveyor **j** consultants (separately identified) and **k** clerk of works/quality inspector (if applicable).	

A.2 Specifications and drawings

Item	Subitem	Description
1 Specification.	**1** List of specifications.	**a** Provide a list of specifications from which the BQ was prepared. **b** State the document title, reference number, version number and author/discipline.
	2 List of specifications relating to the contract but not included in the tender documents.	**a** Provide a list of specifications relating to the contract but not included in the tender documents, which may be seen by the contractor during the tender period. **b** State the document title, reference, version number, date of issue and author. **c** State details of where documents can be seen.
2 Drawings.	**1** List of drawings from which the BQ was prepared.	**a** Provide a list of drawings from which the BQ was prepared. **b** State the drawing title, reference number, version number and author/discipline.
	2 List of drawings relating to the contract but not included in the tender documents.	**a** Provide a list of drawings relating to the contract but not included in the tender documents, which may be seen by the contractor during the tender period. **b** State the drawing title, reference number, version number, date of issue and author. **c** State details of where drawings can be seen.

A.3 The site and existing buildings

Item	Subitem	Description
1 The site.		**a** Briefly describe the site. **b** Refer to drawing(s) showing the site boundaries and contractor's working area(s).
2 Existing buildings on or adjacent to the site.		Describe existing buildings on or adjacent to the site.
3 Surrounding land/ building uses.		State uses or activities carried out on the land or in building(s) adjacent to the site.
4 Existing mains services.	**1** On the site.	List drawings and other applicable information.
	2 Adjacent to the site.	
5 Soils and groundwater.		State information provided and where it is included in documentation (e.g. 'Annex B of the BQ' or 'as a separate document'). Cross-reference as necessary.
6 Site investigation.		State information provided and where it is included in documentation (e.g. 'Annex C of the BQ' or 'as a separate document'). Cross-reference as necessary.
7 Health and safety file.	**1** Health and safety file. **2** Other documents.	State the: **a** availability for inspection and **b** arrangements for inspection.

A.4 Description of the works

Item	Subitem	Description
1 Project objectives.	**1** Purpose of the works.	Explain why the project is being undertaken so the contractor understands the context in which the works are being provided and can work with the employer to achieve them.
	2 Project objectives.	If included, state the requirements on the contractor for achieving the project objectives.
2 Description of the works.	**1** Scope of the works.	Provide a general description of the work to be carried out under the contract: **a** outline the scope of the works (for preliminaries (works package contract), outline the scope of the works to be provided by the works package contractor) and **b** describe the extent of contractor-designed work (if applicable).
	2 General arrangement and location drawings.	List the drawings.
3 Works to be undertaken by the employer or others.		Describe the works.
4 Preparatory work by others.		Describe any work that will be carried out by others under a separate contract before the start of the work on site for this contract.
5 Works by others related to the contract.		Briefly describe any work related to the contract that should be carried out by others.
6 Completion work by others.		Briefly describe any work in connection with the building project that should be completed by others (i.e. work that is not required to be carried out by the contractor).

A.5 General constraints on executing the works

Item	Subitem	Description
1 General constraints.	**1** Use of the site.	State requirements.
	2 Access to the site.	
	3 Deliveries.	
	4 Noise and vibrations.	
	5 Working hours.	State requirements, including a definition of: **a** working hours and **b** normal working hours.
	6 Parking.	State requirements for parking and payments of fees and related charges, including parking bay and parking meter suspensions.
	7 Use of cranes.	State requirements.
	8 Use (or non-use) of explosives.	State the: **a** use and **b** details of restrictions.
	9 Restrictions on the use of hazardous materials.	State requirements.
	10 Use of mobile telephones and portable electronic equipment.	
	11 Electromagnetic interference.	
	12 Use of power-actuated fixing systems.	
	13 Storage of fuels and chemicals.	
	14 Pollution, ecological or environmental impacts.	

Item	Subitem	Description
	15 Nuisance.	
	16 Archaeological requirements.	
	17 Interfaces.	
	18 Occupied premises and users.	
	19 Employer's policies and procedures.	
	20 Constraints imposed to meet the requirements of others.	State requirements of others (e.g. funders).
2 Confidentiality.	**1** Confidentiality.	State confidentiality requirements and any acceptance procedures.
	2 Publicity restrictions.	State publicity restrictions and any acceptance procedures.
3 Advertising.		State requirements.
4 Security and protection of the site.		State security requirements for the site and protection of the public, including the requirements for preventing damage, theft, unauthorised access to the site and any special security requirements.
5 Security and identification of people.	**1** Security clearance.	State requirements for security, vetting and identification of people working on or visiting the site.
	2 Passes.	State employer's requirements, including the procedures for obtaining and returning passes.
	3 Access control.	Identify controlled areas.

Item	Subitem	Description
6 Protection of existing structures and services.	**1** Protection of existing structures.	State requirements, including the: **a** method of protecting existing structures **b** method of working on existing structures and **c** procedures to follow should damage occur to existing structures.
	2 Protection of existing services.	State requirements for: **a** identifying existing services **b** notifying services authorities, statutory services and/or adjoining and/or adjacent owners **c** protecting existing services **d** maintaining existing services **e** working on existing services and **f** procedures to follow should damage occur to existing services.
7 Protection of existing features.		State requirements, including procedures should damage occur to existing features.
8 Protection of existing furniture, fittings and equipment.	**1** Protection of existing furniture, fittings and equipment.	State requirements, including the: **a** procedures to follow should damage occur and **b** extent of removal work to be carried out by the employer.
	2 Protection of valuable and/or vulnerable items.	

Item	Subitem	Description
9 Protection of existing topsoil, subsoil, trees, shrubs, grassed areas and vegetation.	**1** Protection of existing topsoil and subsoil.	State requirements, including the: **a** location of temporary protection (by reference to drawing(s)) **b** standards of protection barriers and any other physical protection measures. **c** design details of physical protection measures (by reference to drawing(s)) **d** procedures to follow should damage occur **e** areas of structural landscaping to be protected from construction operations **f** requirements for maintaining the integrity of protection for the duration of the works and **g** requirements for removing protection measures and any reinstatement works on completion of the works.
	2 Temporary protection of existing trees and vegetation.	
	3 Protection of retained trees, shrubs and grassed areas.	
	4 Trees protected by Tree Preservation Orders.	
10 Protection of wildlife species and habitats.		State requirements.
11 Invasive species.		State: **a** requirements for the prevention of invasive species of plants and animals **b** details of any special precautions required and **c** requirements for discovery and reporting.

Item	Subitem	Description
12 Pesticides.		State the: **a** use **b** details of restrictions **c** disposal requirements and **d** operative's competency requirements.
13 Protection of the works.	**1** Stability.	State requirements for maintaining the stability and structural integrity of the works and adjoining property during the contract.
	2 Fire prevention.	State requirements, including details of standards the contractor should comply with.
	3 Smoking on site.	State requirements.
	4 Burning on site.	
	5 Ingress of storm and surface water.	
	6 Moisture and drying the works.	State requirements for: **a** preventing wetness and dampness and **b** drying out the works.
	7 Infected timber.	State requirements.
	8 Protection of existing work.	State requirements, including for removing and replacing existing work.
	9 Protection of building interiors.	State requirements.
	10 Protection of new sanitary appliances.	

Item	Subitem	Description
14 Cleanliness and protection of roads and pathways.		**a** State requirements agreed with the authorities for protecting and cleaning access roads to the site. **b** State procedures to follow should damage occur.
15 Traffic management.	**1** Traffic management on site.	State requirements and procedures for management of traffic on site.
	2 Road closures and other Temporary Traffic Regulation Orders.	State requirements and procedures for road closures.
	3 Traffic management on public highways and roads.	State requirements and procedures for management of traffic on public highways and roads.
	4 Communication and information requirements.	State requirements.
16 Condition survey.	**1** Independent building surveyor.	State requirements
	2 Schedules of conditions.	State requirements for condition surveys to be carried out by the contractor and any associated reinstatement works.
	3 Condition survey reports.	State requirements.
17 Consideration of others.	**1** Schemes.	State requirements for: **a** scheme type (e.g. Considerate Constructors Scheme) **b** registration **c** contact details and **d** compliance.
	2 Restrictions on works to avoid disturbance. **3** Public relations and good neighbour policies.	**a** State restrictions on work to avoid disturbance to the general public or occupiers of adjacent building areas in an existing building where work will be executed. **b** Identify the occupier's rules and regulations relating to work in occupied premises.

Item	Subitem	Description
18 Industrial relations.	**1** Cooperation.	State requirements.
	2 Employer's industrial relations policy.	State requirements for the contractor to comply with any industrial relations policies.
19 Control of the works.	**1** Permit to work.	State requirements for permits (e.g. permit to work procedures).
	2 Licences.	Specify requirements for licences.
20 Control of site personnel.	**1** Employment of site workers.	State requirements.
	2 Identification of site workers.	
	3 Migrant workers.	
	4 Undocumented workers.	
	5 Visitors.	
	6 Equality and diversity.	
	7 Prevention of trespass and damage to adjoining property.	State requirements.
	8 Restrictions on the use of adjoining property.	State requirements, including permission requirements.
21 Site cleanliness.		State requirements.
22 Waste materials.	**1** Site waste management plan.	State requirements.
	2 Waste transfer.	
	3 Specific limitations for the disposal of products.	
	4 Products for recycling or reuse.	State requirements, including for: **a** sorting **b** cleaning **c** damage prevention and **d** storage requirement.

Item	Subitem	Description
23 Other constraints.		State any other general constraints that are not covered by other sections of the preliminaries or by other tender documents.

A.6 Contract conditions

Item	Subitem	Description	Supplementary information/notes
1 Conditions of contract.	**1** Form of contract title.	Include: **a** the full title of the standard or bespoke form of contract, including edition, revision and standard amendments applicable **b** the schedule of clause/condition headings in the standard form of contract (see note i) **c** reference to any amendments to clauses/conditions to standard form of contract (see note i) **d** reference to any supplementary or special clauses/ conditions to standard form of contract **e** insertions relating to articles of agreement, articles, recitals and contract particulars or abstract of particulars (see note i) **f** the employer's insurance responsibility **g** the employer's requirements for performance bonds **h** the employer's requirements for parent company guarantees **i** the employer's requirements for collateral warranties.	**i** Where addressed through a schedule of amendments to the standard conditions of contract, points b, c and e from the 'description' column are not required. Reference to the schedule of amendments should be made in this section of the preliminaries bill. **ii** Where bespoke or uncommon forms of contract are used, a copy should be appended to the BQ or included as part of the tender.

A.7 Employer's requirements: provision, content and use of documents

Item	Subitem	Description	Supplementary information/notes
1 Definitions and interpretations.	**1** Communication.	Give the definition and format of communications and timing of response.	
	2 Products.	Give definitions.	
	3 Site equipment.		
	4 Drawings.		
	5 Contractor's choice.		
	6 Contractor-designed works.		
	7 Submit proposals.		
	8 Terms used in specification.	Give definitions of key words, terms, phrases and synonyms used in the specification.	
	9 Manufacturer and product references.	**a** Give definitions of terms. **b** State the version of manufacturer's technical literature applicable to tender and contract (e.g. current on the date of invitation to tender).	
	10 Substitution of products.	**a** Give definitions of substitute/alternative products. **b** Explain the process for acceptance and rejection of substitute/alternative products.	
	11 Cross-references.	Explain the method of cross-referencing used.	

Item	Subitem	Description	Supplementary information/notes
	12 Referenced documents.	State the order of precedence of referenced documents.	
	13 Equivalent products.	Give definitions.	
	14 Substitution of standards.	**a** Give definitions. **b** Explain the process for acceptance and rejection of substitute standards.	
	15 Current version and status of documents.	State the version of published documents, including revisions and amendments, applicable to tender and contract (e.g. current on the date of invitation to tender).	
	16 Product sizes.	**a** Give a general definition of product sizes. **b** State exceptions to the general definition.	Products should be specified by their coordinating size. Exceptions to this should be stated.
2 Documents provided on behalf of employer.	**1** Additional copies of drawings and/or documents.	Describe the procedure following a request from the contractor for additional documents, etc.	
	2 Dimensions.	Explain ownership of scaled dimensions.	
	3 Measured quantities.	Explain the precedence of measured quantities.	
	4 Specification.	**a** Reference the specification(s) in the preliminaries. **b** Explain the method used to cross-reference specification clauses on or in other tender/contract documents.	
	5 Divergence from the statutory requirements.	State the method for dealing with divergence from the statutory requirements if this occurs.	

Item	Subitem	Description	Supplementary information/notes
	6 Employer's policy documents.	State the requirements for compliance with the employer's policies. Examples include: • environmental • sustainability • corporate and social responsibilities (CSR) and • health and safety.	
3 Documents provided by the contractor, subcontractors and suppliers.	**1** Technical literature.	**a** State the literature that should be maintained. **b** State the requirements for literature to be available on-site.	
4 Document and data interchange.	**1** Electronic data interchange (EDI).	**a** State the types and classes of communication. **b** Record communication between parties. **c** State the requirements.	

A.8 Employer's requirements: contractor-designed work

Item	Subitem	Description
1 Design responsibility.	**1** Contractor's design responsibility.	Define the parts of the works the contractor should design.
	2 Contractor's design manager.	State requirements.
2 Design submission and acceptance criteria.	**1** Design documents.	State requirements.
	2 Design document status tracker.	
	3 Design documents that should be submitted.	

Item	Subitem	Description
	4 Submission of design documents.	
	5 Design document submission procedures.	State the procedures the contractor should follow for carrying out its design and for submitting designs for acceptance.
3 Design approvals from others.		State any requirements for design checks, approvals and consents that the contractor should obtain from others.
4 Employer's requirements.	**1** Design specifications.	State requirements for the design prepared by the contractor.
	2 Design standards and codes of practice.	
	3 Size and/or space limitations.	
	4 Loading and capacity requirements.	
	5 Operational performance requirements and design life.	State performance or outputs that are required in the design prepared by the contractor.
	6 Planning drawings and planning consents.	State requirements.
	7 Energy consumption targets.	State performance or outputs that are required in the design prepared by the contractor.
	8 Energy performance certificate.	State requirements.
	9 Environmental standards.	
	10 Sustainability requirements.	State performance or outputs that are required in the design prepared by the contractor.
	11 Maintenance and operational requirements.	State requirements for the design prepared by the contractor.
	12 Design quality evaluation criteria.	
	13 Employer's design brief.	
	14 Employer's design reports.	
	15 Employer's standard design guidance.	

Item	Subitem	Description
5 Design coordination.		State how the contractor should coordinate with others in preparing its design and any responsibility for coordination of design by others.
6 Requirements of others.		State how the contractor should obtain and satisfy any necessary authority requirements (e.g. planning officials or government departments).
7 Using the contractor's design.		State any other purpose for which the employer may wish to use and copy the contractor's design if not stated in the contract conditions.
8 Employer's requirements for design of plant/equipment.		Identify any employer requirements for the design of plant or equipment.

A.9 Employer's requirements: building information modelling (BIM)

Item	Subitem	Description	Supplementary information/notes
1 Information model requirements.		**a** State the form of the information model. **b** State the requirements for creating the information model or identify the document containing the requirements. The requirements may include: • procedure requirements • model standards • roles and responsibilities • model use glossary • model use requirements • information exchange formats • model and production standards • survey standards • common data environment requirements and • deliverables.	
2 BIM coordinator.		State requirements.	
3 Information management.		State requirements.	

A.10 Employer's requirements: completion

Item	Subitem	Description	Supplementary information/notes
1 Completion.	**1** Completion definition.	State definition.	
	2 Completion.	**a** State work to be done by the practical completion/completion date. **b** If required, state which parts of the works can remain incomplete.	
2 Sectional completion.	**1** Sectional completion definition.	State definition.	
	2 Sectional completion.	**a** State work to be done by each sectional completion date. **b** If required, state which parts of the works can remain incomplete for each section. **c** State requirements for the remainder of the works, including: • provision of services • fire precautions • means of escape and safe access and • other requirements.	
3 Early possession.		State requirements.	
4 Notice of completion.		State requirements.	
5 Training.	**1** Training of building maintenance staff.	State training required by the employer and others and associated timescales.	
	2 Familiarisation of building engineering services systems.	State requirements.	

Item	Subitem	Description	Supplementary information/notes
6 Final clean.	**1** Materials, protection and tools.	State details of final clean, removal of products, temporary structures.	
7 Security.	**1** Security at completion.	State details of security arrangements at handover and completion.	
	2 Keys.	State requirements.	
8 Rectification of defects.	**1** Defects rectification plan.	State requirements.	
	2 Defects rectification procedure.	**a** State procedures for access for the rectification of any defects. **b** State the procedure for liaison with the employer's representatives.	
9 Pre-completion arrangements.	**1** Pre-completion plan.	State requirements.	
	2 Pre-completion works.		
	3 Spare parts.		
	4 Tools.		
10 Highway/sewer adoption.		**a** Describe work that should be adopted. **b** State requirements for work to be adopted.	
11 Use of the works.		**a** Identify parts of the works that the employer requires to use before practical completion/ completion/sectional completion. **b** State contractor's access provision during the period of use.	

Item	Subitem	Description	Supplementary information/notes
12 Completion documents.	**1** Health and safety file.	State: **a** purpose **b** scope **c** responsibility for preparation **d** content, format and presentation **e** review process **f** number of copies and **g** latest date for submission of final file.	The health and safety file and all other information can be combined as a single document. In this case the document can be referred to as the 'building manual'.
	2 Health and safety information.	**a** State information that should be provided to the contractor where it is not responsible for preparation. **b** For a works package contract, state information that should be provided by the works package contractor.	

Item	Subitem	Description	Supplementary information/notes
	3 Operation and maintenance manual/ building manual.	State: **a** purpose **b** scope **c** responsibility for presentation **d** information to be provided by others **e** review process **f** number of copies **g** latest date for submission of final manual and **h** as-built/as-installed drawings: • format and standard • number of copies. **i** For a works package contract, state information that should be provided by the works package contractor.	
	4 Content of operation and maintenance manual/building manual.	State requirements.	
	5 Presentation of operation and maintenance manual/building manual.		

Item	Subitem	Description	Supplementary information/notes
	6 Design information.	**a** State requirements, including design management and programming requirements. **b** State requirements for design documents and information. **c** Describe the format. **d** State the number of copies. **e** State submission requirements.	
	7 Production information.	**a** State requirements for production information. **b** Describe the format. **c** State number of copies. **d** State submission requirements.	
	8 As-built drawings and information.	**a** State general requirements. **b** State submission requirements. **c** State the number of copies.	

Item	Subitem	Description	Supplementary information/notes
	9 Maintenance instructions and guarantees.	**a** State information requirements. **b** Describe the format. **c** State the number of copies. **d** State submission requirements. **e** Explain storage and information management. **f** State requirements for emergency and/or out of normal working call-out services, including requirements for contact details and extent of cover.	Requirements relating to 'management information systems' should be stated under storage and information management requirements.
	10 Energy rating calculations.	**a** State information requirements. **b** State the number of copies. **c** State submission requirements.	
	11 Environmental assessment information.	**a** State the scheme type. **b** State environmental targets (for site activities and the works). **c** State information requirements. **d** Describe the format. **e** State the number of copies. **f** State submission requirements.	
	12 Other documents required before completion.	State requirements.	

Item	Subitem	Description	Supplementary information/notes
13 Occupier's handbook.	**1** Occupier's handbook.	State requirements.	
	2 Content of occupier's handbook.		
	3 Presentation of occupier's handbook.		
14 Access to information following completion.		State requirements.	
15 Rectifying defects – post-completion.	**1** Defects rectification plan.	State requirements.	
	2 Defects correction/rectification procedure.	**a** State procedures for access for the correction/ rectification of any defects. **b** State the procedure for liaison with the employer's representatives.	
16 Post-completion maintenance services.		State requirements for post-completion maintenance: **a** planned and **b** reactive.	

A.11 Employer's requirements: programme/progress

Item	Subitem	Description
1 Programme requirements.	**1** Format of programmes.	State the requirements for the format of the programme, including the use of specific software (if necessary) and the requirement for hard and electronic copies.
	2 Content of programmes.	State the information that the contractor should show on programmes.

Item	Subitem	Description
	3 Programme arrangement.	State any requirements for the programme to be produced in levels (e.g. summary level to detailed level, subcontractor programmes).
	4 Coordination and monitoring of programmes.	State requirements.
2 Methodology statements.	**1** Methodology statements.	State requirements for methodology statements.
	2 Resource information.	State requirements for the format of resource information.
3 Work of the employer and others.		**a** Detail the order and timing of work of the employer and others that should be included in the programme and information that should be provided. **b** Refer to A.13 Employer's requirements: working with the employer and others.
4 Specific limitations on method and/or sequence of work.		State specific limitations on method and/or sequence of working, including phasing requirements that should be included in the programme.
5 Information required.		State information, the provider and the date/time it should be provided.
6 Revised programmes.		State requirements for the submission of revised programmes, including the explanation of changes.
7 Start of site works.	**1** Start of site works.	State the notice period the contractor should give before starting work on site.

Item	Subitem	Description
8 Monitoring works progress.		State: **a** employer's requirements for reporting and avoiding potential delay **b** key performance indicators (KPIs) that should be maintained by the contractor **c** requirements for reporting KPIs and **d** actions that should be taken by the contractor if any KPI is not achieved.
9 Notification of delays.		State requirements.
10 Extensions of time.		

A.12 Employer's requirements: management of the works

Item	Subitem	Description
1 Delegated duties.		**a** The contract conditions identify the employer and some of the project team members and state what they should do. **b** State any duties delegated to others or that should be undertaken by others and explain the extent of the delegation/role.
2 Communication system.	**1** Electronic systems and communications.	Detail the communication system that should be used (e.g. internet-based collaboration tool, electronic mail system or standard forms and templates).
	2 Use of standard forms and templates.	State requirements.

Item	Subitem	Description
3 Management procedures.	**1** Kick-off meeting.	State requirements.
	2 Employer's works progress meetings.	State: **a** the management procedures the contractor should follow **b** list of the attendees **c** method of keeping meeting records **d** the frequency of the meetings and **e** identity of the chairperson.
	3 Contractor's site meetings.	
	4 Contractor's progress report.	State the: **a** form and content of report **b** method of presentation and **c** submission requirements.
4 Management and supervision.	**1** Contractor's site manager.	State requirements, including notice period for the replacement of contractor's site manager/person in charge that the contractor should give.
	2 Supervision of the works.	
	3 Coordination of building engineering services systems.	State requirements.
	4 Quality control.	State: **a** procedural requirements **b** records required **c** content of records and **d** other requirements.

Item	Subitem	Description
	5 Work carried out outside of normal working hours.	State requirements.
	6 Overtime working.	
	7 Defects in existing work.	State procedure for dealing with: **a** undocumented defects and **b** documented remedial work.
5 Management of subcontractors.		State requirements.
6 Photography.	**1** Photographs.	State requirements for: **a** image format **b** frequency **c** number of locations **d** number of images from each location and **e** other requirements.
	2 Time-lapse photography.	State requirements.
7 Insurance.	**1** Insurance.	State requirements for documentary evidence and the circumstances under which it is required.
	2 Insurance claims.	**a** State requirements for the notifying event. **b** State requirements for indemnifying the employer.
8 Asbestos-containing materials.		State requirements.
9 Dangerous or hazardous substances.		State requirements.

Item	Subitem	Description
10 Weather measurements.		State requirements.
11 Notification of delays.		State requirements.
12 Cost control.	**1** Payment forecasts.	State requirements for cash flow forecasts, including: **a** basis **b** frequency and **c** submission requirements.
	2 Removal and replacement of existing work.	State requirements for: **a** location **b** extent and **c** execution.
	3 Proposed instructions.	State: **a** requirements for estimates **b** content of estimates and **c** other requirements.
	4 Measurement of covered work.	State: **a** procedure and **b** notice period the contractor should give before covering works that will be measured.

Item	Subitem	Description
	5 Daywork vouchers.	State: **a** notice period the contractor should give before starting the work being carried out on a daywork basis and **b** submissions requirements.
	6 Payment for products not incorporated into the works.	State information/evidence of freedom from the title that the contractor should provide for products not incorporated in the works before payment is made by the employer.
	7 Payment for products stored off-site.	
	8 Labour and equipment returns.	State: **a** records that should be maintained by the contractor **b** content of records and **c** submission of records.
	9 Final cost.	State requirements.
13 Capital allowances.		State requirements.
14 Contractor's applications for payment.	**1** Format and details.	State employer's requirements for the format and details to be included in the contractor's applications for payment.
	2 Submission requirements.	State submission requirements.
	3 Invoicing.	State submission requirements.

A.13 Employer's requirements: working with the employer and others

Item	Subitem	Description
1 Sharing working areas with others.		Provide an interface schedule to show the activities being undertaken, explaining: **a** what is being done **b** who is doing it **c** when it is being done **d** how the contractor should cooperate and share the working areas and **e** whether the contractor provides any services or other things.
2 Cooperation.		Identify timing and known information requirements for the contractor to obtain from others or to provide to others.
3 Coordination.		State how the contractor is to liaise with the employer and others for the coordination of works and access.
4 Authorities and utilities providers.	**1** Work by authorities.	**a** Identify works that should be carried out by authorities. **b** State responsibility for enquiry, management, procurement, provision of notices and payment.
	2 Work by utility providers.	**a** Identify works that should be carried out by utility providers. **b** State responsibility for enquiry, management, procurement, provision of notices and payment.

A.14 Employer's requirements: quality management

Item	Subitem	Description
1 Quality management system.	**1** Certification.	State requirements for the contractor's quality management system, including accreditations or legislative standards.
	2 Quality audits.	State requirements.
2 Quality policy statement and quality plan.		State requirements that the contractor's quality policy statement and quality plan are required to comply with, including topics that should be included.
	1 Incomplete information.	State requirements for products and work where not fully specified.
	2 Contractor skills.	State requirements for: **a** appropriateness of contractor's operatives **b** registration schemes to which contractor's operatives should belong **c** evidence of scheme registration requirements and **d** other requirements.
	3 Quality of products.	State requirements for: **a** use of new and recycled products, including sorting and damage prevention requirements, and storage requirements **b** supply of products **c** tolerances **d** deterioration prevention and **e** other requirements.

Item	Subitem	Description
	4 Quality of work.	State requirements for: **a** fixing, application and installation of products, including alignment **b** colour batching **c** dimensions **d** finished work **e** location and fixing of products **f** keeping cavities and voids free of waste and **g** other requirements.
	5 Compliance with proprietary specifications.	State: **a** requirements for compliance with proprietary specifications and **b** other requirements.
	6 Compliance with performance specifications.	State: **a** requirements for compliance with performance specifications and **b** other requirements.
	7 Substitution of products.	State requirements.

Item	Subitem	Description
	8 Equivalent products.	**a** Give the definition. **b** State procedure for acceptance and rejection of substitute standards.
	9 Substitution of standards.	State requirements.
	10 Inspections.	
	11 Related work.	State requirements for coordinating contractors of different trades.
	12 Compliance with manufacturer's recommendations or instructions.	**a** State requirements for compliance. **b** State the version of manufacturer's recommendations/ instructions applicable to tender and contract (e.g. current on the date of invitation to tender).
	13 Water for the works.	State requirements.
3 Standards of products and work.	**1** Samples of products.	**a** State requirements (including programming requirements) for submission, inspections, tests and approvals. **b** State any other requirements.
	2 Samples of work.	
	3 Mock-ups.	
	4 Storage of samples and mock-ups.	
4 Setting out the works.		State requirements, including for: **a** recording details of grid lines, setting-out stations, benchmarks and profiles (e.g. the provision of record drawings) **b** information retention **c** submission and **d** other.

Item	Subitem	Description
5 Accuracy.	**1** Appearance and fit.	State tolerances and dimensions.
	2 Critical dimensions.	State requirements.
	3 Levels of structural floors.	State maximum tolerances for designed levels.
6 Services.	**1** Services regulations.	State requirements.
	2 Water regulations/byelaws – contractor's notification.	
	3 Water regulations/byelaws – contractor's certificate.	State: **a** content of certificate **b** submission requirements and **c** other requirements.
	4 Electrical installation certificate.	State: **a** submission requirements and **b** other requirements.
	5 Gas, oil and solid fuel appliance installation certificate.	State: **a** content of certificate **b** submission requirements and **c** other requirements.
	6 Mechanical and electrical services.	State requirements for: **a** final tests and commissioning and **b** Building Regulations notice.

Item	Subitem	Description
7 Instrumentation.	**1** Laser equipment.	State requirements.
	2 Thermometers.	
	3 Surveying equipment.	
8 Proposals for rectifying defective products and executed work.		State requirements.
9 Measures to establish acceptability of products and executed work.		State requirements.
10 Quality control.		State: **a** procedural requirements **b** records required **c** content of records and **d** other requirements.

A.15 Employer's requirements: tests and inspections

Item	Subitem	Description
1 Access for tests and inspection.		State requirements.
2 Tests and inspections.	**1** Products, facilities and samples for tests and inspections.	State requirements.

Item	Subitem	Description
	2 Tests and/or inspections on products before payment or delivery to site.	State: **a** details of tests and/or inspections before payment or delivery to site and **b** details of tests and/or inspections on site.
	3 Computer software tests.	State requirements.
	4 Performance tests.	State: **a** the type of performance test(s) (e.g. air permeability, continuity of thermal insulation or resistance to the passage of sound) **b** the method **c** performance and compliance requirements **d** submission requirements and **e** other requirements.
3 Management of tests and inspections.	**1** Test and inspection plan.	State: **a** timing requirements **b** records required **c** procedure for submission and review and **d** other requirements.
	2 Test certificates.	State requirements.
4 Procedures for inspections and watching tests by the employer's representative.		State requirements.

Item	Subitem	Description
5 Building Regulations inspections.		State requirements.
6 Covering up completed work.		State requirements, including timescales for covering up works that have been tested or inspected.
7 Samples.	**1** Products.	State: **a** requirements for submission of, inspection of and tests on samples (including programming requirements) **b** definition of approval in context of sample **c** retention of complying samples, including storage requirements **d** other requirements.
	2 Work executed and mock-ups.	State: **a** requirements for submission of, inspection of and tests on work executed and mock-ups (including programming requirements) **b** definition of approval in context of work executed and mock-ups **c** retention of complying work executed and mock-ups, including storage requirements **d** other requirements.
8 Commissioning.	**1** Independent specialist commissioning engineer.	State requirements.
	2 Testing and commissioning plan.	
	3 Commissioning.	

Item	Subitem	Description
	4 Seasonal commissioning of building engineering services systems.	
	5 Documents and records.	
9 Performance tests after completion of commissioning.		State requirements.
10 Fuels and consumables.		State requirements.

A.16 Employer's requirements: services and facilities

Item	Subitem	Description
1 Services and facilities provided by the contractor for use by the employer, the employer's representatives or others.	**1** Access for the employer, the employer's representatives or others.	State requirements.
	2 Accommodation.	State requirements, including: **a** the room for meetings, including furniture and equipment that should be provided **b** site offices **c** preparatory works, including painting, decoration and applied finishings (e.g. carpets) **d** cleaning and maintenance requirements **e** location of accommodation (on-site or off-site).

Item	Subitem	Description
	3 Welfare facilities.	State requirements, including: **a** catering **b** sanitation **c** recreation **d** other and **e** cleaning and maintenance.
	4 Medical facilities and first aid.	State requirements.
	5 Storage facilities.	
	6 Parking.	
	7 Security arrangements.	
	8 Computers.	State requirements, including for: **a** systems, including computers, software, printers, cables and consumables **b** responsibility for paying the cost of consumables **c** date they should be installed and **d** other.
	9 Email and internet facilities.	State requirements, including for: **a** systems **b** responsibility for paying installation and rental charges **c** date they should be installed and **d** other.

Item	Subitem	Description
	10 Mobile telephones.	State requirements, including for: **a** providing the contractor's team with mobile telephones **b** responsibility for paying installation and all rental charges, including paying the cost of calls **c** disseminating telephone numbers and **d** other.
	11 Telephones.	State requirements, including for: **a** responsibility for paying installation and all rental charges, including paying the cost of calls **b** disseminating telephone numbers and **c** other.
	12 Radios.	State requirements, including for: **a** providing the contractor's team with radios **b** responsibility for paying installation and all rental charges, including paying the cost of calls **c** disseminating telephone numbers and **d** other.
	13 Document management system.	State requirements.
	14 Copying.	
	15 Postage.	

Item	Subitem	Description
	16 Name boards and signage.	State requirements.
	17 Fences, screens and hoardings.	
	18 Maintenance of access roads and pathways.	
	19 Placement of spoil heaps, temporary accommodation, temporary works services and facilities.	State requirements, including: **a** siting of spoil heaps and **b** maintenance, alteration, movement and removal of temporary works.
	20 Safety equipment and services.	State: **a** safety requirements and **b** protective clothing and/or equipment the contractor should provide for use by the employer and the employer's representatives.
	21 Temperature and humidity.	State requirements, including levels that should be maintained by the contractor.
	22 Thermometers.	State requirements for providing maximum and minimum thermometers for measuring atmospheric shade temperature.
	23 Surveying equipment.	State requirements for providing surveying equipment.

Item	Subitem	Description
	24 Temporary facilities.	State requirements for: **a** temporary lighting (for the provision of temporary lighting for finishing work and inspections) **b** access scaffolding **c** lifting equipment **d** cranes **e** hoists and **f** other.
	25 Use of permanent roads, hardstandings and footpaths.	State requirements for use by the contractor of permanent roads, hardstandings and footpaths on the site, including restrictions on use.
	26 Temporary works.	State other requirements.
	27 Advertisements.	State requirements.

Item	Subitem	Description
	28 Utilities.	State requirements for: **a** water, including: **i** requirements for use of employer's mains and responsibility for continuity of supply **ii** metering requirements **iii** source of supply **iv** location of supply point and **v** conditions/restrictions imposed on the contractor. **b** power, including: **i** requirements for use of employer's mains and responsibility for continuity of supply **ii** metering requirements **iii** location of supply point **iv** available capacity, frequency, phase and current type and **v** conditions/restrictions imposed on the contractor.
	29 Meter readings.	State requirements.
	30 Other requirements.	State requirements.

Item	Subitem	Description
2 Services and facilities the employer should provide	**1** Accommodation.	State details, including: **a** identification of accommodation and/or space that may be used by the contractor for the duration of the contract without charge **b** limitations/restrictions on use **c** requirements for any temporary adaptations **d** cleaning and maintenance requirements **e** accommodation/space use **f** location of accommodation/space and **g** reinstatement requirements on vacation of accommodation/space.
	2 Space for accommodation.	
	3 Space for accommodation not included in the site.	
	4 Utilities.	State requirements.
	5 Roads, hardstandings and pathways on the site.	
	6 Products (free-issue items).	
	7 Temporary facilities (preliminaries (works package contract) only).	State requirements for: **a** temporary lighting (for the provision of temporary lighting for finishing work and inspections) **b** access scaffolding **c** lifting equipment **d** cranes **e** hoists and **f** other.

Item	Subitem	Description
3 Use of installed mechanical and electrical engineering services systems.	**1** Use of permanent heating systems.	State: **a** whether the contractor is permitted to use permanent heating systems for drying out the works, services and controlling temperature and humidity levels **b** requirements for operation, maintenance and remedial work **c** requirements for the contractor to arrange supervision of use by the subcontractor and indemnification of the subcontractor and **d** other requirements.
	2 Beneficial use of permanent installed systems.	State details of services systems, including lifts and sanitary installations that can be used by the contractor to complete the works.

A.17 Employer's requirements: health and safety

Item	Subitem	Description
1 Health and safety requirements.	**1** Scheme.	State the: **a** scheme type **b** registration requirements **c** contact details and **d** compliance requirements.
	2 Employer's safety requirements.	State requirements.
	3 Freight vehicle safety requirements.	

Item	Subitem	Description
	4 Reporting requirements.	State requirements
	5 Safety management, supervision and qualifications.	
	6 Management of subcontractors.	
	7 Drug and alcohol policy.	
	8 Site induction procedure.	
2 Pre-construction information.		Explain how pre-construction information is dealt with (i.e. in the preliminaries bill or as a separate document). Cross-reference to pre-construction information document if it is a separate document.
3 Method statements and risk assessments.		State details of operations for which the contractor should submit method statements and risk assessments.
4 Legal requirements.	**1** Employer's duties.	State: **a** health and safety duties required by law and **b** who will perform the duties.
	2 Duties of the principal designer.	
	3 Duties of the principal contractor.	
	4 Duties of designers.	
	5 Duties of contractor and subcontractors.	
5 Employer's representatives site visits.		State safety requirements.
6 Inspections.		State requirements for review and inspection of contractor's health and safety procedures.
7 Deleterious and hazardous materials.		State restrictions on the use of deleterious and hazardous materials.

Item	Subitem	Description
8 Design hazards.		State requirements, including: **a** management requirements for common hazards and **b** details of significant hazards incorporated into the design of the works.
9 Product hazards.		State requirements, including: **a** management requirements for common hazards and **b** details of significant hazards incorporated into the design of the works.
10 Construction hazards.		State requirements, including: **a** management requirements for hazardous substances **b** management requirements for common hazards and **c** details of significant hazards.
11 Working precautions and/or restrictions.		State requirements, including: **a** details of hazardous areas and **b** permit to work requirements.
12 Construction phase health and safety plan.		State requirements, including content and submission requirements.

A.18 Employer's requirements: subcontracting

Item	Subitem	Description
1 Restrictions or requirements for subcontracting.	**1** Subcontract conditions.	State requirements.
	2 Subcontract restrictions.	State any restrictions and additional procedures the contractor must follow.
2 Acceptance procedure.		State any submission and acceptance procedures for proposed subcontracts.

A.19 Employer's requirements: title

Item	Subitem	Description
1 Marking and transfer of title.	**1** Marking.	**a** State the requirements for marking products that are stored off-site by the contractor for payment and transfer of title to the employer. **b** State which items should be prepared for marking and how this should be done. **c** Identify any tests and inspections that should be passed before items are accepted for marking.
	2 Transfer of title.	State requirements for ensuring that property in products that are stored off-site by the contractor is vested in the contractor.
2 Products from excavation and demolition.	**1** Title.	State any exceptions to the contractor's title to products arising from demolition and excavations.
	2 Credit for the sale of salvaged products.	State whether the employer wishes to salvage any products from demolition and excavations.

Item	Subitem	Description
	3 Salvaged products.	**a** State whether the employer wishes to salvage any products from demolition and excavations. **b** If so, state where they are to be delivered to or collected from, and by whom.

A.20 Employer's requirements: records

Item	Subitem	Description
1 Records.		**a** Detail any records that should be kept by the contractor in addition to those specified elsewhere in the preliminaries, specifications and other contract documents (e.g. timesheet, site allocation sheets, equipment records, climatic conditions). **b** Define the format and presentation of records that should be kept.

Part B: Pricing schedule

B.1 Employer's requirements: site accommodation

Component	Included	Unit	Pricing method	Excluded
1 Site accommodation.	Site accommodation for the employer and the employer's representatives where separate from main contractor's site accommodation, including: • site offices • sanitary accommodation • welfare facilities • foundations to site accommodation • temporary drainage to accommodation • temporary services • intruder alarms. The type and extent of accommodation to be provided should be stated, with each type separately quantified.			**1** Site accommodation, furniture and equipment, telecommunication and IT systems for the employer and the employer representatives where an integral part of the main contractor's site accommodation (included in B.5 Contractor's cost items: site establishment, as appropriate).
	1 Bringing to site and installing, including all temporary drainage, services and intruder alarms.	item	Fixed charge	
	2 Adaptations/alterations during works.			
	3 Dismantling and removing from site, including rectifying any damage.			
	4 Maintaining.	week	Time-related charge	
	5 Cleaning.			
	6 Charges.			

Component	Included	Unit	Pricing method	Excluded
	7 Off-site rented temporary accommodation.			
	8 Rectifying damage to off-site rented temporary accommodation.	item	Fixed charge	
2 Furniture and equipment.	Furniture and equipment for the employer and the employer's representatives where separate from main contractor's site accommodation. For example, desks, chairs, meeting table and chairs, cupboards, kettles, coffee maker, photocopier and consumables.			
	1 Bringing to site and installing.	item	Fixed charge	
	2 Cleaning.	week	Time-related charge	
	3 Charges.			
	4 Dismantling and removing from site.	item	Fixed charge	
3 Telecommunications and IT systems.	Telecommunication and IT systems for the employer and the employer's representatives where separate from main contractor's site accommodation, including telephones, mobile phones, photocopier, computers, printers, scanners and consumables.			
	1 Purchase charges.	nr	Fixed charge	
	2 Hire charges.	week	Time-related charge	
	3 Consumables.			

B.2 Employer's requirements: site records

Component	Included	Unit	Pricing method	Excluded
1 Site records.	**1** Operation and maintenance manuals.	item	Fixed charge	
	2 Compilation of health and safety file.			
2 Web-based information management system.	**1** Provision of system.			
	2 Data uploading.			
	3 Training building user's staff in the operation of the web-based management system.			

B.3 Employer's requirements: completion and post-completion requirements

Component	Included	Unit	Pricing method	Excluded
1 Handover requirements.	**1** Training of building user's staff in the operation and maintenance of the building engineering services systems.	item	Fixed charge	
	2 Provision of spare parts for maintenance of building engineering services.			
	3 Provision of tools and portable indicating instruments for the operation and maintenance of building engineering services systems.			
2 Operation and maintenance services.	**1** Operation and maintenance of building engineering services installations, mechanical plant and equipment, etc. during the defects liability period, period for rectifying defects, maintenance period or other specified period (i.e. additional services that are normally required by the contract).	week	Time-related charge	
3 Landscape management services.	**1** Maintenance of internal and external planting.			

B.4 Contractor's cost items: management and staff

Component	Included	Unit	Pricing method	Excluded
1 Project-specific management and staff.	Main contractor's project-specific management and staff such as: • project manager/director • construction manager • supervisors, including works/trade package managers, building services engineering managers/coordinators and off-site production managers • health and safety manager/officers • commissioning manager (building engineering services) • planning/programming manager and staff • senior/managing quantity surveyor • project/package quantity surveyors • procurement manager • design manager • project engineers • environmental manager • temporary works design engineers • materials management staff (e.g. storeworker) • administrative staff, including secretary, document controllers, finance clerks, etc. and • other management and staff. For preliminaries (works package contract): works package contract's project-specific management and staff.	week (number of staff by number of hours per week by number of weeks)	Time-related charge	**1** Security staff (included in B.9 Contractor's items: control and protection).

Component	Included	Unit	Pricing method	Excluded
2 Visiting management and staff.	**1** Managing director, regional director, operations director, commercial director, etc.			**1** Visiting management and staff for which an allowance has been made in the main contractor's overheads.
	2 Quality manager.			
	3 Contracts/commercial manager.			
	4 Health and safety manager.			
	5 Environmental manager/consultant.			
	6 Other visiting management and staff.			
3 Extraordinary support costs.	**1** Legal advice costs (i.e. solicitors).	item	Fixed charge	**1** Extraordinary support costs for which an allowance has been made in the main contractor's overheads.
	2 Recruitment costs.			
	3 Team building costs.			
	4 Other extraordinary support costs.			
	5 Day transport.	week (number of days per week by number of weeks)	Time-related charge	
	6 Personnel transport (i.e. transportation of work operatives to site).			
	7 Temporary living accommodation (e.g. long/medium-term accommodation costs).	week (number of staff by number of days per week by number of weeks)		
	8 Subsistence payments.			
	9 Out of normal hours working, including non-productive overtime allowances.			

Component	Included	Unit	Pricing method	Excluded
4 Staff travel.	Costs associated with off-site visits such as: **1** visits to employer's and consultants' offices **2** visits to subcontractors' offices/works or visits to main contractors' offices/works (preliminaries (works package contract)) **3** overseas visits and **4** accommodation charges and overnight expenses.	nr (number of occasions)	Fixed charge	

B.5 Contractor's cost items: site establishment

Component	Included	Unit	Pricing method	Excluded
1 Site accommodation.	Main contractor's and common user temporary site accommodation such as: • offices • conference/meeting rooms • canteens and kitchens • drying rooms • toilets and washrooms • first aid room • laboratories • workshops • secure stores • compounds, including containers for material storage • security control room and • stairs and office staging. For preliminaries (works package contract): works package contractor's project-specific site accommodation. The type and extent of accommodation to be provided should be stated, with each type separately quantified.			**1** Employer's accommodation, where not an integral part of the main contractor's site accommodation (included in B.1 Employer's requirements: site accommodation). **2** Temporary bases, foundations and provision of drainage and services to temporary site accommodation (included in component 2 of this table). **3** Service provider's charges for temporary services (included in B.15 Contractor's cost items: fees and charges). **4** Rates for temporary services (included in B.15 Contractor's cost items: fees and charges).

Component	Included	Unit	Pricing method	Excluded
	1 Purchase charges.	item	Fixed charge	
	2 Hire charges.	week	Time-related charge	
	3 Employer's accommodation, where this is an integral part of the main contractor's site accommodation.			
	4 Delivery of temporary site accommodation to site and erection, construction and removal of temporary site accommodation.	item	Fixed charge	
	5 Temporary accommodation made available by the employer.	week	Time-related charge	
	6 Intruder alarms.	item	Fixed charge	
	7 Land/property rental where site accommodation is located off-site.	week	Time-related charge	
	8 Alterations and adaptations to site accommodation, including partitioning, doors, painting and decorating, etc.	item	Fixed charge	
	9 Relocation and alterations of temporary accommodation during construction stage.			
	10 Reinstating temporary site accommodation to original condition before removal from site.			
	11 Removal of site accommodation and temporary works in connection with site accommodation.			

Component	Included	Unit	Pricing method	Excluded
2 Temporary works in connection with site establishment.	**1** Temporary bases and foundations for site accommodation, including maintenance and reinstatement of existing surfaces on completion of the works.	m^2	**1** Fixed charge **2** Time-related charge	**1** Provision of temporary services to site establishment (included in B.6 Contractor's cost items: temporary services). **2** Provision of temporary drainage to site establishment (included in B.6 Contractor's cost items: temporary services). **3** Hoardings, fans, fencing, etc. to site boundaries and to form site compounds (included in B.7 Contractor's cost items: security).
	2 Connections to temporary service, including maintenance and removal on completion of the works.	nr		
	3 Connections to temporary drainage, including maintenance and removal on completion of the works.	nr		
	4 Temporary site roads, paths and pavings (including on-site car parking), including reinstatement of existing surfaces on completion of the works.	m		
	5 Temporary surface water drainage to temporary site roads, paths and pavements, including maintenance and removal on completion of the works.	m		
3 Furniture and equipment.	**1** Workstations for staff, including maintenance.	nr	**1** Fixed charge **2** Time-related charge	**1** Telephone and fax installations (included in B.6 Contractor's cost items: temporary services). **2** Computers and IT associated equipment (included in component 4 of this table).
	2 General office furniture, including maintenance.	item		
	3 Conference/meeting room furniture, including maintenance.			
	4 Photocopiers, including purchase/rental, maintenance and other running costs.			
	5 Canteen furniture, including maintenance.			
	6 Canteen equipment, including purchase/rental, maintenance and other running costs.			
	7 Floor coverings, including maintenance.			

Component	Included	Unit	Pricing method	Excluded
	8 Water dispensers, including purchase/rental, maintenance and other running costs.			
	9 Heaters, including maintenance of heaters.			
	10 Other office equipment, including maintenance.			
	11 Removal of furniture and equipment.			
	12 Maintenance furniture and floor covering.			
4 IT systems.	**1** Computer hardware, including purchase/rental, installation, initial set up, maintenance and running costs, such as: • desktop and laptop computers • CAD stations • server and network equipment • printers and plotters • other computer system hardware.	item	**1** Fixed charge **2** Time-related charge	**1** Computer and printer consumables (included in component 5 of this table). **2** Document management, including electronic data management systems (EDMS) (included in component 6 of this table).
	2 Software and software licences.			
	3 Modem lines, modems and connections (i.e. email and internet capability).			
	4 WAN lines and connections (if on WAN).			

Component	Included	Unit	Pricing method	Excluded
	5 Line rental charges.	week	Time-related charge	
	6 Internet/website addresses.	nr	Fixed charge	
	7 Internet service provider (ISP) charges.			
	8 Line calls charges.	week	Time-related charge	
	9 IT support and maintenance.			
5 Consumables and services.	**1** Stationery.	week	Time-related charge	
	2 Computer and printer consumables (e.g. ink cartridges).			
	3 Postage.			
	4 Courier charges.			
	5 Tea, coffee, water bottles, etc.			
	6 First aid consumables.			
	7 Photocopier consumables (e.g. paper and toners).			
	8 Fax consumables (e.g. paper and toners).			
	9 Drawing printer consumables (e.g. ink cartridges).			

Component	Included	Unit	Pricing method	Excluded
6 Brought-in services.	Services outsourced by the main contractor such as: • catering • equipment maintenance • document management, including management information systems and EDMS • printing (purchasing), including reports and drawings • staff transport • off-site parking charges • meeting room facilities • photographic services and • other.	week	Time-related charge	
7 Sundries.	**1** Signboards.	item	Fixed charge	
	2 Safety and information notice boards.			
	3 Fire points.			
	4 Shelters.			
	5 Tool stores.			
	6 Crane signage.			
	7 Employer's composite signboards.			

B.6 Contractor's cost items: temporary services

Component	Included	Unit	Pricing method	Excluded
1 Temporary water supply.	**1** Temporary connections.	nr	**1** Fixed charge **2** Time-related charge	
	2 Distribution equipment, installation and adaptations.	item		
	3 Meter charges.	week		
2 Temporary gas supply.	**1** Gas connection.	nr	**1** Fixed charge **2** Time-related charge	
	2 Distribution equipment, installation and adaptations.	item		
	3 Charges.	week		
	4 Bottled gas.			
3 Temporary electricity supply.	**1** Temporary connections.	nr	Fixed charge	
	2 Temporary electrical supply for tower cranes.	item		
	3 Charges – power consumption for site establishment.	item	Time-related charge	
	4 Charges – power consumption for the works.			
	5 Distribution equipment, installation and adaptations.	item	Fixed charge	
	6 Attendance.	nr (number of hours per week by number of weeks)	Time-related charge	
	7 Uninterrupted power supply (UPS).	item	Fixed charge	
	8 Temporary substation modifications.			

Component	Included	Unit	Pricing method	Excluded
4 Temporary telecommunication systems.	**1** Landlines (including connection and rental charges), including: • telephone and fax lines and • ISDN lines.	item	**1** Fixed charge **2** Time-related charge	**1** Fax consumables (included in B.5 Contractor's cost items: site establishment, component 5).
	2 Telephone and related equipment, including: • connection and rental charges • PABX equipment • handsets, including purchase or rental • fax machines, including purchase or rental • installation of equipment and • maintenance of equipment.			
	3 Mobile phones, including: • purchase or rental and connection charges • spare batteries and • mobile phone charges.			
	4 Telephone charges, including: • telephone call charges • fax charges and • fax and telephone consumables.			

Component	Included	Unit	Pricing method	Excluded
	5 Radios, including: • purchase or rental charges • base set • handsets and chargers • repairs and maintenance • licences and • spare batteries.			
5 Temporary drainage.	**1** Temporary mains.	item	**1** Fixed charge **2** Time-related charge	
	2 Septic tanks.	nr		
	3 On-site treatment plant.	item		
	4 Holding tanks.	nr		
	5 Sewage pumping.			
	6 Distribution pipework, etc.	item		
	7 Drainage installation and adaptations.			
	8 Disposal charges (i.e. rates).	week	Time-related charge	
	9 Disposal costs (i.e. tanker charges).			

B.7 Contractor's cost items: security (preliminaries (main contract) only)

Component	Included	Unit	Pricing method	Excluded
1 Security staff.	**1** Security guards (day and night).	nr (number of staff by number of hours per week by number of weeks).	Time-related charge	**1** Security staff accommodation (included in B.5 Contractor's cost items: site establishment).
	2 Watch patrols (day and night).			
2 Security equipment.	**1** Site pass issue equipment, including maintenance and removal.	item	**1** Fixed charge **2** Time-related charge	
	2 Site pass consumables.			
	3 CCTV surveillance installation, including maintenance and removal.			
	4 Temporary vehicle control barriers, including maintenance and removal.	nr		
3 Hoardings, fences and gates.	**1** Perimeter hoardings and fencing, etc. to site boundaries and to form site compounds.	m	**1** Fixed charge **2** Time-related charge	
	2 Access gates, including frames and ironmongery.	nr		
	3 Painting of hoardings, fencing, gates, etc.	m		
	4 Temporary doors.	nr		
	5 Modification to line of hoarding and fencing during construction.			
	6 Dismantling and removal of hoarding, fencing, gates, etc.	m		

B.8 Contractor's cost items: safety and environmental protection

Component	Included	Unit	Pricing method	Excluded
1 Safety programme.	Works required to satisfy requirements of CDM Regulations: **1** Health and safety manager/officers.	nr (number of staff by number of hours per week by number of weeks)	Time-related charge	**1** Health and safety manager/officers (included in B.4 Contractor's cost items: management and staff). **2** Welfare facilities (included in B.5 Contractor's cost items: site establishment).
	2 Safety audits, including safety audits carried out by an external consultant.	nr	**1** Fixed charge **2** Time-related charge	
	3 Staff safety training.	item		
	4 Site safety incentive scheme.			
	5 Notices and information to neighbours.			
	6 Personal protective equipment (PPE), including for the employer and consultants.	nr (sets)		
	7 PPE for multi-service gangs.			
	8 Fire points.	nr		
	9 Temporary fire alarms.			
	10 Fire extinguishers.			
	11 Statutory safety signage.	item		

Component	Included	Unit	Pricing method	Excluded
	12 Nurse.	nr (number of staff by number of hours per week by number of weeks)	Time-related charge	
	13 Traffic marshals.			
2 Barriers and safety scaffolding.	**1** Guard rails and edge protection (e.g. to edges of suspended slabs and roofs).	item	**1** Fixed charge **2** Time-related charge	
	2 Temporary staircase balustrades (i.e. to new staircases during construction).			
	3 Lift shaft protection.			
	4 Protection to holes and openings in ground floor slabs, suspended slabs, etc.			
	5 Debris netting/plastic sheeting.			
	6 Fan protection.	item	**1** Fixed charge **2** Time-related charge	
	7 Scaffold inspections.	nr		
	8 Hoist run-offs.	item		
	9 Protective walkways.			
	10 Other safety measures.			

Component	Included	Unit	Pricing method	Excluded
3 Environmental protection measures	**1** Control of pollution.	item	**1** Fixed charge **2** Time-related charge	
	2 Residual control of noise.			
	3 Environmental monitoring.			
	4 Environmental manager/consultant.	nr (number of staff by number of hours per week by number of weeks)	Time-related charge	
	5 Environmental audits, including safety audits carried out by external consultant.	nr	**1** Fixed charge **2** Time-related charge	

B.9 Contractor's cost items: control and protection

Component	Included	Unit	Pricing method	Excluded
1 Survey, inspections and monitoring.	**1** Surveys.	item	**1** Fixed charge **2** Time-related charge	**1** Environmental monitoring (included in B.8 Contractor's cost items: safety and environmental protection).
	2 Topographical survey.			
	3 Non-employer dilapidation survey.			
	4 Structural/dilapidations survey adjoining buildings.			
	5 Environmental surveys.			
	6 Movement monitoring.			
	7 Maintenance and inspection costs.			

Component	Included	Unit	Pricing method	Excluded
2 Setting out.	**1** Setting out primary grids.	item	**1** Fixed charge **2** Time-related charge	
	2 Grid transfers and level checks.			
	3 Maintenance of grids.			
	4 Take over control and independent checks (i.e. on change of subcontractors).			
	5 Instruments for setting out.			
3 Protection of works.	**1** Protection of finished works to project handover.	item	**1** Fixed charge **2** Time-related charge	
	2 Protection of stairs, balustrades, etc. works to project handover.			
	3 Protection of fittings and furnishings works to project handover.			
	4 Protection of entrance doors and frames works to project handover.			
	5 Protection of lift cars and doors works to project handover.			
	6 Protection of specifically vulnerable products to project handover.			
	7 Protection of all sundry items.			
4 Samples.	**1** Provision of samples.	item	**1** Fixed charge **2** Time-related charge	
	2 Provision of sample room.			
	3 Mock-ups and sample panels.			
	4 Testing of samples/mock-ups, including testing fees.			
	5 On-site laboratory equipment.			
	6 Mock-ups of prefabricated units (e.g. residential units, student accommodation units, hotel accommodation, etc.).			

Component	Included	Unit	Pricing method	Excluded
5 Environmental control of building	**1** Dry out building.	item	**1** Fixed charge **2** Time-related charge	
	2 Temporary heating/cooling.			
	3 Temporary waterproofing, including over roofs.			
	4 Temporary enclosures.			

B.10 Contractor's cost items: mechanical plant

Component	Included	Unit	Pricing method	Excluded
1 General.	Common user mechanical plant and equipment used in construction operations.			Plant and equipment used for specific construction operations, such as: **1** earthmoving plant **2** piling plant **3** paving and surfacing plant **4** wheel spinners, and road sweepers (included in B.14 Contractor's cost items: cleaning) and **5** access scaffolding (included in B.11 Contractor's cost items: temporary works).

Component	Included	Unit	Pricing method	Excluded
2 Tower cranes.	The type of craneage to be provided should be stated, with each type separately quantified. **1** Hire charges.	week	Time-related charge	**1** Temporary electrical supply to tower crane (included in B.6 Contractor's cost items: temporary services).
	2 Crane operator.	week (number of staff by number of hours per week by number of weeks)		
	3 Overtime for crane and operator.			
	4 Piles for tower crane bases, including maintenance removal.	nr	**1** Fixed charge **2** Time-related charge	
	5 Temporary bases for tower cranes, including anchors, maintenance, removal and reinstatement on completion (size, in m^2, should be stated).			
	6 Ties.	week	Time-related charge	
	7 Connections to temporary electrical supply.	nr	Fixed charge	
	8 Bring to site, erection, test and commission.			
	9 Periodic safety checks/inspections.	week	Time-related charge	
	10 Dismantling and removing from site.	nr	Fixed charge	

Component	Included	Unit	Pricing method	Excluded
	11 Other costs specific to tower cranes such as: • chain pack and sundries • relief operator • banksman and • access cage.	item	**1** Fixed charge **2** Time-related charge	
	12 Temporary voids in building structure for craneage, hoists, etc. including filling voids after removal.	nr	Fixed charge	
3 Mobile cranes.	Type of craneage to be provided should be stated, with each type separately quantified. **1** Mobile crane hire charges, including driver/operator charges.	week	**1** Fixed charge **2** Time-related charge	
	2 Attendance.	nr (number of hours per visit by number of visits)		
	3 Other costs specific to mobile crane hire.	item		
4 Hoists.	The type of hoist to be provided should be stated, with each type separately quantified. **1** Goods and passenger hoists, including protection cages and embedment frames.	week	Time-related charge	**1** Temporary services to hoist installations (included in B.6 Contractor's cost items: temporary services).
	2 Hoist bases.	nr	**1** Fixed charge **2** Time-related charge	

Component	Included	Unit	Pricing method	Excluded
	3 Bringing to site, erecting, testing and commissioning.	nr	Fixed charge	
	4 Dismantling and removing from site.			
	5 Protection systems.	item	**1** Fixed charge **2** Time-related charge	
	6 Hoist operator, including overtime.	week (number of staff by number of hours per week by number of weeks)	Time-related charge	
	7 Beam hoists.	item	**1** Fixed charge **2** Time-related charge	
	8 Periodic safety checks/inspections.	month	Time-related charge	
	9 Other costs specific to temporary hoist installations.	item	**1** Fixed charge **2** Time-related charge	

Component	Included	Unit	Pricing method	Excluded
5 Access plant.	**1** Forklifts.	week	**1** Fixed charge **2** Time-related charge	
	2 Scissor lifts.			
	3 Loading platforms.			
	4 Maintenance of mechanical access equipment.			
	5 Other costs specific to mechanical access equipment.	item		
6 Concrete plant.	**1** Concrete plant.	week	**1** Fixed charge **2** Time-related charge	**1** Temporary service to concrete plant (included in B.6 Contractor's cost items: temporary services).
	2 Plant operator.	week (number of staff by number of hours per week by number of weeks)	Time-related charge	
	3 Overtime for plant and operator.			
	4 Bases for concrete plant.	nr	**1** Fixed charge **2** Time-related charge	
	5 Power connections, including cabling and statutory undertaker's charges for temporary connection to their supply.	nr	**1** Fixed charge **2** Time-related charge	
	6 Bring to site, erection, test and commission.	nr	Fixed charge	
	7 Maintenance of concrete plant.	week	Time-related charge	

Component	Included	Unit	Pricing method	Excluded
	8 Dismantling and removing from site.	nr	Fixed charge	
7 Other plant.	**1** Small plant and tools.	week	Time-related charge	
8 Mechanical plant (preliminaries (works package contract) only).	The type of plant to be provided should be stated, with each type separately quantified. **1** Bases.	nr	**1** Fixed charge **2** Time-related charge	
	2 Bringing to site, erecting, testing and commissioning.	nr	Fixed charge	
	3 Dismantling and removing from site.			
	4 Protection systems.	item	**1** Fixed charge **2** Time-related charge	
	5 Operator/driver, including overtime.	week (number of staff by number of hours per week by number of weeks)	Time-related charge	
	6 Periodic safety checks/inspections.	month	Time-related charge	
	7 Other costs' specific charges.	item	**1** Fixed charge **2** Time-related charge	

B.11 Contractor's cost items: temporary works

Component	Included	Unit	Pricing method	Excluded
1 Access scaffolding.	Common user access scaffolding or access scaffolding specifically required by works package contractors. The type of access scaffolding should be specified: • access scaffolding to elevations, lift shafts, etc. including fans and mesh screens • structural scaffolding (e.g. to party walls) • birdcage scaffolding • cantilever access scaffolding • staircase platforms • primary loading platforms and • travelling access platforms. **1** Bringing to site, erecting and initial safety checks.	nr	Fixed charge	**1** Scaffolding that is specific to works packages (included in appropriate element or sub-element). **2** Scaffold inspections (included in B.8 Contractor's cost items: safety and environmental protection).
	2 Hire charges.	week	Time-related charge	
	3 Altering and adapting during construction.	nr	Fixed charge	
	4 Dismantling and removing from site.			

Component	Included	Unit	Pricing method	Excluded
2 Temporary works.	Common user temporary works or temporary works required by works package contractor): • support scaffolding and propping • crash decks • temporary protection to existing trees and/or vegetation and • floodlights. **1** Bringing to site, erecting and initial safety checks.	nr	Fixed charge	**1** Temporary works design (included in B.4 Contractor's cost items: management and staff). **2** Temporary bases, drainage and services to site accommodation (included in B.5 Contractor's cost items: site establishment). **3** Temporary roads, paths and pavement, including on-site car parking (included in B.5 Contractor's cost items: site establishment). **4** Hoardings, fans, fencing, etc. to site boundaries and to form site compounds (included in B.7 Contractor's cost items: security). **5** Temporary earthwork support basement excavations. **6** Temporary props and walling to support contiguous bored pile wall of basement excavations. **7** Traffic management, including traffic marshals and temporary traffic lights (included in B.8 Contractor's cost items: safety and environmental protection).
	2 Hire charges.	week	Time related charges	
	3 Altering and adapting during construction.	nr	Fixed charge	
	4 Dismantling and removing from site.			

B.12 Contractor's cost items: site records

Component	Included	Unit	Pricing method	Excluded
1 Site records.	Unless included in B.4 Contractor's cost items: management and staff costs, costs associated with the following should be included here: **1** Photography: • camera purchase • consumables and • printing and presentation.	item	**1** Fixed charge **2** Time-related charge	
	2 Works records: • progress reporting • site setting out drawings • condition surveys and reports • operation and maintenance manuals • as-built/installed drawings and schedules • coordinating, gathering and compiling health and safety information and presentation to CDM coordinator and • compilation of health and safety file (if required).			

B.13 Contractor's cost items: completion and post-completion requirements

Component	Included	Unit	Pricing method	Excluded
1 Testing and commissioning plan.	Unless included in B.4 Contractor's cost items: management and staff costs, costs associated with the following should be included here: **1** Preparation of commissioning plan.	item	**1** Fixed charge **2** Time-related charge	**1** Testing and commissioning of services.
2 Handover.	Unless otherwise indicated, costs associated with the following should be included in B.4 Contractor's cost items: management and staff: **1** Preparation of handover plan.			
	2 Training of building user's staff in the operation and maintenance of the building engineering services systems.			
	3 Provision of spare parts for maintenance of building engineering services.			
	4 Provision of tools and portable indicating instruments for the operation and maintenance of building engineering services systems.			
	5 Pre-completion inspections.			
	6 Final inspections.			

Component	Included	Unit	Pricing method	Excluded
3 Post-completion services.	**1** Supervisory staff (employer/tenant care).	week (number of staff by number of hours per week by number of weeks)	Time-related charge	
	2 Handyperson.			
	3 Minor materials and sundry items.	item	Fixed charge	
	4 Insurances.			
	5 Other post-construction staff.	week (number of staff by number of hours per week by number of weeks)	Time-related charge	

B.14 Contractor's cost items: cleaning

Component	Included	Unit	Pricing method	Excluded
1 Site tidy.	**1** Cleaning site accommodation – internal, including cleaning telephone handsets, other office furniture and equipment and window cleaning.	week	Time-related charge	
	2 Periodic maintenance of site accommodation, including redecoration (internal and external).			
	3 Waste management, including rubbish disposal (including compactor visits; skips and waste bins; roll-off, roll-on waste bins) and other disposal.			
	4 Pest control.			
2 Maintenance of roads, paths and pavings.	**1** Maintenance of temporary site roads, paths, and pavements.	week	Time-related charge	
	2 Maintenance of public and private roads, including wheel spinners and road sweepers.			
3 Building clean.	**1** Final builder's clean.	item	Fixed charge	

B.15 Contractor's cost items: fees and charges

Component	Included	Unit	Pricing method	Excluded
1 Fees.	**1** Building control fees, where not paid by the employer.	item	**1** Fixed charge **2** Time-related charge	**1** Building control fees, where paid by the employer. **2** Oversailing fees, where paid by the employer. **3** Scheme registration fees or similar fees, where paid by the employer.
	2 Oversailing fees, where not paid by the employer.			
	3 Considerate Constructors Scheme fees (or alternative scheme operated by local authority).			
	4 Scheme registration fees or similar fees, where not paid by the employer.			
2 Charges.	**1** Rates on temporary accommodation.	week	Time-related charge	**1** Statutory undertaker's charges in connection with permanent services to the building. **2** Statutory undertaker's charges in connection with temporary services.
	2 Licences in connection with hoardings, scaffolding, gantries, etc.	item	**1** Fixed charge **2** Time-related charge	
	3 Licences in connection with crossovers, parking permits, parking bay suspensions, etc.			

B.16 Contractor's cost items: site services (preliminaries (main contract) only)

Component	Included	Unit	Pricing method	Excluded
1 Temporary works.	**1** Temporary works that are not specific to an element.	item/nr/m/m^2/m^3	**1** Fixed charge **2** Time-related charge	**1** Temporary screens in connection with minor demolition works and alteration works. **2** Supports to small openings cut into existing walls or after removal of internal walls, etc. in connection with minor demolition works and alteration works. **3** Temporary or semi-permanent support for unstable structures or facades – facade retention works (i.e. structures not to be demolished).
2 Multi-service gang.	**1** Ganger. **2** Labour. **3** Forklift driver. **4** Service gang plant and transport.	week (number of staff by number of hours per week by number of weeks)	Time-related charge	

B.17 Contractor's cost items: insurance, bonds, guarantees and warranties

Component	Included	Unit	Pricing method	Excluded
1 Works insurance.	**1** Contractor's all risks (CAR) insurance.	item	**1** Fixed charge **2** Time-related charge	
	2 Contractor's plant and equipment insurance.			
	3 Temporary buildings insurance.			
	4 Terrorism insurance.			
	5 Other insurances in connection with the works.			
	6 Insurance premium tax (IPT).			
	7 Allowance for recovery of all or part of insurance premium excess.			
2 Public liability insurance.	**1** Non-negligence insurance.	item	**1** Fixed charge **2** Time-related charge	
	2 Professional indemnity insurance.			
	3 IPT.			
	4 Allowance for recovery of all or part of insurance premium excess.			
3 Employer's (main contractor's) liability insurance.	**1** Management and staff, including administrative staff.	item	**1** Fixed charge **2** Time-related charge	
	2 Works operatives.			
	3 IPT.			
	4 Allowance for recovery of all or part of insurance premium excess.			

Component	Included	Unit	Pricing method	Excluded
4 Other insurances.	**1** Employer's loss of liquidated damages.	item	**1** Fixed charge **2** Time-related charge	
	2 Latent defects cover.			
	3 Motor vehicles.			
	4 Other insurances.			
	5 IPT.			
	6 Allowance for recovery of all or part of insurance premium excess.			
5 Bonds.	**1** Tender bonds (if applicable).	item	**1** Fixed charge **2** Time-related charge	
	2 Performance bonds.			
6 Guarantees.	**1** Parent company guarantees.	item	**1** Fixed charge **2** Time-related charge	
	2 Product guarantees, insurance backed guarantees.			
7 Warranties.	**1** Collateral warranties.	item	**1** Fixed charge **2** Time-related charge	
	2 Funder's warranties.			
	3 Purchaser's and tenant's warranties.			
	4 Other warranties.			
8 Insurances (preliminaries (works package contract) only).		item	**1** Fixed charge **2** Time-related charge	

Work section 2: Off-site manufactured materials, components or buildings

Drawings that should accompany this section of measurement:

1 site plans
2 plans
3 sections
4 elevations
5 installation details.

Information that should be provided:

1 type and quality of materials
2 method of fixing or installing
3 connecting to other work and services
4 special finishes.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 major dimensions of component, structure or unit
2 location of component, structure or unit.

Works and materials included:

1 all factory-applied finishes
2 transport from factory to site
3 offloading and storing on-site
4 setting, hoisting and placing in final position
5 all connection and joint materials
6 all service connections
7 disposal of all packaging and protective materials.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Component.	nr	**1** Overall dimensions.	**1** Description of component.	**1** Method of fixing/installing. **2** Height above structural ground floor level. **3** Services connections.	**1** These are prefabricated proprietary components that are not adequately covered by the other work sections in this information.
2 Prefabricated structures.	nr	**1** Overall dimensions.	**1** Roofs. **2** External walls. **3** Internal walls/partitions. **4** Floors. **5** Stairs. **6** Bridges. **7** Masts. **8** Other, type stated.		**1** These are complete or substantially complete building elements of proprietary construction, largely prefabricated. The fixing of items supplied only as part of the proprietary package is included here. Other work not forming part of the proprietary package is measured separately in the appropriate work section.
3 Prefabricated building units.	nr		**1** Toilet/bathroom units. **2** Soundproof rooms. **3** Cold rooms. **4** Spray booths. **5** Kiosks. **6** Other, type stated.		**1** These are complete or substantially complete room units, usually of proprietary construction, for incorporation into buildings, structures or siteworks. The list is not exhaustive.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
4 Prefabricated buildings.	nr		**1** Description of building.		**1** These are complete or substantially complete building superstructures of proprietary construction, largely prefabricated. The fixing of items supplied only as part of the proprietary package is included here. Other work not forming part of the proprietary package is measured separately in the appropriate work section.

Work section 3: Demolitions

In this work section:

- demolitions
- shoring, facade retention and temporary works.

Drawings that should accompany this section of measurement:

1 location drawings

2 drawings of existing structures to show full extent of demolition.

Information that should be provided:

1 brief description and size of structure to be demolished

2 any limitations due to presence of toxic or hazardous materials

3 extent of parts of structure that should be temporarily retained

4 asbestos surveys.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 lowest level of demolition

2 extent of any temporary works not at the discretion of the contractor

3 position and extent of any temporary screens, roofs, etc.

Works and materials included:

1 all temporary works unless stated otherwise

2 temporarily diverting, maintaining or sealing off existing services

3 disposal of all debris unless stated otherwise

4 method of demolition unless stated otherwise

5 all temporary support left to the discretion of the contractor

6 clearing away all temporary works

7 disposing of rainwater

8 making good all work disturbed.

Notes:

1 The lowest level will include basements.

2 If a floor slab is to be removed, the lowest level should be stated as to the underside of that slab.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Demolitions.	item	**1** All structures. **2** Individual structures. **3** Parts of structures.	**1** Description of building(s) or parts of building(s). **2** Lowest level to which structure(s) should be demolished.	**1** Limitations on disposal of materials. **2** Any material that should be retained for re-use. **3** Any material to remain the property of the employer.	**1** The contractor should be advised to inspect the structure(s) to be demolished.
2 Temporary support of structures, roads, etc.	item	**1** Parts of the existing building that should be retained. **2** Adjoining buildings not forming part of the works. **3** Roads and other surfaces that should be retained. **4** Any other existing feature that should be retained.	**1** Description of building(s) or parts of building(s), road or other surface or feature that should be retained. **2** Type of shoring. **3** Length of exposed edge of surface that should be retained and average height(s).		**1** The support is for parts of the structure that should be retained. It does not mean any type of support required as incidental to the demolitions.
3 Temporary works.	m^2	**1** Roofs. **2** Screens. **3** Floors. **4** Roads.	**1** Weatherproof. **2** Watertight. **3** Dustproof. **4** Fireproof. **5** Any other requirement, type stated.	**1** Method of construction if not at the discretion of the contractor. **2** Maintaining, duration stated. **3** Adapting during the course of works. **4** Clearing away. **5** Disposing of rainwater, details stated. **6** Providing openings, details stated.	**1** To ensure the full extent and scope of this work, the surveyor may need to provide additional information if not readily ascertained from the drawings.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
4 Decontamination.	item	**1** Removal of hazardous materials. **2** Decontamination of existing premises. **3** Infestation removal.	**1** Scope of work. **2** Type of contamination. **3** Before demolition. **4** During demolition or repair process.		
5 Recycling.	item	**1** Detailed description of the type of material to be recycled and any limitations imposed by employer or local authority.	**1** To be collected by local authority. **2** To be transported to recycling depot, details and location stated.		

Work section 4: Alterations, repairs and conservation

In this work section:

- alteration work to existing buildings
- repairs/cleaning/renovating and conserving
- decontamination
- recycling.

Drawings that should accompany this section of measurement:

1 location drawings

2 drawings of existing structures.

Information that should be provided:

1 description of operations where not left to the discretion of the contractor

2 specific location of each item of work relative to the existing building

3 details of all materials to be set aside for re-use, including means of storage

4 details of all materials to remain the property of the employer, including means of storage

5 any restrictions on method, sequence and/or timing of the works

6 any restrictions on methods of storage of materials to be re-used or to remain the property of the employer

7 any restrictions on the method or location of disposal of waste

8 compliance with all regulations relating to the handling, transport and disposal of hazardous waste materials

9 asbestos surveys.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 scope and location of work relative to existing structures.

Works and materials included:

1 all temporary works, including shoring and scaffolding incidental to the work and excluding those listed below

2 making good all work disturbed

3 extending and making good existing finishes

4 disposal of all waste materials

5 all work and materials incidental to the items of alteration

6 materials required for bonding new work to existing.

Notes:

1 The items in this section apply to works to existing buildings as defined in section 3.2.3.

2 Inserting new work includes refixing or reusing removed materials.

3 All materials arising from these works become the property of the contractor unless otherwise stated.

4 The items in this section do not apply to temporary works except those listed in item 24 of this table.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Works of alteration.	item	**1** Dimensioned description sufficient to identify the extent and location of work.	**1** Extent, nature and scope of work described, including type and thickness of existing structure.		**1** Details should be given of all work involved in each item, including the method of operation where not at the discretion of the contractor.
2 Removing.	item/ m^2/m/ nr	**1** Fittings and fixtures. **2** Plumbing items or installations. **3** Electrical items or installations. **4** Finishes. **5** Coverings. **6** Pavings.	**1** Enough details for identification. **2** Approximate area or size of area of each type of finish, covering or paving.		**1** Disconnecting and, if required, reconnection of plumbing and electrical or other services installations is included. **2** The surveyor should choose the unit most suitable for the type of work being removed.
3 Cutting or forming openings. **4** Cutting or forming recesses. **5** Cutting back. **6** Filling in openings. **7** Filling in recesses.	item/ m^2/m/ nr	**1** Dimensioned description. **2** Type and thickness of existing structure. **3** Method of performing the work if not left to discretion of the contractor.	**1** Reuse of existing materials stated. **2** Type and size(s) of new materials stated.		**1** Details given of new work should be the equivalent of the details required by the items for the measurement of the same in other work sections. **2** The surveyor should choose the unit most suitable for the type of work being cut or filled.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
8 Removing existing and replacing.	item/ m^2/m/ nr	**1** Thickness stated. **2** Width and thickness stated. **3** Length, width and thickness stated. **4** Dimensioned description.	**1** Brickwork. **2** Concrete. **3** Stonework. **4** Timber. **5** Glass. **6** Other, type stated.	**1** Treatment of exposed sound surface(s) stated. **2** Treatment of exposed reinforcement or other material stated. **3** Making good with new materials other than to match the existing should be described. **4** Bonding new to existing.	**1** Formwork and any other form of temporary support is included. **2** The unit of measurement is left to the discretion of the surveyor but should reflect the size and extent of the work. **3** Making good should match the existing unless described otherwise.
9 Preparing existing structures for connection or attachment of new work.	nr	**1** Dimensioned description.	**1** Description should be sufficient to determine scope and location.	**1** Nature of existing structure to receive new work.	**1** This will include preparing structural steel sections for attachment to new steel framing, etc.
10 Repairing.	item/ m^2/m/ nr	**1** Thickness stated. **2** Width and thickness stated. **3** Length, width and thickness. **4** Dimensioned description.	**1** Nature of surface to be repaired stated.	**1** Method of repairing stated.	**1** The unit of measurement is left to the discretion of the surveyor but should reflect the size and extent of the work.
11 Repointing joints.	m	**1** Nature of existing joint. **2** Type of pointing.	**1** Materials required stated.	**1** Width and depth stated.	**1** Removal of existing joint material and preparation of exposed surfaces is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
12 Repointing.	m^2/m/nr	**1** Thickness stated. **2** Width and thickness stated. **3** Length, width and thickness stated.	**1** Nature of existing surface. **2** Size of existing components. **3** Bond of existing joints. **4** Type of new pointing. **5** Width and depth of raking out of existing joints.	**1** Composition and mix of mortar and/or other joint material(s).	**1** Types of surface would include brickwork, blockwork, stonework, etc. **2** Areas each less than 1m^2 should be enumerated. **3** Linear items would include reveals, wall ends, etc. **4** The unit of measurement is left to the discretion of the surveyor but should reflect the size and extent of the work.
13 Resin or cement impregnation/ injection.	item/ m^2/m/nr	**1** Thickness stated. **2** Width and thickness stated. **3** Length, width and thickness stated. **4** Dimensioned description.	**1** Method of impregnation or injection stated. **2** Nature of existing material. **3** Nature of existing finish where applicable. **4** Thickness or depth of treatment.	**1** Centres or spacings of drilling holes. **2** Localised removal of finishes.	**1** Work should include making good holes and finishes on completion. **2** Overall removal of finishes before this work would be measured elsewhere. **3** The unit of measurement is left to the discretion of the surveyor but should reflect the size and extent of the work.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
14 Inserting new walls ties.	m^2/nr	**1** Size and type of new ties.	**1** Method of insertion. **2** Nature and thickness of outer skin. **3** Nature of existing finish where applicable.	**1** Centres or spacings of drilling holes. **2** Localised removal of finishes.	**1** Work should include making good holes and finishes on completion. **2** Overall removal of finishes before this work would be measured elsewhere.
15 Re-dressing existing flashings, etc.	m/nr	**1** Girth and thickness stated. **2** Length, width and thickness stated.	**1** Dimensioned description of flashing. **2** Description of new profile.	**1** Raking out existing joint. **2** Repointing with new material, method and type of pointing material stated.	**1** The girths and lengths stated are net. No allowance should be made for additional materials required for labours. **2** Removal, cleaning, re-shaping, trimming and re-fixing existing flashing is included.
16 Damp-proof course renewal. **17** Damp-proof course insertion.	m	**1** Method of renewal or insertion stated. **2** Nature and thickness of existing wall. **3** Nature of existing finishes where applicable. **4** Thickness or depth of treatment.	**1** Centres or spacings of drilling holes. **2** Localised removal of finishes.	**1** Chemical. **2** Injection mortar. **3** Electro osmosis. **4** Other mechanical methods.	**1** Work should include making good holes and finishes on completion. **2** Overall removal of finishes before this work would be measured elsewhere.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
18 Cleaning surfaces. **19** Removing stains. **20** Artificial weathering.	item/ m^2/m/ nr	**1** Over 500mm wide. **2** Not exceeding 500mm wide: width stated. **3** Length and width stated. **4** Dimensioned description.	**1** Nature of surface to be treated stated. **2** Required finished appearance.	**1** Treatment material stated. **2** Method of treating stated.	**1** The unit of measurement should be left to the discretion of the surveyor. **2** Any repair and remedial works required to the surface before treatment should be measured separately.
21 Renovating.	item/ m^2/m/ nr	**1** Thickness stated. **2** Width and thickness stated. **3** Length, width and thickness stated. **4** Dimensioned description.	**1** Brickwork. **2** Concrete. **3** Stonework. **4** Timber. **5** Other, type stated.	**1** Details and nature of the renovation stated. **2** Materials required stated. **3** Method of renovation stated where not at the discretion of the contractor.	**1** The unit of measurement should be left to the discretion of the surveyor but should reflect the size and extent of the work.
22 Conserving.	item/ m^2/m/ nr	**1** Thickness stated. **2** Width and thickness stated. **3** Length, width and thickness stated. **4** Dimensioned description.	**1** Brickwork. **2** Concrete. **3** Stonework. **4** Timber. **5** Other, type stated.	**1** Details and nature of the conservation stated. **2** Materials required stated. **3** Method of conservation stated where not at the discretion of the contractor.	**1** The unit of measurement is left to the discretion of the surveyor but should reflect the size and extent of the work.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
23 Decontamination.	item	**1** Removal of toxic/hazardous materials. **2** Decontamination of existing premises. **3** Infestation removal/ eradication **4** Fungus removal/ eradication.	**1** Scope and location of work. **2** Type of contamination/ infestation/fungus to be treated.	**1** Preparatory works.	**1** Enough information should be given to fully describe the cause of the contamination or infestation and to allow the contractor to fully treat the condition. **2** Excluding decontamination of existing ground; this work is measured in work section 5.
24 Temporary works.	m^2	**1** Roofs. **2** Screens. **3** Floors. **4** Roads.	**1** Weatherproof. **2** Watertight. **3** Dustproof. **4** Fireproof. **5** Any other requirement, type stated.	**1** Method of construction if not at the discretion of the contractor. **2** Maintaining, duration stated. **3** Adapting during course of works. **4** Clearing away. **5** Disposing of rainwater, details stated. **6** Providing openings, details stated.	**1** To ensure the full extent and scope of this work the surveyor may need to provide additional information if not readily ascertained from the drawings.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
25 Recycling.	item	**1** Detailed description of type of material to be recycled and any limitations imposed by employer or local authority.	**1** To be collected by local authority. **2** To be transported to recycling depot, details and location stated.		

Work section 5: Excavating and filling

In this work section:

- site clearance/preparation
- excavations
- disposal
- fillings
- membranes.

Drawings that should accompany this section of measurement:

1 site plan(s) showing all major excavations

2 locations of spoil heaps if not left to the discretion of the contractor

3 existing site survey.

Information that should be provided:

1 location of works in accordance with section 3.2.3

2 date of existing site survey

3 ground conditions including anticipated stability of excavations

4 groundwater level(s) and date(s) established

5 nature of any known hazardous contamination on the site or in the ground including any restrictions on disposal of surface or groundwater

6 starting level of each type of excavation

7 levels of rock where applicable.

Notes:

1 Quantities relate only to the depths and dimensions shown on the drawings and over dig is not included. This applies to associated extra over items and backfilling.

Minimum information that should be shown on the drawings or any other documents that accompany this section of measurement:

1 original and proposed ground levels

2 any item(s) that should remain on site during the works and be protected from damage

3 any item(s) adjacent to the site that may impact the works

4 details of trial pits or boreholes including their location

5 details of live over or underground services including their location

6 pile sizes and their locations where applicable.

Works and materials included:

1 disposal of all surface water

2 working space

3 excavation and filling for temporary works unless not at the discretion of the contractor

4 levelling, grading, trimming and compacting surfaces exposed by the excavations

5 curved work

6 multiple handling of excavated materials on site unless specified

7 all excavated material is deemed to be inert unless described otherwise.

Notes:

1 The groundwater level should be re-established at the time each excavation is carried out and is defined as the post-contract groundwater level.

2 Groundwater levels subject to periodic changes due to tidal or similar effects should be so described, giving the mean high and low water levels.

3 The quantities given for excavation and filling are the bulk before excavating or the net void to be filled. No allowance is made for subsequent variations to bulk or for the extra space taken up by working space or earthwork support unless the type of backfill is not left to the discretion of the contractor. This also applies to the quantities given for any subsequent extra over items listed in item 7 of the table below.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Preliminary sitework.	item/ nr	**1** Locating underground services. **2** Trial pits to locate existing services or determine ground conditions.	**1** Maximum depth and type of service stated.	**1** Specified location(s) stated. **2** Means of locating service if not left to discretion of contractor.	
	nr	**3** Boreholes to determine ground conditions.	**1** Diameter. **2** Maximum depth stated.	**1** Destination of core samples stated. **2** Type and extent of report required.	
2 Removing trees. **3** Removing tree stumps.	nr	**1** Girth 500mm to 1,500mm. **2** Girth 1,500mm to 3,000mm. **3** Girth over 3,000mm, stated in 1,500mm stages.	**1** Filling material stated.		**1** Removing trees should include removing the stump and roots unless otherwise stated. **2** Tree girths are measured at a height of 1m above original ground level. **3** Stump girths are measured at the top. **4** This work includes grubbing up roots, disposal off site of all material arising and filling voids.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
4 Site clearance.	m^2	**1** Clear site of all vegetation and other growth and dispose off site.	**1** Enough description to identify scope and location of work.		**1** All growth includes trees and tree stumps less than 500mm girth, bushes, scrub, hedges, etc. unless specifically designated to remain. **2** The removal of invasive vegetation such as Japanese knotweed or similar should be mentioned in the description.
5 Site preparation.	m^2	**1** Lifting turf for preservation, thickness stated.	**1** Method and location of preservation stated.		
		2 Remove topsoil, depth stated.			
		3 Remove hard surface paving, thickness stated.	**1** Destination stated. **2** Type of paving stated.	**1** Method of breaking up if not left to the discretion of the contractor.	**1** This excludes any hardcore beds below the pavings. **2** Removal of the hardcore is treated as reduced level excavation.
		4 Remove specific items.	**1** Enough dimensioned description to identify size and location of each item.		**1** This includes any existing items on site not designated to remain, including all types of rubbish such as abandoned cars, fridges, etc. **2** This excludes all but the simplest of building structures. Demolition of these is covered in work section 3. **3** Removal of any associated foundations, fixings, supports, fastenings, etc. is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Excavation, starting level stated if not original ground level.	m^3	**1** Bulk excavation.	**1** Not exceeding 2m deep. **2** Over 2m not exceeding 4m deep. **3** Thereafter in stages of 2m.	**1** Details of obstructions in ground to be stated.	**1** Bulk excavation includes excavating to reduce levels or to form basements, pools, ponds, etc. For clarity, each type of excavation may be measured and described separately. **2** Obstructions will be piles, manholes, etc. that should be undisturbed.
	m^3	**2** Foundation excavation.			**1** Foundation excavation includes excavating for strip and pad foundations, pile caps and all other types of foundations. **2** For clarity, each type of excavation may be measured and described separately.
7 Extra over all types of excavation irrespective of depth.	m^3	**1** Excavating in.	**1** Hazardous material, details stated. **2** Non-hazardous material, details stated. **3** Below groundwater level. **4** In running water. **5** Unstable ground.		**1** A hazardous material is any material that requires special precautions when handling, transporting or disposing. **2** Groundwater is any water encountered below the established water table level. It does not include water from underground streams, broken drains or culverts or water arising from surface flooding. **3** Running water is a spring, stream or river. **4** Unstable ground is running silt, running sand, loose ground, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
	m^3	**2** Breaking up.	**1** Rock. **2** Reinforced concrete. **3** Concrete. **4** Masonry or stonework.		**1** Rock is any hard material that can only be removed by the use of wedges, rock hammers, special plant or explosives due to its size or location. **2** A boulder ≤ $5m^3$ in volume or one that can be lifted out in the bucket of an excavator will not constitute rock. **3** Degraded or friable rock that can be scraped out by the excavator bucket does not constitute rock. **4** Trimming exposed faces of rock is included. **5** Breaking up hard surface pavings is measured in accordance with item 5.3 of this table.
	m	**3** Excavating alongside existing underground services.	**1** Type, size and depth of service stated.	**1** Nature of precaution required.	**1** These items are measured where there is a risk of the existing service being affected by the excavation process. The method of protection is left to the discretion of the contractor. **2** If in doubt the surveyor should measure an item giving the nature of the live service.
	nr	**4** Excavating across existing underground services.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
8 Support to face(s) of excavation.	m^2	**1** Maximum depth stated, in 1m depth stages.	**1** Location stated, including proximity to roads, buildings and services.	**1** Method of forming support where not left to the discretion of the contractor. **2** Left in place. **3** Distance between opposing faces less than 2m. **4** Distance between opposing faces 2–4m. **5** Distance between opposing faces over 4m. **6** Curved work.	**1** The measurement of support to excavations is to all faces of all excavations over 250mm deep, unless the propping and supporting of excavation faces is measured in other work sections. **2** The measured area includes all additional excavation, backfilling, disposal, etc. to facilitate the supports being installed. **3** The measured area includes the installation, maintenance and subsequent removal of the supports. **4** The measured area includes any design necessary for the works. **5** Depths are measured from the starting level to the bottom of excavation, with the starting level being stated if not the formation level for the works. **6** Works in groundwater and unstable ground are included.
9 Disposal.	item	**1** Groundwater.	**1** Depth below original ground level stated. **2** Polluted water described if known.	**1** If the post-contract water level differs from the pre-contract level, the measurements should be revised accordingly.	**1** The method and place of discharge left to the discretion of the contractor unless stated otherwise.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
	m^3	**2** Excavated material off site.	**1** Destination if not at the contractor's discretion. **2** Hazardous material. **3** Non-hazardous material where it needs to be disposed of at a specific location.		**1** Irrespective of where excavated material originates.
10 Retaining excavated material on site.	m^3	**1** Topsoil **2** All other excavated material.	**1** To temporary spoil heaps. **2** Average distance to spoil heap stated.	**1** Specified handling, details stated.	**1** If the distance to spoil heap is not stated, the location is left to the discretion of the contractor.
11 Filling obtained from excavated material.	m^2	**1** Final thickness of filling not exceeding 500mm deep, finished thickness stated.	**1** Source, distance, destination and method stated. **2** Maximum or average depth of layers stated.	**1** Treatment of material before depositing in final location.	**1** This includes topsoil and any other material from the excavations that have been specified to remain on site. **2** The thickness stated will be that after compaction. **3** Destinations will comprise general areas to make up levels, backfilling foundations, landscaping areas, planter beds, etc. **4** Compacting layers and surfaces are included irrespective of depth and number of layers. **5** Source will be either direct from excavations or from temporary spoil heaps.
	m^3	**2** Final thickness of filling exceeding 500mm deep.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
12 Imported filling.	m^3	**1** Blinding bed not exceeding 50mm thick, finished thickness stated. **2** Beds and voids over 50mm thick but not exceeding 500mm thick, finished thickness stated. **3** Beds and voids exceeding 500mm thick.	**1** Level, to falls, cross falls or cambers stated. **2** Sloping not exceeding 15° from horizontal. **3** Sloping over 15° from horizontal.	**1** Destination stated. **2** Maximum or average depth of layers stated.	**1** All types of surface treatments are included. **2** The thickness stated will be that after compaction. **3** Compacting layers and surfaces are included irrespective of depth and number of layers.
13 Geotextile fabric. **14** Radon barrier. **15** Methane barrier. **16** Damp-proof membrane. **17** Ground movement protection boards. **18** Any other fabric, membrane or board, type stated. **19** Ground stabilisation meshes, etc., type stated.	m m^2	**1** Not exceeding 500mm wide, thickness or gauge stated. **2** Over 500mm wide, thickness or gauge stated.	**1** Horizontal. **2** Sloping. **3** Vertical.	**1** Protective fleeces or boards, type stated. **2** Method of anchoring stated.	**1** All turn-ups, turndowns, laps and joints are included. **2** Forming holes are included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
20 Cutting off tops of piles, irrespective of length.	nr	**1** Size stated.			**1** Cutting off tops of piles includes preparation and integration of reinforcement into pile cap or ground beam and disposal of all debris.

Work section 6: Ground remediation and soil stabilisation

Drawings that should accompany this section of measurement:

1 site plan(s) showing location of the work(s).

Information that should be provided:

1 ground conditions

2 groundwater level(s) and date(s) established

3 nature of any known non-hazardous or hazardous contamination on the site or in the ground

4 starting level of each type of excavation.

Minimum information that should be shown on the drawings or any other documents that accompany this section of measurement:

1 original and proposed ground levels

2 any item(s) that should remain on site during the works and be protected from damage

3 any item(s) adjacent to the site that may impact the works

4 details of trial pits or boreholes including their location

5 details of live over- or underground services including their location

6 pile sizes and their locations where applicable.

Works and materials included:

1 disposal off site of all surplus excavated material

2 disposal of all surface water

3 support to faces of excavation unless not at the discretion of the contractor

4 working space

5 excavation and filling for temporary works unless not at the discretion of the contractor

6 levelling, grading, trimming and compacting surfaces exposed by the excavations

7 curved work

8 multiple handling of excavated materials on site unless specified.

Notes:

1 The groundwater level should be re-established at the time each excavation is carried out and is defined as the post-contract groundwater level.

2 Groundwater levels subject to periodic changes due to tidal or similar effects should be so described, giving the mean high and low water levels.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Site dewatering.	item	**1** Area of site to be dewatered. **2** Maximum depth of boreholes.	**1** Method of disposal of water stated if not at discretion of contractor.	**1** Pre-contract water level. **2** Level to which groundwater should be lowered to and maintained at.	**1** Each type of remedial work should be accompanied by a full description of the proposed works including limits on the extent, the proximity of adjoining building, restrictions on method, sequence and timing.
2 Sterilisation.	m^3	**1** Maximum depth of ground to be treated.	**1** Method of sterilisation stated.		
3 Chemical neutralising.	m^3	**1** Maximum depth of ground to be treated.	**1** Method of neutralisation stated.		
4 Freezing.	m^3	**1** Maximum depth of ground to be treated.	**1** Method of freezing stated. **2** Duration of freezing stated if not left to the discretion of the contractor.	**1** Duration may be stated as a period of time or to a point in the contract programme such as 'completion of foundation work'.	
5 Ground gas venting.	m^2	**1** Type of gas to be vented.	**1** Method of collection stated. **2** Method of disposal stated.		
6 Soil nailing.	m^2	**1** Area of site to be treated.	**1** Length and diameter of nails, details stated. **2** Spacing of nails. **3** Method of grouting.		

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
7 Ground anchors.	nr	**1** Diameter and length of borehole.	**1** Details stated.		
8 Pressure grouting/ ground permeation.	m^2	**1** Area and depth of site to be treated.	**1** Details stated.		
9 Compacting.	m^2	**1** Area of site to be treated. **2** Weight of compactor.	**1** Details stated.		
10 Stabilising soil in situ by incorporating cement with a rotavator.	m^2	**1** Area of site to be treated. **2** Grams/m^2 of cement.	**1** Details stated.		

Work section 7: Piling

In this work section:

- bored piling
- driven piling
- interlocking piling
- vibro-compacted stone piling.

Drawings that should accompany this section of measurement:

1 site plan showing site boundary and any adjacent buildings or features that might affect or be affected by the piling

2 general piling layout.

Information that should be provided:

1 types of piles

2 nature of the ground

3 groundwater level(s) and date(s) established

4 starting levels from which work is expected to begin

5 limitations on headroom

6 kind and quality of materials

7 types of tests

8 type of grout

9 details of compaction.

Notes:

1 Irregular ground levels should be stated.

2 Features that might affect piling include rivers, canals, tidal waters, flood areas, etc. that are close enough to the works to affect the piling process.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 positions of piles

2 positions of existing buildings adjacent to the site

3 position of existing services.

Works and materials included:

1 temporary containment of spoil

2 any concrete placed in excess of the designed completed length

3 backfilling empty bores

4 all pre-boring

5 re-positioning piling plant during the works

6 maintaining all piling plant.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Interlocking sheet piles.	m^2	**1** Total driven area, maximum length stated.	**1** Section modulus and cross-section size, or section reference stated.	**1** Removal to be stated if not left to the discretion of the contractor.	**1** The cost of extraction is included
2 Bored piles. **3** Driven piles. **4** Other, type stated.	m	**1** Type stated. **2** Nominal size or diameter stated. **3** Total bored or driven length, maximum length stated. **4** Total concreted length. **5** Total number stated.	**1** Contiguous/secant piling described. **2** Permanent casings stated. **3** Raking, inclination stated.	**1** Reinforcement to precast concrete piles.	**1** Lengths are measured along the axes of the piles from the commencing level to the bottom of the pile.
5 Vibro-compacted piles.	m	**1** Nominal diameter. **2** Total number stated.			
6 Vibro-compacted trench fill.	m	**1** Nominal width and depth stated.			
7 Extra over piling.	nr	**1** Enlarged bases. **2** Enlarged heads.	**1** Type of piling stated. **2** Diameter or size of enlargement stated.		**1** This work includes everything necessary to form the enlargement, including disposal of additional spoil.
	m	**3** Pile extensions.	**1** Total number stated. **2** Total concreted length.		**1** Preparing head of pile to receive extension is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
8 Reinforcement to in-situ concrete piles.	t	**1** Nominal size and type of bars stated.			**1** Reinforcement includes tying wire and spacers plus links and binders that are incorporated at the discretion of the contractor. **2** Types of bars include plain, deformed and helical.
9 Breaking through obstructions.	hr	**1** Rig standing.			**1** This is only measured where the obstruction is encountered abovethe founding stratum of the pile.
10 Disposal of excavated materials.	m^3	**1** Off site. **2** On site.	**1** Hazardous material. **2** Non-hazardous material where it needs to be disposed of in a specific location. **3** Destination of spoil if not at the contractor's discretion.		**1** The volume calculated is the nominal cross-section by the pile lengths. **2** The volume of enlarged heads and bases is included.
11 Delays.	hr	**1** Rig standing.			**1** This is only measured where specifically instructed. **2** This includes all associated labour, plant and overheads.
12 Tests.	nr	**1** Details stated.	**1** Timing stated.		

Work section 8: Underpinning

Drawings that should accompany this section of measurement:

- location drawings
- detailed section(s).

Information that should be provided:

1 limit of length of work to be carried out in one operation

2 maximum number of sections to be carried out at any one time

3 ground conditions including anticipated stability of excavations

4 groundwater level(s) and date(s) established

5 nature of any known hazardous contamination on the site or in the ground

6 starting level of each type of excavation.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 extent and method of work

2 details of existing structure to be underpinned.

Works and materials included:

1 temporary support of existing structures

2 excavation and disposal

3 earthwork support

4 preliminary trenching

5 all working space

6 disposal of ground and surface water

7 cutting away existing foundations and footings and disposal

8 preparing the underside of existing work

9 backfilling

10 surface treatments

11 all new work associated with the process of underpinning

12 all making good if specified.

Notes:

1 If the underpinning is of such an extent that it cannot easily be measured in accordance with these rules, the works should be measured in detail in accordance with the rules for the relevant trades required. In this case, the work should be described as 'in works of underpinning'.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Underpinning.	m/nr	**1** Foundations. **2** Walls. **3** Bases.	**1** Brief description of work stating depth, maximum width and method of underpinning. **2** Curved work.	**1** Method, if not left to the discretion of the contractor, may be given by reference to drawing(s).	
2 Concrete.	m^3				**1** Measured in accordance with the rules of the appropriate trade or work section, stating that the work is 'in underpinning'.
3 Formwork.	m^2				
4 Reinforcement.	t				
5 Brickwork or blockwork.	m^2				
6 Tanking.	m^2				

Work section 9: Diaphragm walls and embedded retaining walls

Drawings that should accompany this section of measurement:

1 location drawings

2 site plans showing site boundary and any adjacent buildings or features that might affect or be affected by the construction of the diaphragm walls.

Information that should be provided:

1 limit of length of work to be carried out in one operation

2 maximum number of sections to be carried out at any one time

3 ground conditions including anticipated stability of excavations

4 groundwater level(s) and date(s) established

5 nature of any known hazardous contamination on the site or in the ground

6 starting level of each excavation.

Notes:

1 Irregular ground should be so described.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 extent of work.

Works and materials included:

1 excavation and disposal

2 earthwork support

3 preliminary trenching

4 all working space

5 disposal of ground and surface water

6 backfilling

7 surface treatments.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Walls, thickness stated.	m^2	**1** Starting levels of excavation. **2** Maximum depth of excavation. **3** Finished top level of concrete if different from starting level of excavation.	**1** Details and method of construction stated. **2** Type of concrete. **3** Details of reinforcement.	**1** Details of support fluid.	
2 Extra over excavation and disposal.	m^3	**1** Breaking out hard materials. **2** Excavating in hazardous material.			
	m^2	**3** Breaking up hard surface pavings, thickness stated.			
3 Joints.	m	**1** Dimensioned description.	**1** Method of forming.	**1** Vertical. **2** Horizontal. **3** Raking. **4** Curved, radius stated.	
4 Trimming and cleaning exposed faces.	m^2	**1** Details stated.			
5 Delays.	hr	**1** Authorised standing time.			**1** Only measured where instructed. **2** This includes all associated labour, plant and overheads.
6 Tests.	item	**1** Details stated.			

Work section 10: Crib walls, gabions and reinforced earth

Drawings that should accompany this section of measurement:

1 plans showing scope and location of each type of work.

Information that should be provided:

1 type and quality of materials.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 original ground levels

2 finished ground levels

3 condition of ground.

Works and materials deemed included:

1 final excavation associated with each installation

2 disposal of any excavated material including hazardous material

3 earthwork support

4 preparing surfaces to receive each installation

5 disposal of surface water.

Notes:

1 Final excavation means any minor trimming of earth surfaces required during each installation. All reduced level and foundation excavations, foundations and backfill are measured in accordance with the items in work section 5.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Crib walls.	m^2	**1** Thickness stated.	**1** Vertical. **2** Battering. **3** Curved on plan, radius stated.		**1** Area is measured on front face. **2** No deductions made for voids ≤ $1m^2$. **3** Dowels, pins, granular infill, compacting fill, special units, providing manufacturers certificates, building in pipes and forming openings ≤ $1m^2$ are included.
2 Extra over crib walls for:	m	**1** Ends. **2** Corners irrespective of angle.			
3 Gabion basket walls.	m^2	**1** Basket size stated. **2** Gauge of basket wire stated. **3** Width of the base of the wall.	**1** Vertical. **2** Battering, rate stated. **3** Sloping. **4** Curved on plan, radius stated. **5** Stepped on face.	**1** Type of fill to baskets described. **2** Specified treatment of basket fill described. **3** Specified handling details stated.	**1** The area is measured on front face. **2** Gabion baskets include assembling, tying, fixing, bracing and tying lids. **3** Filling includes compaction and overfilling of fill material.
4 Earth reinforcement.	m^2	**1** Mesh. **2** Fabric.	**1** Horizontal. **2** Sloping. **3** Curved on plan, radius stated	**1** Method of anchoring stated. **2** Minimum laps stated. **3** Final facing, details stated.	**1** The area is measured in contact with base and excludes laps. **2** Assembling, tying, fixing, stacking and tensioning is included. **3** No deductions made for voids ≤ $1m^2$.

Work section 11: In-situ concrete works

In this work section:

- in-situ concrete
- surface finishes to in-situ concrete
- formwork
- reinforcement
- designed joints in in-situ concrete
- accessories cast in to in-situ concrete
- in-situ concrete sundries.

Drawings that should accompany this section of measurement:

1 general arrangement drawings.

Information that should be provided:

1 type, quality and size of materials

2 details of tests of materials

3 details of tests of finished work

4 limitations on method, sequence, speed or size of pouring

5 method of compaction

6 method of curing

7 details of watertightness.

Notes:

1 work in substructures, superstructures or external works should be stated in headings or descriptions

2 watertight work should be described.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 relative position of all members

2 the size of members

3 the thickness of slabs

4 the permissible loads in relation to casting times.

Works and materials are included:

1 concrete volume is measured net

2 no allowance in volume should be made for deflection of formwork

3 deductions are not made for reinforcement, steel sections, cast-in accessories or voids $\leq 0.05m^3$ except voids in troughed and coffered slabs

4 concrete is cast into formwork unless otherwise described

5 concrete is finished as struck from basic finish formwork

6 all top surfaces and soffits should finish horizontal unless otherwise stated

7 all top surfaces are finished tamped.

Notes:

1 This applies to concrete laid on ribbed metal decking as well as other types of formwork.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Plain in-situ concrete					
Reinforced in-situ concrete					
Fibre reinforced in-situ concrete					
Sprayed in-situ concrete					
1 Mass concrete.	m^3	**1** Any thickness.	**1** In filling voids. **2** In trench filling. **3** In any other situation, details stated.	**1** Poured on or against earth or unblinded hardcore.	**1** Mass concrete is any unreinforced bulk concrete not measured elsewhere. **2** The volumes of each type of mass concrete work may be aggregated or given separately.
2 Horizontal work.	m^3	**1** ≤ 300mm thick. **2** > 300mm thick.	**1** In blinding. **2** In structures.	**1** Poured on or against earth or unblinded hardcore. **2** Reinforced > 5%.	**1** Horizontal work includes blinding, beds, foundations, pile caps, column bases, ground beams, slabs, coffered and troughed slabs, landings, beams, attached beams, beam casings, shear heads, upstands whose height is less than or equal to three times their width, kerbs and copings. **2** The volumes of each type of horizontal work may be aggregated or given separately. **3** Work laid in bays should be so described giving average area of bays.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Sloping work ≤ 15°. **4** Sloping work > 15°.	m^3	**1** ≤ 300mm thick. **2** > 300mm thick.	**1** In blinding. **2** In structures. **3** In staircases.	**1** Poured on or against earth or unblinded hardcore. **2** Reinforced > 5%.	**1** Sloping work includes blinding, beds, slabs, steps and staircases, kerbs and copings. **2** This includes any attached beams, upstands, shear heads or similar. **3** The volumes of each type of sloping work may be aggregated or given separately. **4** Work laid in bays should be so described giving the average area of bays.
5 Vertical work.	m^3	**1** ≤ 300mm thick. **2** > 300mm thick.	**1** In structures.	**1** Reinforced > 5%.	**1** Vertical work includes columns, attached columns, column casings, walls, retaining walls, filling to hollow walls, parapets or upstand beams where the height is greater than three times the width. **2** The volumes of each type of vertical work may be aggregated or given separately.
6 Sundry in-situ concrete work.	m/m^3	**1** Work ≤ 300mm wide dimensioned description sufficient to describe the works. **2** Work > 300mm wide dimensioned description.	**1** Horizontal. **2** Sloping. **3** Vertical.	**1** Reinforced > 5%.	**1** Includes work such as backsills, machine and plant bases, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
7 Sprayed in-situ concrete.	m^2	**1** Thickness stated.	**1** Slabs.	**1** Tops. **2** Soffits. **3** Curved.	**1** The method of application and finish should be stated in the description.
			2 Walls. **3** Beams. **4** Columns.	**1** Curved.	
Surface finishes to in-situ concrete.					
8 Trowelling. **9** Power floating. **10** Hacking. **11** Grinding. **12** Any other surface treatment not left to discretion of the contractor.	m^2	**1** To top surfaces. **2** To faces. **3** To soffits.	**1** Sloping. **2** Falls. **3** Crossfalls.	**1** Application of surface hardeners, sealers, dust proofers, waterproofers, carborundum grains, etc. should be so described.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
13 Formwork.		**1** Plain formwork. **2** Special finish formwork.			**1** Plain finish should be left to the discretion of the contractor. **2** Special finishes should be described. **3** Curved work should be described stating the radii. **4** Permanent formwork or formwork left in should be so described. **5** Void formers should be so described. **6** No deductions should be made for voids ≤ 5m^2. **7** All kickers except to walls should be included. **8** Top formwork is measured for sloping surfaces that are > 15^o or where otherwise required. **9** All square, raking and curved cutting is included. **10** All holes, boxings, recesses, rebates, chamfers, nibs, channels, etc. are included.
14 Sides of foundations and bases. **15** Edges of horizontal work.	m/m^2	**1** ≤ 500mm high, width stated. **2** > 500mm high.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
16 Soffits of horizontal work. **17** Soffits of troughed or waffled horizontal work, details described. **18** Soffits of sloping work.	m^2	**1** For concrete ≤ 300mm thick. **2** For concrete 300 to 450mm thick. **3** For concrete > 450mm thick.	**1** Propping ≤ 3m high. **2** Propping over 3m but not exceeding 4.5m high. **3** And thereafter in 1.5m stages.	**1** Sloping one-way. **2** Sloping two ways.	**1** This includes suspended slabs and stair landings. **2** Through propping should be described if not left to the discretion of the contractor. **3** This includes work to soffits of slabs ramps, steps, staircases, etc.
19 Sides and soffits of isolated beams. **20** Sides and soffits of attached beams. **21** Sides of upstand beams. **22** Sides of isolated columns, nr stated. **23** Sides of attached columns.	m^2	**1** Regular, shape stated. **2** Irregular shaped, dimensioned description or diagram.			**1** The shape is regular unless described as otherwise. **2** An irregular shape is any shape other than square or rectangular. **3** This includes concrete casings to steel beams and columns.
23 Faces of walls and other vertical work.	m^2	**1** Vertical. **2** Battered one face. **3** Battered both faces.	**1** Rate of batter to be stated.		**1** Work to single sides should be so described.
24 Extra over.	nr	**1** Openings for doors, etc. thickness of wall stated.	**1** ≤ $5m^2$. **2** $5m^2$ to $10m^2$. **3** > $10m^2$.		**1** All additional labour and material needed to form the opening is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
25 Wall ends, soffits and steps in walls.	m/m^2	**1** ≤ 500mm wide, width stated. **2** > 500mm wide.			**1** This excludes ends and soffits of walls created by the formation of an opening. These are included in the item for forming the opening.
26 Staircase strings, etc.	m	**1** Maximum width stated.			
27 Staircase risers, etc.	m	**1** Vertical, width stated. **2** Undercut, width stated.			
28 Sloping top surfaces.	m^2	**1** ≤ 15°. **2** > 15°.			
29 Steps in top surfaces. **30** Steps in soffits.	m/m^2	**1** ≤ 500mm high, height stated. **2** > 500mm high.			
31 Complex shapes.	nr	**1** Dimensioned description or diagram.	**1** Propping ≤ 3m high. **2** Propping over 3m but not exceeding 4.5m high. **3** Thereafter in 1.5m stages.		
32 Wall kickers.	m	**1** Plain. **2** Suspended.			**1** The length is measured along the centre line and includes both sides.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Reinforcement					
33 Mild steel bars. **34** High yield steel bars.	t	**1** Nominal size stated.	**1** Straight. **2** Bent. **3** Curved. **4** Links.	**1** Bars exceeding 12m long, length stated. **2** Deformed. **3** Bending restrictions.	**1** Forming hooks, tying wire, spacers, cutting and bending is included. **2** Chairs and connectors are included unless not at the discretion of the contractor.
35 Accessories not at the discretion of the contractor.	nr	**1** Nominal size stated.	**1** Chairs or stools. **2** Connectors.		
36 Pre/post-tensioned members.	nr	**1** Dimensioned description. **2** Nominal size stated. **3** Method of tensioning stated.	**1** Composite construction described.	**1** Sleeves, tendons, fittings and grouting described.	**1** Post-tensioning is measured by the number of tendons in identical members.
37 Mesh.	m^2	**1** Weight per m^2 stated. **2** Fabric reference stated. **3** Minimum laps stated.	**1** Bent. **2** Strips in one width, width stated.		**1** Laps, tying wires, all cutting, bending, spacers, stools, chairs and other supports are included. **2** Voids ≤ $1m^2$ in area are not deducted. **3** Bent fabric includes fabric that is wrapped around steel members.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Designed joints in in-situ concrete					**1** Joints located at the discretion of the contractor are not measured. **2** Details of primers, cleaners, fillers, waterstops, backing strips, reinforcement, ties, sealants, the method of application, preparation, etc. should be stated in the description.
38 Plain. **39** Formed. **40** Cut.	m	**1** Dimensioned description. **2** Total depth stated.	**1** Horizontal. **2** Vertical. **3** Curved, radius stated.		**1** Plain joints are those that do not require formwork. **2** Formed joints including formwork. **3** All preparation, cleaners, primers and sealers are included. **4** All angles, ends and intersections are included whether they are formed, welded or purpose made.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Accessories cast into in-situ concrete					**1** Kind, quality of materials and size or manufacturers reference should be stated.
41 Type or proprietary reference stated.	m^2/m/ nr	**1** Dimensioned description.	**1** If linear or superficial quantities are used, the description should include any appropriate spacing dimensions.		**1** Cast-in accessories include anchor bolts, anchor boxes, fixing bolts, dowels, column guards, isolated glass blocks and any otherancillary item that is specified to be cast inas the concrete work proceeds. **2** Cast-in accessories exclude reinforcement, tying wire, distance blocks, spacers, chairs, structural steel members, hollow blocks, filler blocks, void formers, permanent formwork, joints and all components around which concrete is cast but that are not fixed in position by the contractor.
In-situ concrete sundries					
42 Grouting.	nr	**1** Dimensioned description.	**1** Stanchion bases. **2** Grillages.		**1** Formwork or other temporary means of support to exposed edges, etc. is included.
43 Filling mortices or holes.	nr				
44 Filling chases.	m				

Work section 12: Precast/composite concrete

In this work section:

- precast/composite concrete walls, partitions and panels
- precast/composite concrete decking and flooring
- other precast/composite concrete work.

Drawings that should accompany this section of measurement:

1 general arrangement drawings

2 specific drawings or details relating to precast works.

Information that should be provided:

1 type and quality of materials

2 sizes and spacing of planks and blocks

3 type, quality and mix of concrete

4 methods of compaction and curing

5 bedding and fixing

6 surface finishes

7 type and quality of reinforcement or pre/post-tensioning, spacing and stresses

8 finish of exposed surfaces

9 details of tests of materials

10 details of tests of finished work.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 the relative position of concrete members

2 size of members

3 thickness of slabs and panels

4 permissible loads.

Works and materials included:

1 moulds and formwork

2 reinforcement

3 bedding

4 fixings

5 temporary support

6 cast-in accessories

7 pre-tensioning or pre-stressing

8 filled ends

9 all grouting

10 margins ≤ 500mm wide.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Composite concrete work.	m^2	**1** Nature of work described. **2** Composition of work described. **3** Thickness stated.	**1** Horizontal. **2** Sloping ≤ 15°. **3** Sloping > 15°. **4** Vertical.	**1** Reinforcement, details stated. **2** Post-tensioning, number of tendons and details stated. **3** Cast-in accessories, details stated.	**1** Will apply to panels, slabs, walls, partitions and decking. **2** The thickness stated is the combined thickness of both precast and in-situ work. **3** Margins greater than 500mm wide are measured as ordinary in-situ concrete slabs. **4** No deduction is made for voids ≤1m^2.
2 Designed joints.	m	**1** Dimensioned description.	**1** Type and sizes of filling and sealant stated.		**1** Joints formed at the discretion of the contractor are not measured.
3 Holding down or tie straps.	nr	**1** Dimensioned description or proprietary reference number.	**1** Material type stated. **2** Protective coating stated.	**1** Method of fixing.	

Work section 13: Precast concrete

In this work section:

- precast concrete frame structures
- precast concrete sills, lintels, copings and other units
- precast concrete panel cladding
- precast concrete slabs
- precast concrete walls and partitions
- precast concrete decking
- precast concrete rooflights and pavement lights
- precast composite staircases and landings.

Drawings that should accompany this section of measurement:

1 general arrangement drawings

2 specific drawings or details relating to precast works.

Information that should be provided:

1 type, quality and mix of concrete

2 methods of compaction and curing

3 bedding and fixing

4 surface finishes

5 type and quality of reinforcement or pre/post-tensioning, spacing and stresses

6 finish of exposed surfaces

7 details of tests of materials

8 details of tests of finished work.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 the relative position of concrete members

2 the thickness or size of member

3 thickness of slabs and panels

4 permissible loads

5 full details of anchorages, ducts, sheathing and vents.

Works and materials included:

1 moulds and formwork

2 reinforcement

3 bedding

4 fixings

5 temporary support

6 cast-in accessories

7 pre-tensioning or pre-stressing

8 filled ends

9 all grouting

10 margins

11 angles and fair ends

12 glass lenses.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Precast concrete goods.	nr m m^2	**1** Dimensioned description or dimensioned diagram. **2** Dimensioned description stating number of pieces. **3** Dimensioned description stating thickness.	**1** Reinforcement, details stated. **2** Post-tensioning, number of tendons and details stated. **3** Cast-in accessories, details stated. **4** Sloping not exceeding 15°. **5** Sloping exceeding 15°.	**1** Stoolings, number stated. **2** Span where relevant.	**1** This will apply to sills, lintels, padstones, staircases, landings, panels, partitions, columns, beams, structural frames and other precast features. **2** This will apply to frame members, copings, etc. **3** This will apply to panels, slabs, walls, partitions, decking, etc.
2 Rooflights. **3** Pavement lights. **4** Vertical panel lights.	m^2/nr	**1** Dimensioned description, number stated. **2** Dimensioned description.	**1** Sizes and extent of reinforcement stated.		**1** Isolated glass lenses are measured as accessories cast into in-situ concrete. **2** Roof, pavement and panel lights include moulds, formwork, temporary propping, reinforcement, bedding and glass lenses.
5 Designed joints.	m	**1** Dimensioned description.	**1** Type and sizes of filling and sealant stated.		**1** Joints formed at the discretion of the contractor are not measured.
6 Holding down or tie straps.	nr	**1** Dimensioned description or proprietary reference number.	**1** Material type stated. **2** Protective coating stated.	**1** Method of fixing.	

Work section 14: Masonry

In this work section:

- brick/block walling
- glass block walling
- natural stone rubble walling and dressings
- natural stone ashlar walling and dressings
- artificial/cast stone walling and dressings.

Drawings that should accompany this section of measurement:

1 plans of each floor level

2 principal sections showing floor to floor heights

3 external elevations

4 any other major masonry work.

Information that should be provided:

1 type, quality and size of brick/block/stone units

2 type of finish/facings to each side

3 bond

4 composition and mix of mortar

5 type of pointing

6 bonding to other work

7 raking or curved work so described

8 radius of curved work.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 major horizontal and vertical dimensions

2 types of materials used to construct the walls and other structures

3 position of main structural frame members.

Works and materials included:

1 all rough and fair cutting

2 all ends and angles, either formed or proprietary

3 extra material for curved work

4 forming all rough and fair grooves, throats, mortices, chases, rebates, holes, stops, mitres and similar labours

5 raking out joints to form a key

6 raking out joints to insert flashings

7 centering or other forms of temporary support

8 labour in eaves filling

9 labours in returns, ends and angles

10 centering

11 overhand work

12 bonding ends of walls to other work

13 all extra material required for bonding

14 additional material in laps

15 preparation of all surfaces to receive subsequent applications.

Notes:

1 All walling is measured on the centre line irrespective of construction.

2 Thicknesses stated are nominal.

3 Work is vertical unless otherwise described.

4 All wall dimensions exclude applied finishes.

5 No deductions will be made for voids or built-in items with a cross sectional area less than 0.50m^2.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Walls, overall thickness stated. **2** Diaphragm walls, overall thickness stated, spacing and thickness of ribs stated.	m^2	**1** Brickwork. **2** Blockwork. **3** Glass blockwork. **4** Natural stone. **5** Cast stone. **6** Other, type stated	**1** Skins of hollow walls. **2** Battered. **3** Tapered, one side or both sides. **4** Built against other work. **5** Used as formwork.	**1** Method of forming. **2** Finish/facing one side. **3** Finish/facing both sides.	**1** The description should describe the type of construction of the masonry such as rubble or ashlar work and height of coursing. **2** Walls are measured on the centre line of the material unless otherwise stated. **3** The radius of curved work is taken from the centre line. **4** Battering walls are sloping walls with parallel sides. **5** Thickness stated for tapering walls is the mean thickness. **6** No deductions should be made for voids or built-in items with a cross-sectional area equal to or less than $0.50m^2$. **7** The thickness stated for diaphragm walls is the total thickness of both skins and cavity void.
3 Vaulting, thickness and type stated.	m^2				
4 Isolated piers, isolated casings, chimney stacks, columns.	m	**1** Dimensioned description or dimensioned diagram.	**1** Vertical. **2** Battered. **3** Curved, radius stated.		**1** Isolated piers are when their length on plan is equal to or less than four times their thickness except where caused by openings. **2** No deductions should be made for flues, etc. equal to or less than $0.10m^2$ in a cross-sectional area.
5 Attached projections.	m		**1** Vertical. **2** Raking. **3** Horizontal. **4** Curved, radius stated.		**1** Attached projections are attached piers whose length on plan is equal to or less than four times their thickness plus plinths, oversailing courses, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Arches (number stated).	m	**1** Height of face, width of soffit and shape of arch stated.			**1** The length is the mean girth or length on face.
7 Bands, dimensioned description.	m	**1** Flush. **2** Sunk, depth of set back stated. **3** Projecting, depth of set forward stated.	**1** Vertical. **2** Raking. **3** Horizontal. **4** Curved, mean radius on face.	**1** Entirely of stretchers. **2** Entirely of headers. **3** Alternate headers/ stretchers. **4** Other bond.	**1** Bands are brick-on-edge bands, brick-on-end bands, basket pattern bands, moulded or splayed cappings, moulded string courses, moulded cornices, etc.
8 Flues. **9** Flue linings. **10** Filling around flues.	m	**1** Dimensioned description.	**1** Method of forming.		
11 Extra over walls for perimeters and abutments, details stated.	m	**1** Dimensioned description.	**1** Method of forming. **2** Closing cavities, additional ties, insulation and all other associated work is included.	**1** Finish/facing.	**1** This will include work forming eaves, copings, kerbs, quoins, ends, etc.
12 Extra over walls for opening perimeters, details stated.	m				**1** This will include work forming sills, jambs, reveals, cavity closers, architraves, lintels, mullions, transoms, thresholds, steps, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
13 Special purpose blocks or stones.	nr	**1** Dimensioned description.	**1** Function stated.		**1** Descriptions of stones are given as the smallest block from which each item can be obtained, having regard in the case of natural stone to the plane in which the stone is required to be laid with relation to its quarry bed. The dimensions are taken over one mortar bed and one mortar joint.
14 Forming cavity.	m^2	**1** Width and method of forming.	**1** Type and spacing of ties.		**1** These two items of work may be measured together as a composite item when between two masonry skins.
15 Cavity insulation.	m^2	**1** Type and thickness.	**1** Method of installing or fixing.		
16 Damp-proof courses ≤ 300mm wide.	m	**1** Gauge or thickness. **2** Number of layers. **3** Composition and mix of bedding materials.	**1** Vertical. **2** Raking. **3** Horizontal. **4** Curved, mean radius on face stated. **5** Stepped.		**1** Damp-proof courses include: **a** forming laps, ends and angles **b** pointing exposed edges and **c** bonding to damp-proof membranes, etc.
17 Damp-proof courses > 300mm wide.	m^2				
18 Pre-formed cavity trays.	m				
19 Joint reinforcement.	m	**1** Width stated.			
20 Fillets.	m	**1** Width and thickness stated.		**1** Weather. **2** Angle. **3** Other.	
21 Pointing.	m	**1** Width and depth of joint to be pointed.		**1** Type of finish.	**1** This relates to the pointing of joints, flashings, frames, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
22 Joints.	m	**1** Width and thickness stated.		**1** Type of filler, sealant, pointing, method of application and preparation. **2** Ties, centres stated. **3** Channels.	**1** Joints are only measured where their composition and position are designed.
23 Wedging and pinning.	m	**1** Width and thickness stated.			
24 Creasing.	m	**1** Width stated. **2** Number of courses.			
25 Proprietary and individual spot items.	nr	**1** Dimensioned description or dimensioned diagram.	**1** Proprietary reference or catalogue number where applicable.	**1** Method of forming, building in or fixing.	**1** These items include all necessary forming of openings or pockets, liners, cavity closers, damp-proof courses, fixings and fastenings and builder's work in connection with any associated mechanical or electrical connections. **2** This will include items such as windposts, head restraint channels, steel lintels, wall end ties, wall end bonding channels, cappings, chimney pots, finials, boiler seats, soot doors, plinths, steps, winders, landings, bases, key blocks, air bricks, ventilator gratings, flue blocks, fire backs and sides, grates, carved bricks, blocks or stones, quoin stones, jamb stones, hearths, weep-hole formers, etc. **3** This list is not exhaustive. Any type of individual shaped piece should be enumerated and described either by a dimensioned description, dimensioned diagram or by reference to the specification or trade brochure.

Work section 15: Structural metalwork

In this work section:

- structural steelwork
- structural aluminium work.

Drawings that should accompany this section of measurement:

1 all general arrangement drawings, plans, sections and elevations

2 drawings specific to the work.

Information that should be provided:

1 types and grade of materials including steel and steel-to-steel bolts

2 specification describing fabrication, welding, testing, erection and everything else necessary to complete the installation

3 surface preparation before application of any surface treatment or finish.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 position of the work in relation to the proposed structure and any existing structure that the new work is being connected to

2 the types and sizes of all structural members and their positions in relation to each other

3 details of connections or of the reactions, moments and axial loads at connection points.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Framed members, framing and fabrication.	t	**1** Lengths not exceeding 1m. **2** Lengths over 1m but not exceeding 9m. **3** Lengths exceeding 9m	**1** Weight ≤ 25kg/m. **2** Weight 25–50kg/m. **3** Weight 50–100kg/m. **4** And so on in increments of 50kg/m.	**1** Columns. **2** Beams. **3** Rafters. **4** Bracings. **5** Purlins and cladding rails. **6** Grillages. **7** Trusses. **8** Plate girders. **9** Framing to doors and windows. **10** Trimmers to roofs and walls. **11** Rafter and column stays, number stated.	**1** Castellated. **2** Tapered. **3** Curved. **4** Cambered. **5** Hollow, shape stated. **6** Built-up work, details of construction stated. **7** Compound fabrications, details of construction stated. **8** Cellular. **9** Secondary steelwork. **10** Temporary bracing or support work not at the discretion of the contractor, subsequent removal is included unless stated otherwise.
2 Framed members, permanent erection on site.				**1** Crane rails. **1** Wires, cables, rods, ties and bars.	**1** Details and centres of fixing clips and resilient pads should be stated.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Isolated structural members, fabrication.	t	**1** Plain member, use stated.	**1** Dimensioned description and weight per m.		**1** An isolated structural member is one not integrally connected to other structural members.
4 Isolated structural members, permanent erection on site.	nr	**2** Built-up member, use stated.			
5 Allowance for fittings.	t	**1** Calculated weight. **2** Percentage allowance, percentage stated.	**1** To framed members. **2** To isolated members.		**1** Fittings are components that allow members to be joined together or are other brackets, supports, etc. that are supplied and attached, either on or off site, to the main loadbearing frame by the structural metal contractor.
6 Cold rolled purlins, cladding rails, etc.	m	**1** Type and method of fixing stated. **2** Size or proprietary reference stated.	**1** Purlins and cladding rails. **2** Sag rods. **3** Stays. **4** Other.	**1** Method of fixing stated.	
7 Extra over steel member for:	nr	**1** Forming cranks in members, type stated.	**1** Dimension of member stated.		

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
8 Profiled metal decking, type and/or profile stated.	m^2	**1** Height not exceeding 5m. **2** Height exceeding 5m but not exceeding 10m. **3** And so on in 5m increments.	**1** Shear studs, size and spacing stated.	**1** Method of fixing.	**1** This work is only measured here when it forms part of the structural steel package otherwise it would be measured in accordance with the rules for permanent formwork. **2** Heights are always measured from finished floor level unless otherwise stated. **3** The area of metal decking is calculated as the finished area of concrete cast onto the decking.
9 Extra over for:	m	**1** Edge trims; size, girth, profile or proprietary reference stated. **2** Curved cutting.	**1** Straight. **2** Raking. **3** Curved, radius stated.		**1** Ends, angles, intersections are all included.
10 Holding down bolts or assemblies.	nr	**1** Type and diameter stated.	**1** Anchor plates, frames, members, tubes, cones and any other associated accessory stated.	**1** Supply only.	
11 Special bolts.	nr	**1** Type and diameter stated.		**1** Background if other than structural steel.	**1** Special bolts are all bolts and fasteners other than grade 4.6 black bolts and holding down assemblies.
12 Connections to existing steel and other members or structures.	nr	**1** Details stated.			**1** All labours on new and existing steel are included. **2** Labours on non-steel structures are measured elsewhere.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
13 Trial erection.	t	**1** Details and location stated.			**1** These are only measured when not at the discretion of the contractor. **2** The information given in the description should include items such as the number of erectable pieces and number of site welds. This information may be given by reference to drawing(s).
14 Filling hollow sections.	item	**1** Water. **2** Concrete. **3** Other material type stated.	**1** Details stated.		
15 Surface treatments.	m^2	**1** Galvanising. **2** Sprayed coating. **3** Painting. **4** Other treatment, type stated.	**1** On site. **2** Off site.	**1** Preparation described. **2** Number of coats stated. **3** Thickness of coat(s) stated. **4** Fire rating stated. **5** Finish stated.	**1** All preparation is included.
16 Isolated protective coatings.	nr	**1** Approximate size or area stated.	**1** Type of protective coated stated. **2** Preparation described.	**1** On site. **2** Off site.	
17 Testing.	item	**1** Load tests. **2** Fire protection tests. **3** Other tests.	**1** Details stated.		

Work section 16: Carpentry

In this work section:

- timber framing
- timber first fixings
- timber, metal and plastic boarding, sheeting, decking, casings and linings
- metal and plastic accessories.

Drawings that should accompany this section of measurement:

1 all general arrangement plans, sections and elevations

2 drawings specific to the work.

Information that should be provided:

1 type, quality and size of materials

2 grade of timber

3 type of preservative treatment

4 type of protective coating

5 method of fixing where not at the discretion of the contractor

6 method of jointing or construction where not at the discretion of the contractor

7 spacing of battens and grounds

8 nature of base.

Notes:

1 fine linings are measured in work section 22.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 layout and spacing of timbers

2 types of materials used

3 position of timbers in relation to adjacent structures.

Works and materials included:

1 all sizes nominal unless otherwise stated

2 all timbers are sawn unless otherwise stated

3 all work fabricated, assembled and erected on site unless otherwise stated

4 all work fixed by nails unless otherwise stated

5 holes in timber for bolts and all other fixings irrespective of size

6 all labours on timber

7 all webs, gussets, etc. on trusses and portals.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Primary or structural timbers.	m	**1** Nominal size stated.	**1** Rafters and associated roof timbers. **2** Purlins. **3** Wall plates. **4** Roof and floor joists. **5** Beams. **6** Posts or columns. **7** Partition and wall members. **8** Strutting.	**1** Selection and protection for subsequent treatment. **2** Matching grains or colours. **3** Limits on planing margins. **4** Fixing centres stated where not at the discretion of the contractor. **5** Type and size of bolts and other fixings and fastenings. **6** Background or nature of base. **7** Fixing through vulnerable materials. **8** Surface finish or treatment applied as part of the manufacturing process. **9** Length > 6m in one continuous length.	**1** Strutting is measured through the structural members being stiffened.
2 Engineered or prefabricated members/items.	nr	**1** Finished dimensioned description.	**1** Roof trusses. **2** Portal frames. **3** Trusses. **4** Wall panels. **5** Beams. **6** Joists. **7** Posts or columns.	**1** Manufacturers' reference. **2** Length > 6m in one continuous length.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Backing and other first fix timbers.	m	**1** Nominal dimensioned description of each member.	**1** Grounds. **2** Battens.		
	m^2	**2** Nominal dimensioned description of each member.	**1** Framed grounds, battens and bracketing.	**1** Centres, each way stated.	
4 Boarding, flooring, sheeting, decking, casings, linings, sarking, fascias, bargeboards, soffits, etc.	m/m^2	**1** Not exceeding 600mm wide, finished width, and thickness stated. **2** Over 600mm wide, finished thickness stated.	**1** Horizontal. **2** Sloping. **3** Vertical. **4** Curved, radius stated. **5** Soffit or ceiling. **6** Other shape described.	**1** Finish stated unless sawn. **2** Type of joints where not at the discretion of the contractor. **3** Profile.	**1** The location of the work should be given, such as external walls, internal walls and attached piers, isolated columns, floors, ceilings and attached beams, isolated beams, roofs, eaves, verges, tops and cheeks of dormers, etc.
5 Ornamental ends of timber members.	nr	**1** Size and detail stated			
6 Metal fixings, fastenings and fittings.	nr	**1** Dimensioned description. **2** Proprietary reference or catalogue number where applicable.	**1** Ties. **2** Rods. **3** Brackets. **4** Straps. **5** Shoes. **6** Bolts. **7** Joist hangers. **8** Other, details stated.	**1** Method of fixing stated. **2** Background stated if not timber.	**1** Bolts include heads, nuts and washers. **2** The length of a bolt is measured over the head. **3** The work includes all labours in fabricating and fixing including drilling holes in the fitting, the timber and the background.

Work section 17: Sheet roof coverings

In this work section:

- bituminous felts
- plastic sheets
- sheet metals
- rigid boards with factory-applied sheet coverings
- any other type of sheet roof covering.

Drawings that should accompany this section of measurement:

1 plans of each roof

2 principal sections of roof

3 external elevations.

Information that should be provided:

1 kind, quality of materials

2 thickness, gauge, weight and temper

3 method of fixing

4 details and position of laps, drips, welts, beads, rolls, joints, upstands and downstands

5 bonding to other work

6 radius of curved work

7 type(s) and spacing of joints

8 type(s) and spacing of seams

9 special finishes.

Notes:

1 Examples of roof coverings measured in accordance with the rules of this section are: sheet lead, aluminium, copper, zinc, stainless steel, fibre bitumen, butyl rubber, thermoplastic and similar membranes.

2 This list is not exhaustive.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 major horizontal and vertical dimensions

2 types of materials used to construct the roof and its structures

3 position of main structural frame members

4 height of work above ground level stating whether working platform level or finished level

5 all labours and dressings.

Works and materials included:

1 underlay in contact with the covering

2 all rough and fair cutting and waste

3 extra material required for bonding

4 extra material in laps and dressings

5 extra material for curved work

6 all ends, angles and intersections either formed or proprietary

7 forming all rough and fair grooves, throats, mortices, chases, rebates, holes, stops, mitres and the like labours

8 raking out joints to insert flashings

9 labours in returns, ends and angles

10 work in isolated areas

11 work in forming voids and holes ≤ 1m^2.

Notes:

1 The areas and lengths measured are net in contact with base. This includes following the profile of all rolls, steps, upstands and downstands, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Coverings > 500mm wide.	m^2	**1** Horizontal. **2** Sloping, pitch stated. **3** Vertical. **4** Curved, radii stated.	**1** Underlays. **2** Insulation. **3** Finish to exposed surface.		**1** No deduction is made for voids ≤ $1m^2$. **2** Finishes include solar reflective paint, chippings, etc. They exclude tiles, paving slabs, grass roofs, etc.
2 Coverings ≤ 500mm wide.	m				
3 Extra over for forming.	m	**1** Drips.	**1** Height stated.		**1** Lengths should be the net length of each labour. **2** All additional sheet material required to form the labour item should be included. **3** All additional underlay, insulation and surface finish should be included.
		2 Welts.	**1** Height stated.	**1** Type stated.	
		3 Rolls.	**1** Width and height stated.	**1** Wood core. **2** Hollow.	
		4 Seams.	**1** Length stated.		
		5 Laps.	**1** Length stated.		
		6 Steps.	**1** Height stated.		
4 Boundary work, location and method of forming described.	m	**1** Net girth stated. **2** Average net girth stated, number of lengths stated.	**1** Abutments. **2** Eaves. **3** Ridges. **4** Verges. **5** Valleys. **6** Hips. **7** Vertical angles.	**1** Horizontal. **2** Vertical. **3** Raking. **4** Curved, radius stated. **5** Stepped. **6** Preformed. **7** Sloping.	**1** Boundary work to voids is only measured where the void is >$1m^2$. **2** Boundary work is work associated with closing off or finishing off sheet roofing at the external perimeter, at the abutment with different materials or the perimeter of openings and voids.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
			8 Upstands ≤ 500mm high. **9** Downstands ≤ 500mm high.		**3** Boundary work includes undercloaks, insulation, strip ventilators, rough and fair cutting, bedding, pointing, laps, seams, ends, angles, intersections, rolls, upstands, downstands, welted edges, dressings and wedgings and additional covering material needed to form the detail and all associated labours. **4** Where several items of the same type of boundary work have slightly differing net girths, these may be averaged and the lengths aggregated. **5** The number of separate lengths aggregated should be stated. **6** Valleys include everything necessary to form and line the valley. **7** An upstand, downstand or step over 500mm high is measured as vertical work.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
5 Flashings.	m	**1** Net girth stated.	**1** Flashings. **2** Aprons. **3** Sills. **4** Weatherings. **5** Cappings. **6** Hips. **7** Kerbs. **8** Ridges. **9** Linings to openings.	**1** Horizontal. **2** Sloping. **3** Vertical. **4** Raking. **5** Curved, radius stated. **6** Stepped. **7** Preformed.	**1** Flashings include undercloaks, rough and fair cutting, bedding, pointing, ends, angles, intersections, welted, beaded or shaped edges and all dressings.
6 Gutters. **7** Valleys.	m	**1** Net girth stated.	**1** Sloping. **2** Stepped. **3** Curved, radius stated. **4** Secret. **5** Tapered.	**1** Nature of base. **2** Spacing of structural supports. **3** Preformed.	**1** The length is the mean length measured over all fittings. **2** Gutter and valley work includes all dressings required to form the profile, with all joints, laps, seams, brackets, undercloaks and other associated linings, outlets, overflows, ends, angles, intersections, bedding, pointing, fixings, etc. **3** The maximum and minimum girth of tapered gutters or valleys should be given.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
8 Spot items.	nr	**1** Dimensioned diagram or dimensioned description.	**1** Catchpits. **2** Sumps. **3** Outlets. **4** Hatch covers. **5** Canopy covers. **6** Collars or sleeves around pipes, etc. **7** Other, type stated.	**1** Nature of base. **2** Spacing of structural supports. **3** Preformed.	**1** Spot item work includes joints, dressing and bonding to surrounding work, undercloaks and other associated linings, ends, angles, bedding, pointing, fixings, etc.
9 Fittings.	nr	**1** Dimensioned description.	**1** Ventilators. **2** Finials. **3** Gas terminals. **4** Hip irons. **5** Soakers. **6** Saddles. **7** Rooflights. **8** Other, type stated.	**1** Nature of base. **2** Method of fixing where not at the discretion of the contractor.	**1** Fittings include joints, dressing and bonding to surrounding work, undercloaks and other associated linings, ends, angles, bedding, pointing, fixings, etc. **2** Proprietary references may be given in lieu of a dimensioned description.

Work section 18: Tile and slate roof and wall coverings

In this work section:

- plain tiling
- interlocking tiling
- fibre cement slating
- natural slating
- natural or artificial stone slating
- timber or bituminous felt shingles
- any other type of tile, slate, slab or block roof or wall covering.

Drawings that should accompany this section of measurement:

1 plans of each roof

2 principal sections of roof

3 external elevations.

Information that should be provided:

1 type, quality and size of materials

2 method of fixing

3 minimum laps

4 spacing of battens and counter battens

5 composition and mix of mortar

6 type of pointing

7 bonding to other work

8 radius of curved work.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 major horizontal and vertical dimensions

2 types of materials used to construct the roof and its structures

3 position of main structural frame members

4 height of work above ground level.

Works and materials included:

1 all rough and fair square, raking and curved cutting

2 all ends and angles either formed or proprietary

3 extra material for curved work

4 forming all rough and fair grooves, throats, mortices, chases, rebates, holes, stops, mitres and similar labours

5 raking out joints to form a key

6 raking out joints to insert flashings

7 labours in returns, ends and angles

8 all extra material required for bonding

9 additional material in laps

10 work in forming voids and holes ≤ 1m^2.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Roof coverings. **2** Wall coverings.	m^2	**1** Pitch stated. **2** Vertical.	**1** Underlays and battens.	**1** Curved, radii stated. **2** Conical, maximum and minimum radii stated.	**1** Coverings include underlays, battens and work in forming voids ≤ $1m^2$. **2** No deduction is made for voids ≤ $1m^2$.
3 Boundary work, location and method of forming described.	m	**1** Dimensioned description stating net girth.	**1** Abutments. **2** Eaves. **3** Ridges. **4** Verges. **5** Valleys. **6** Hips. **7** Vertical angles.	**1** Horizontal. **2** Sloping. **3** Raking. **4** Vertical. **5** Curved, radius stated. **6** Stepped. **7** Preformed.	**1** Boundary work includes undercloaks, rough and fair cutting, bedding, pointing, ends, angles and intersections. **2** Boundary work to voids is only measured where the void exceeds $1m^2$. **3** Boundary work is work associated with closing off or finishing off tile or slate roofing at the external perimeter, at the abutment with different materials or the perimeter of openings and voids. **4** Valleys include everything necessary to form and line the valley excluding any sheet metal. Sheet metal linings should be measured in work section 17.
4 Fittings.	nr	**1** Dimensioned description.	**1** Ventilators. **2** Finials. **3** Gas terminals. **4** Hip irons. **5** Soakers. **6** Saddles. **7** Rooflights. **8** Other, type stated.	**1** Nature of base. **2** Method of fixing where not at the discretion of the contractor.	**1** Proprietary references may be given in lieu of a dimensioned description.

Work section 19: Waterproofing

In this work section:

- mastic asphalt roofing
- applied liquid roofing
- asphalt tanking or damp proofing
- applied liquid tanking or damp proofing
- flexible sheet tanking or damp proofing
- other proprietary systems of tanking or damp proofing.

Drawings that should accompany this section of measurement:

1 plans of each level where work is to be carried out

2 sections showing extent of work.

Information that should be provided:

1 restrictions on siting of plant and materials

2 kind and quality of all materials

3 thickness and number of coats

4 surface finishes or treatments.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 extent of work

2 height of work above ground level.

Works and materials included:

1 cutting to line

2 all labour and material associated with cutting, notching, bending, lapping and reinforcement

3 working into recesses such as duct covers, shaped insets, manhole covers, mat wells, outlet pipes, dished gullies, etc.

4 work to falls and cross falls

5 all boundary work to openings ≤ 1m^2

6 all preparation to background necessary to form a key, including raking out joints, scabbling or the application of a bonding agent.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Coverings > 500mm wide.	m^2	**1** Horizontal. **2** Sloping, pitch stated. **3** Vertical. **4** Curved, radii stated.	**1** Underlays. **2** Insulation. **3** Finish to exposed surface. **4** Protection.	**1** Nature of base. **2** Number of coats or layers.	**1** The area measured is that in contact with the base. **2** No deduction is made for voids ≤ $1m^2$.
2 Coverings ≤ 500mm wide.	m				
3 Skirtings. **4** Fascias. **5** Aprons. **6** Other boundary work.	m	**1** Net girth on face.	**1** Horizontal. **2** Sloping. **3** Vertical. **4** Raking. **5** Curved, radius stated. **6** Stepped.		**1** Boundary work to voids is only measured where the void is > $1m^2$. **2** Boundary work is work associated with closing off or finishing off the waterproofing at the external perimeter, at the abutment with different materials or the perimeter of openings and voids. **3** Boundary work includes undercloaks, insulation, strip ventilators, rough and fair cutting, bedding, pointing, laps, seams, ends, angles, intersections,rolls, upstands, downstands, dressings and wedgings. **4** Boundary work includes fair edges, rounded edges, drips and arrises.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
7 Gutters. **8** Channels. **9** Valleys. **10** Kerbs.	m	**1** Net girth on face.	**1** Sloping. **2** Stepped. **3** Curved. **4** Secret. **5** Tapered.	**1** Nature of base. **2** Number of coats or layers. **3** Spacing of structural supports.	**1** The length is the mean length measured over all fittings. **2** Lining and covering work includes all dressings required to form the profile, joints, brackets, undercloaks and other associated linings, outlets, overflows, ends, angles, intersections, bedding, pointing, etc. **3** The maximum and minimum girth of tapered gutters should be given.
11 Internal angle fillets.	m	**1** Width by height stated.			
12 Spot items.	nr	**1** Dimensioned diagram or dimensioned description.	**1** Catch pits. **2** Sumps. **3** Outlets. **4** Hatch covers. **5** Canopy covers. **6** Collars or sleeves around pipes, etc. **7** Other, type stated.		**1** Spot item work includes joints, dressing and bonding to surrounding work, undercloaks and other associated linings, ends, angles bedding, pointing, fixings, etc.
13 Fittings.	nr	**1** Dimensioned description.	**1** Ventilators. **2** Other, type stated.	**1** Nature of base. **2** Number of coats or layers. **3** Method of fixing where not at the discretion of the contractor.	**1** Fittings include joints, dressing and bonding to surrounding work, undercloaks and other associated linings, ends, angles bedding, pointing, fixings, etc. **2** Proprietary references may be given in lieu of a dimensioned description.
14 Edge trim.	m				

Work section 20: Proprietary walls, linings and partitions

In this work section:

- metal framed systems to walls and ceilings
- drylining and partitioning systems to walls and ceilings
- structural framed systems (SFS) to walls.

Drawings that should accompany this section of measurement:

1 plans, sections and elevations to show scope and location of work.

Information that should be provided:

1 type, quality and size or thickness of materials and components

2 method of fixing framing and linings

3 layout and treatment of joints

4 method of jointing

5 surface preparation

6 finish

7 radii of curved work

8 nature of base

9 location of wall or ceiling-mounted fittings requiring additional support or framing

10 sealants to joints and perimeters.

Notes:

1 The finish is that which is applied as part of the normal proprietary system. Any finish to be subsequently made by a different trade should be measured separately under the relevant rules.

2 Examples of proprietary finishes are taped joints, slurry coats, etc.

3 Skim coats or other wet trade finishes are measured in work section 28.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 structural floor to ceiling heights

2 the services located in the ceiling, partition or lining where the work includes complex integral services.

Works and materials included:

1 all work is internal unless otherwise stated

2 all rough and fair cutting

3 extra material for curved work

4 additional framing to support fittings

5 ends, fair ends and abutments with adjoining work

6 working around columns, beams and services where the outer face of the work is continuous.

Notes:

1 This refers to the final location of the work.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Proprietary metal framed system to form walls. **2** Structural framed systems to form walls.	m^2	**1** Finished thickness stated. **2** Height or average height stated in 1m increments. **3** Total length stated measured along centre line.	**1** Insulation. **2** Vapour barriers. **3** Sublinings. **4** Finish. **5** Glazing. **6** Curved, radius stated.		**1** No deductions for voids ≤ $1m^2$. **2** The average height will be calculated for each length of partition with a sloping head measured between junctions.
3 Proprietary metal framed system to form ceilings.	m^2	**1** Over 300mm wide on face.	**1** Insulation. **2** Vapour barriers. **3** Sublinings. **4** Finish. **5** Curved, radius stated. **6** Sloping. **7** Convex or concave, radius stated.	**1** Fixed directly to structural soffit. **2** Supported on adjacent structure, span stated in 1m increments.	**1** The adjacent structure such as secondary steel framing or timber framing is measured elsewhere.
	m	**2** Not exceeding 300mm wide on face.			
4 Extra over for different.	m^2	**1** Lining, details stated. **2** Finish, details stated.			**1** This will apply to partitions that have areas of different linings or finishes than specified in the general description heading. It will not apply to different forms of construction or components. These differences will require separate items measured.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
5 Extra over for forming openings.	nr	**1** Not exceeding 1m^2. **2** 1–2.50m^2. **3** 2.50–5m^2. **4** Exceeding 5m^2 in further increments of 2.50m^2.	**1** Lined, details stated. **2** Unlined. **3** Opening type (e.g. window, door).		**1** Non-proprietary materials are not included (e.g. timber grounds or inserts would be measured in work section 16). **2** Lined openings are those lined as part of this work.
6 Extra over for non-standard perimeter details.	m	**1** Dimensioned description or proprietary reference.	**1** Heads, details stated. **2** Soles, details stated. **3** Abutments, details stated.	**1** Nature of base.	**1** Non-standard details are those that involve the use of components that are not used in the main body of work, such as deflection heads, acoustic seals, fire seals, etc.
7 Extra over for angles.	m		**1** Tee. **2** Cross.		
8 Extra over for junctions.	m				
9 Extra over for access panels.	nr	**1** Dimensioned description or proprietary reference.	**1** Details stated.		**1** Details include type of frame, ironmongery, finish, insulation, fire rating and proprietary reference number where applicable.
10 Fair ends to partitions.	m	**1** Thickness of partition stated.	**1** Finish and/or trims.		**1** Fair ends are only measured where the exposed end is finished with the same finish as the face(s) or with a trim that is an integral part of the partition system. **2** Fair ends include all extra work and materials involved.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
11 Proprietary linings to walls.	m^2	**1** Over 300mm wide on face. **2** Not exceeding 300mm wide on face.	**1** Insulation. **2** Vapour barriers. **3** Sublinings. **4** Finish. **5** Curved, radius stated. **6** Sloping. **7** Convex or concave, radius stated.	**1** Method of fixing. **2** Nature of base.	
12 SFS accessories.	nr	**1** Z bars. **2** Cleats/brackets.	**1** Proprietary reference. **2** Finish.		
13 Proprietary linings to ceilings.	m^2				
14 Proprietary linings to columns.	m	**1** Girth not exceeding 300mm, nr of faces stated. **2** Girth 300–600mm, nr of faces stated. **3** Girth 600–900mm, nr of faces stated. **4** Thereafter in 300mm stages, nr of faces stated.			
15 Proprietary linings to beams.	m				
16 Proprietary linings to bulkheads.	m				

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
17 Extra over for forming openings.	nr	**1** Not exceeding 2.50m^2. **2** 2.50–5m^2. **3** Exceeding 5m^2 in further increments of 2.50m^2.	**1** Lined, details stated. **2** Unlined.		**1** This includes openings for doors, windows, screens, etc.
18 Extra over for non-standard perimeter details.	m	**1** Dimensioned description or proprietary reference.	**1** Heads, details stated. **2** Soles, details stated. **3** Abutments, details stated.	**1** Nature of base.	**1** Non-standard details are those that involve the use of components that are not used in the main body of work such as deflection heads, acoustic seals, fire seals, etc.
19 Extra over for angles.	m				
20 Extra over for junctions.	m		**1** Tee. **2** Cross.		
21 Extra over for access panels.	nr	**1** Dimensioned description or proprietary reference.	**1** Details stated.		**1** Details include type of frame, ironmongery, finish, insulation, fire rating and proprietary reference number where applicable.
22 Beads, function stated.	m		**1** Method of fixing.	**1** Nature of base.	**1** Function of beads include angle beads, stop beads, shadow gap beads, casing beads, etc.

Work section 21: Cladding and covering

In this work section:

- patent glazing, curtain walling, rainscreen cladding, glazed vaulting and structural glass assemblies
- rigid sheet cladding
- weatherboarding
- profiled sheet cladding or roofing
- panel or slab cladding or roofing
- sheet claddings or coverings
- any other type of cladding, lining or covering.

Drawings that should accompany this section of measurement:

1 plans, sections and elevations that show scope and location of the works

2 component drawings.

Information that should be provided:

1 type and quality of materials

2 type, finish and spacing of framing members

3 nature, thickness and spacing of structural supports.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 construction of each installation.

Works and materials included:

1 ironmongery where supplied with the component

2 glazing where part of the installation

3 integral insulation, membranes, etc. where part of the system

4 mastics and sealants

5 cleats and brackets

6 fixings and fastenings

7 mechanical and electrical operating equipment where supplied with the component.

Notes:

1 Secondary steel support work is measured in accordance with the rules of work section 15.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Walls. **2** Floors. **3** Ceilings. **4** Roofs. **5** Sides and tops of dormers. **6** Sides and soffits of beams. **7** Sides of columns.	m	**1** Not exceeding 600mm wide.	**1** Laid diagonally. **2** Sloping, pitch stated. **3** Vertical. **4** Curved, radius stated. **5** To soffits.	**1** Internal. **2** External.	
	m^2	**1** Exceeding 600mm wide.			
	nr	**1** Isolated area not exceeding 1m^2, irrespective of width.			
8 Items extra over the work in which they occur.	nr	**1** Dimensioned description. **2** Proprietary reference.	**1** Opening lights. **2** Doors. **3** Rooflights. **4** Ventilator panels. **5** Forming openings for other trades.	**1** Electrical requirements.	**1** These items are only for components that are part of the system in which they are installed.
9 Boundary work.	m		**1** Heads. **2** Ridges. **3** Valleys. **4** Hips. **5** Bottom edges.	**1** Horizontal. **2** Vertical. **3** Sloping. **4** Raking. **5** Curved, radius stated.	**1** All edge and intermediate trims, cover pieces, mastics and sealants are included with the associated boundary or opening perimeter work.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
			6 Eaves. **7** Verges. **8** Abutments. **9** Flashing pieces.	**6** Stepped. **7** Preformed.	**2** Boundary work is work associated with closing off or finishing off claddings or coverings at the external perimeter or at the abutment with different materials.
10 Opening perimeters.	m	**1** Dimensioned description. **2** Proprietary reference.	**1** Heads. **2** Jambs. **3** Sills. **4** Flashing pieces.	**1** Horizontal. **2** Vertical. **3** Sloping. **4** Raking. **5** Curved, radius stated. **6** Stepped. **7** Preformed.	**1** Opening work is associated with closing off or finishing off claddings and coverings at the perimeter of an opening or a void.
11 Angles.	m		**1** Internal. **2** External.	**1** Regular. **2** Irregular, angle stated.	**1** Irregular angles are any that are not 90°.
12 Closers.	m		**1** Fire stops. **2** Other, details stated.		

Work section 22: General joinery

Items in this work section:

- unframed isolated trims, skirtings, or sundry joinery items
- floor, wall and ceiling boarding, sheeting, panelling, fine linings and casings
- proprietary partitions, panels and cubicles
- in-fill panels and sheets
- sealant joints
- general ironmongery not associated with windows and doors.

Drawings that should accompany this section of measurement:

1 general arrangement plans.

Information that should be provided:

1 type and quality of materials

2 finish of timber if not wrot

3 preservation treatments

4 surface treatments as part of the production process

5 selection and protection for subsequent treatment or clear finish

6 matching grain or colour

7 limits on planing margins

8 method of jointing and construction where not at the discretion of the contractor

9 form of construction and jointing where not at the discretion of the contractor

10 method of fixing where not at the discretion of the contractor.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 scope and location of work.

Works and materials included:

2 all timbers should be wrot finish unless described otherwise

3 all timber sizes are nominal unless stated as finished size

4 ends, angles, mitres and intersections irrespective of the cross-section area of timber

5 work is internal unless described as external.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Unframed isolated trims, skirtings and sundry items					
1 Skirtings, picture rails. **2** Architraves, etc. **3** Cover fillets, stops, trims, beads, nosings, etc. **4** Isolated shelves and worktops. **5** Window boards. **6** Isolated handrails and grab rails.	m	**1** Dimensioned overall cross-section stated. **2** Number and type of labours described.	**1** Built-up members, size of components stated. **2** Timber components tongued on. **3** Different cross-section shapes (nr).	**1** Fixing through vulnerable materials. **2** Curved work should be described stating the radius.	
7 Duct covers. **8** Pipe casings. **9** Shelves.	m	**1** Thickness and width or girth stated. **2** Thickness and width or girth not exceeding 300mm stated. **3** Thickness and width or girth over 300mm but not exceeding 600mm stated. **4** Thickness and width or girth thereafter in 300mm stages.	**1** Nature and method of forming joints.		**1** Usually the exact width or girth should be given for these items but where there are many differing but similar widths these may be grouped into 300mm wide or girth bands.
10 Pinboards, backboards, plinth blocks, etc.	nr	**1** Dimensioned description.		**1** Method of fixing. **2** Nature of base.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
11 Floor, wall and ceiling boarding, sheeting, panelling, fine linings and casings.					
12 Boarding, sheeting, panelling over 600mm wide.	m^2	**1** Thickness.	**1** Floors. **2** Walls. **3** Ceilings.	**1** Method of fixing. **2** Method of jointing. **3** Nature of base.	**1** These include fully or partially glazed partitions and screens whether proprietary or site constructed and not otherwise included in work section 20.
13 Boarding, sheeting, panelling not exceeding 600mm wide.	m	**1** Width and thickness.			
14 Proprietary partitions, panels and cubicles.					
15 Partitions.	m	**1** Height and thickness stated. **2** Proprietary name or reference stated.	**1** Off-site applied finish. **2** On-site applied finish.	**1** Method of jointing and fixing. **2** Curved, radius stated. **3** Nature of background. **4** Integral services.	**1** The linear measurement is the mean length measured along the centre line of the partition. **2** The length is measured through and over all obstructions and openings. **3** Partitions include all integral components, fixings, joints, factory applied trims, holes and mortices.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
16 Items extra over the partition they occur in.	nr	**1** Openings, size stated.	**1** Blanks. **2** Doors. **3** Window. **4** Glazed panels. **5** Access panels.		**1** Openings include everything necessary to form the opening with their associated integral components, glass, doors, ironmongery, linings and factory-applied trims.
	m	**2** Trims, dimensioned description.			**1** Trims are only measured as separate items if fixed on site.
17 Duct panels, sanitaryware back panels, etc.	nr	**1** Overall size stated. **2** Thickness stated.	**1** Subframes, details stated.	**1** Method of fixing. **2** Nature of background.	**1** All ancillary items needed to connect the sanitary appliances to the M&E installations are included. **2** Associated sanitaryware items are not included in these items but should be measured in accordance with the rules of work section 32.
18 Cubicle partition sets.	nr	**1** Dimensioned diagram or dimensioned description.	**1** Complete cubicles, number of bays stated.	**1** Nature of background. **2** Method of fixing to background.	**1** Cubicle sets include all integral frames, panels, doors, factory-applied trims, connections, fixings and fastenings complete with support legs, brackets and standard ironmongery.
19 Items extra over the partition they occur in.	m	**1** Trims, dimensioned description.			**1** Trims are only measured as separate items if fixed on site.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Infill panels					**1** Infill panels are either non-glass or non-glass plastics, with rigid sheet spandrel and infill panels of all kinds fixed with beads, gaskets, etc. to wood, metal, plastic and concrete surrounds. They exclude panels or sheets forming an integral part of a component or proprietary cladding system.
20 Infill panels and sheets, number stated.	m^2	**1** Thickness stated.	**1** Curved, stating radius. **2** Panels exceeding size of normal manufactured unit. **3** Panels requiring special treatment to edges.		**1** Work is internal unless it is described as external. **2** Infill panels include bedding compounds, sealants, intumescent compounds and strips, distance pieces, location and setting blocks and fixings.
Sealant joints				**1** Type and quality of materials. **2** Method of application. **3** Method of preparing contact surfaces.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
21 Joints, contact surfaces stated.	m	**1** Type and size of components stated.	**1** Vertical. **2** Sloping. **3** Soffit. **4** Horizontal.		**1** Lengths are measured on face. **2** Work includes preparation, cleaners, primers, sealers, backing strips and fillers.
22 Pointing, contact surfaces stated.	m	**1** One side. **2** Both sides.			
23 Raking out existing joints.	m	**1** Width, depth and type of material stated.	**1** Vertical. **2** Sloping. **3** Soffit. **4** Horizontal.		**1** This includes disposal of all debris.
Ironmongery				**1** Type and quality of materials and fixings. **2** Surface finish. **3** Constituent parts of the units or sets. **4** Fixing through vulnerable materials.	
24 Type of item, unit or set stated.	nr	**1** Method of fixing. **2** Nature of base.			**1** Ironmongery includes fixing with screws to match and preparing the base to receive it. **2** Shelf brackets and associated fittings will be measured here.

Work section 23: Windows, screens and lights

In this work section:

- timber, metal, plastic: windows and shop fronts
- rooflights
- screens
- louvres, shutters, canopies and blinds
- associated glass and glazing
- associated ironmongery.

Drawings that should accompany this section of measurement:

1 general arrangement plans

2 door and window schedule

3 glazing schedule

4 ironmongery schedule.

Information that should be provided:

1 type and quality of materials and, if timber, describing whether wrot or sawn

2 preservation treatments

3 surface treatments applied as part of the production process

4 selection and protection for subsequent treatment or clear finish

5 matching grain or colour

6 limits on planing margins

7 method of jointing and construction where not at the discretion of the contractor

8 form of construction and jointing where not at the discretion of the contractor

9 method of fixing where not at the discretion of the contractor

10 background where vulnerable.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 shape and size of units

2 methods of fixing units

3 glazing requirements.

Works and materials included:

1 bedding and pointing frames

2 glass, etc. should be installed on site unless stated otherwise.

6 matching grain or colour

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Windows and window frames.	nr	**1** Dimensioned description or diagram.	**1** Curved work, radius stated.	**1** Method of fixing if not left to the discretion of the contractor. **2** Factory glazed.	**1** Glass may be incorporated into the associated work following the rules set out below.
2 Window shutters.					
3 Sun shields.					
4 Rooflights, skylights and lanternlights.					
5 Screens, borrowed lights and frames.					
6 Shop fronts.					
7 Louvres and frames.					
8 Glazing.					
9 Glass, type stated.		**1** Thickness of glass or overall thickness of sealed unit stated. **2** Pane size.	**1** Shape if other than square or rectangular. **2** Airspace(s) width(s) of double/triple glazed units. **3** Gas filling of airspaces.	**1** Bent, direction stated. **2** Method of glazing or securing. **3** Edge treatment.	**1** Glass includes plastic, or any type of material glazed into openings except glass blocks. **2** The size given for irregular panes should be the smallest rectangular size from which the pane can be obtained.
10 Louvre blades.					
11 Ironmongery.					

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
12 Type of item, unit or set stated.	nr	**1** Method of fixing. **2** Nature of base.	**1** Type and quality of materials and fixings. **2** Surface finish. **3** Constituent parts of the units or sets.		**1** Ironmongery includes fixing with screws to match and preparing the base to receive it.

Work section 24: Doors, shutters and hatches

This work section includes:

- timber, metal, plastic: doors and frames
- shutters and hatches
- sliding or folding doors and partitions
- grilles
- associated glass and glazing
- associated ironmongery.

Drawings that should accompany this section of measurement:

1 floor plans

2 door schedule

3 ironmongery schedule.

Information that should be provided:

1 type and quality of materials and, if timber, describing whether wrot or sawn

2 preservation treatments

3 surface treatments applied as part of the production process

4 selection and protection for subsequent treatment or clear finish

5 matching grain or colour

6 limits on planing margins

7 method of jointing and construction where not at the discretion of the contractor

8 form of construction and jointing where not at the discretion of the contractor

9 method of fixing where not at the discretion of the contractor

10 background where vulnerable.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 location of all doors

2 door reference number.

Works and materials included:

1 bedding and pointing frames

2 glass, etc. should be installed on site unless stated otherwise.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Door sets.	nr	**1** Detailed description of set. **2** Structural opening size.	**1** Background.	**1** Smoke stops, details stated. **2** Fire stops, details stated.	**1** Door sets comprise the door(s) complete with associated frame, stops, architraves and trims. **2** Any stops, architraves and trims not supplied with the door set should be measured in accordance with the items in work section 22. **3** Glass may be incorporated into the associated work following the items set out below.
2 Doors.	nr	**1** Dimensioned description or diagram.	**1** Fire resistance performance.	**1** Method of fixing if not left to the discretion of the contractor. **2** Factory glazed.	**1** Each leaf of a multi-leafed door is counted as one door. **2** Glass may be incorporated into the associated work following the items set out below.
3 Roller shutters.					
4 Collapsible gates.					
5 Sliding folding partitions.					
6 Hatches.					
7 Strong room doors.					
8 Grilles.					

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
9 Door frames.	m	**1** Dimensioned overall cross-section description.	**1** Labours described.		**1** Frames and linings includes jambs, heads, sills, mullions and transoms.
10 Door linings.					
11 Door stops.					
12 Associated fire stops.					
13 Associated smoke stops.					
Glazing.					
14 Glass, type stated.	nr	**1** Thickness of glass or overall thickness of sealed unit stated. **2** Pane size.	**1** Shape if other than square or rectangular. **2** Airspace(s) width(s) of double/triple glazed units. **3** Gas filling of airspaces.	**1** Bent, direction stated. **2** Method of glazing or securing. **3** Edge treatment.	**1** Glass includes plastic or any type of material glazed into openings except glass blocks. **2** The size given for irregular panes should be the smallest rectangular size from which the pane can be obtained.
15 Louvre blades.					
Ironmongery.					
16 Type of item, unit or set stated.	nr	**1** Method of fixing. **2** Nature of base.	**1** Type and quality of materials and fixings. **2** Surface finish. **3** Constituent parts of the units or sets.		**1** Ironmongery includes fixing with screws to match and preparing the base to receive it.

Work section 25: Stairs, walkways and balustrades

In this section:

- timber, metal, plastic staircases
- walkways and gantries
- balustrades, barriers, guardrails.

Drawings that should accompany this section of measurement:

1 plans and sections showing the location and scope of each unit.

Information that should be provided:

1 type and quality of materials and, if timber, describing whether wrot or sawn

2 preservation treatments

3 surface treatments applied as part of the production process

4 selection and protection for subsequent treatment or clear finish

5 matching grain or colour

6 limits on planing margins

7 method of jointing and construction where not at the discretion of the contractor

8 form of construction and jointing where not at the discretion of the contractor

9 method of fixing where not at the discretion of the contractor

10 background where vulnerable.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 principal dimensions of each staircase or unit

2 height from structural floor to structural floor level.

Works and materials included:

1 all ramps, wreaths, bends, plain ends, ornamental ends and similar labours

2 linings, nosings, cover moulds, trims, etc. where an integral part of the unit

3 soffit linings, spandrel panels, etc. where an integral part of the unit

4 ironmongery where an integral part of the unit

5 finishes applied off site

6 fixings, fastenings, blockings, wedges, bolts, brackets, cleats, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Staircase, type stated.	nr	**1** Dimensioned description. **2** Component drawing reference.		**1** Hatch doors where part of the loft ladder component.	**1** Staircases include attached balustrades and newel posts. **2** Any trims, etc. fixed to the unit after installation should be measured in accordance with the items in work section 22.
2 Loft ladders.					
3 Ladders.					
4 Extra over for:	nr	**1** Quarter landing.	**1** Dimensioned description.		
		2 Half landing.			
5 Catwalks.	m	**1** Dimensioned description.	**1** Curved, radius stated.	**1** Method of fixing or support. **2** Background.	
6 Walkways.					
7 Balustrades.	m/nr	**1** Dimensioned description. **2** Component drawing reference.	**1** Curved, radius stated.	**1** Infill panels, detail stated. **2** Method of fixing or support. **3** Background.	**1** These items are measured when not forming an integral part of a staircase unit. **2** These items include all integral rails, infill panels, ironmongery, factory-applied finishes, fixings and fastenings.
8 Handrails.					
9 Barriers.					
10 Guard rails.					
11 Balcony units.					
12 Extra over for:	nr	**1** Opening portions, size and details stated.			

Work section 26: Metalwork

In this work section:

- isolated metal members
- general metalwork
- general metalwork fittings and fixtures.

Drawings that should accompany this section of measurement:

1 plans, sections, elevations or enough details to show location, scope and construction of each item measured.

Information that should be provided:

1 types and grades of materials
2 details of connections
3 details of welding tests and x-rays
4 details of performance tests.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 position of the work
2 types and sizes of structural members and their position relative to each other.

Works and materials included:

1 all fabrication and erection
2 all bolts, nuts, washers, fixings and fastenings.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Isolated metal members.	m	**1** Dimensioned description, cross-section profile stated.	**1** Built up, details of construction stated. **2** Tapered. **3** Curved, radius stated. **4** Hollow, shape stated.	**1** Method of fixing in position. **2** Fixing plates, brackets, etc., dimensioned description stated. **3** Protective coating applied off site.	**1** Forming holes, mortices, etc. in the item and background for fixing purposes are included.
2 General metalwork members.	m/nr	**1** Dimensioned description, cross-section profile stated.	**1** Protective coating applied off site.	**1** Method of fixing. **2** Nature of background. **3** Surface pattern or finish.	
3 Sheet metal.	m^2/nr	**1** Thickness stated. **2** Dimensioned description.			
4 Wire mesh.	m^2/nr	**1** Mesh size and thickness stated. **2** Dimensioned description.	**1** Protective coating applied off site.	**1** Method of fixing. **2** Nature of background. **3** Surface pattern or finish.	**1** Forming holes, mortices, etc. in the item and background for fixing purposes are included.
5 Composite items.	m/nr	**1** Dimensioned description. **2** Drawing reference.	**1** Full description of all components including integral non-metallic items.	**1** Method of fixing. **2** Nature of background.	**1** Non-metallic integral items forming part of the composite item may be included in the composite item provided they are clearly described as such. **2** Any non-metallic item applied after the composite item has been installed on site should be measured in accordance with the rules of the relevant section.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Filling hollow sections.	item	**1** Water. **2** Concrete. **3** Other material, type stated.	**1** Details stated.		
7 Surface treatments.	m^2	**1** Galvanising. **2** Sprayed coating. **3** Painting. **4** Other treatment, type stated.	**1** On site. **2** Off site.	**1** Surface preparation described.	**1** All preparation is included. **2** Any finish applied after installation is measured in accordance with the rules in work section 29.
8 Isolated protective coatings.	nr	**1** Approximate size or area stated.	**1** Type of protective coated stated. **2** Preparation described.	**1** On site. **2** Off site.	

Work section 27: Glazing

Drawings that should accompany this section of measurement:

1 elevations

2 component drawings.

Information that should be provided:

1 type, quality and thickness of glass

2 type and quality of glazing material

3 method of glazing including details of gaskets where required

4 nature of frame or background.

Notes:

1 This section covers all types of glass and glass plastics and glazing with putty, beads or gaskets into prepared openings.

2 Glazing supplied as part of a window, door or other component is measured elsewhere with those components.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 general scope and location of work.

Works and materials included:

1 all raking and curved cutting

2 all polished and bevelled edges unless given in the description

3 drilling holes.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Glass, type stated. **2** Sealed glazed units, type of glass stated. **3** Louvre blades, type of glass stated.	nr	**1** Thickness of glass or overall thickness of sealed unit. **2** Pane size.	**1** Shape if other than square or rectangular. **2** Airspace(s) width(s) of double/triple glazed units. **3** Gas filling of airspaces.	**1** Bent, direction stated. **2** Method of glazing or securing, details stated. **3** Edge treatment.	**1** Glass includes laminated, toughened, double or triple glazing units, lead, acrylic, polycarbonate, etc. or any other type of material glazed into openings except glass blocks. **2** Glass blocks are measured in accordance with the items in work section 14. **3** The size given for irregular panes should be the smallest rectangular size from which the pane can be obtained.
4 Extra over for:	nr	**1** Grinding. **2** Sandblasting. **3** Acid etching. **4** Embossing. **5** Engraving.	**1** Plain work, pane size stated. **2** Design work, pane size stated.	**1** Detailed description of work including extent of work over the pane.	**1** This information may be given by reference to detailed drawings.
5 Lead light glazing, type of glass stated.	nr	**1** Thickness of glass. **2** Overall window or light size.	**1** Pane sizes where regular shape. **2** Spacings of lead cames. **3** Pattern of lead cames.	**1** Bent, direction stated. **2** Method of glazing or securing, details stated. **3** Edge treatment.	**1** The pattern will be described as regular, diamond or irregular. **2** Cames are the H-shaped lead strips that are soldered together to form the lead glazed panes.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Saddle bars.	m	**1** Diameter and length stated.	**1** Method of fixing to window surround.	**1** Method of attaching to lead light glazing.	**1** Saddle bars are metal rods used to strengthen and provide support to large lead glazed panes. These bars are usually built into the window surround.
7 Mirrors.	nr	**1** Dimensioned description.	**1** Edge description. **2** Pattern, method of forming described.	**1** Nature of background. **2** Method of fixing, details stated.	**1** Edges can be plain, rounded, bevelled, etc.
8 Removing existing glass and preparing frame or surround to receive new glass.	nr	**1** Type of frame or surround. **2** Type of glass to be removed.	**1** Panes ≤ 1m^2. **2** Panes 1–2m^2. **3** Panes 2–3m^2. **4** Panes 3–4m^2. **5** Panes ≥ 4m^2, size stated.	**1** Method of disposal of debris where not at the discretion of the contractor. **2** Materials to be kept for re-use.	

Work section 28: Floor, wall, ceiling and roof finishings

In this work section:

- in-situ, tiled, block, mosaic, sheet, applied liquid or planted finishes.

Drawings that should accompany this section of measurement:

1 plans of each floor

2 principal sections through building

3 external elevations

4 finishes schedules.

Information that should be provided:

1 type, quality and size of materials

2 number of coats of in-situ work

3 types of underlays or linings

4 bedding or other method of fixing

5 type of pointing

6 laps

7 layout and width of joints and bays

8 patterns

9 spacing of battens and counter battens

10 composition and mix of mortars

11 bonding to other work

12 radius of curved work

13 nature of base

14 laid in one operation with base

15 applied finishes/sealers/polishes.

Notes:

1 The area measured is net in contact with the base.

2 Widths stated are the width of each finished face.

3 There should be no deduction for voids ≤ 1m^2.

4 No allowance should be made in the net area for laps, dressings or any other labour.

5 All work is internal unless stated as external.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 all floor-to-floor or ceiling heights

2 layout of patterned work

3 details of moulded work.

Works and materials included:

1 all rough and fair square, raking and curved cutting and waste

2 all ends and angles either formed or proprietary

3 extra material for curved work

4 forming all rough and fair grooves, throats, mortices, chases, edges, rebates, holes, stops, mitres and similar labours

5 raking out joints to form a key

6 raking out joints to insert skirtings, etc.

7 all work in forming returns, ends, internal and external angles

8 all extra material required for bonding

9 additional material in laps and dressings

10 all work on attached columns and beams

11 work in forming voids and holes ≤ 1m^2

12 formwork or any other form of temporary support

13 working finishes up to and around all accessories.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Screeds, beds and toppings, thickness and number of coats stated.	m/m^2	**1** ≤ 600mm wide. **2** > 600mm wide.	**1** Level and to falls only ≤ 15° from horizontal. **2** To falls, cross falls and slopes ≤ 15° from horizontal. **3** To falls, cross falls and slopes > 15° from horizontal.	**1** Surface finish. **2** Nature of background. **3** Backings and beddings, thickness stated. **4** Underlays, type and thickness stated. **5** Insulation, type and thickness stated. **6** Laid in one operation with its base. **7** Pattern of joints. **8** Laid in one operation with base (monolithically).	**1** Thicknesses stated are the thickness exclusive of adhesives, keys, grooves, etc. **2** Underlays include plasterboard or other rigid sheet lathing. **3** Tiles should be laid with their long edges vertical or parallel to the long axis of the floor or ceiling. **4** The height stated is the height at the top end.
2 Finish to floors, type of finish and overall thickness stated.	m/m^2	**1** ≤ 600mm wide. **2** > 600mm wide.			
3 Raised access floors, type of finish and thickness of panels stated.			**1** Height of cavity stated.		
4 Ramps to raised access floors.	nr	**1** Length, width and height.			
5 Fire barriers in void below raised floor.	m^2/m	**1** Thickness stated. **2** Thickness and height stated.	**1** Fire rating. **2** Method of fixing in position. **3** Obstructed by services.		**1** Fire barriers include all support work, scribing or forming to fit, angles, ends and working around structures, support work and services.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Finish to roofs, type of finish and overall thickness stated.	m/m^2	**1** ≤ 600mm wide. **2** > 600mm wide.	**1** Level and to falls only ≤ 15° from horizontal. **2** To falls, cross falls and slopes ≤15° from horizontal. **3** To falls, cross falls and slopes > 15° from horizontal.		**1** Roof finishes include grass, sedum, etc. and live finishes. **2** They exclude solar reflective paint, chippings, etc. that will be measured with their associated roof covering. **3** Width is the width of each face.
7 Finish to walls, type of finish and overall thickness stated.	m/m^2	**1** ≤ 600mm wide. **2** > 600mm wide.	**1** Curved, radius stated.		**1** The height of wall finishes is measured to the finished ceiling height or specified height past suspended ceilings. **2** Wall finishes are measured behind skirtings unless the skirting is installed before the wall finish. **3** The width is the width of each face.
8 Finish to isolated columns, type of finish and overall thickness stated.					

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
9 Finish to ceilings, type of finish and overall thickness stated.	m/m^2	**1** ≤ 600mm wide. **2** > 600mm wide.	**1** Over 3.50m above structural floor level.		**1** The height of the ceiling is measured from structural floor level to soffit of finished ceiling or isolated beam. **2** The width is the width of each face.
10 Finish to isolated beams, type of finish and overall thickness stated.	m/m^2	**1** ≤ 600mm wide. **2** > 600mm wide.			
11 Finish to treads.	m	**1** Net width stated.	**1** Curved, radius stated.	**1** Nature of background. **2** Insets described.	**1** Ends, angles and outlets are included.
12 Finish to risers.	m	**1** Net width stated.	**1** Curved, radius stated. **2** Undercut.	**1** Nature of background.	
13 Finish to strings and aprons.	m	**1** Net width or girth on face stated.	**1** Raking. **2** Sloping. **3** Curved, radius stated.	**1** Nature of background.	
14 Skirtings, net height stated.	m	**1** Net height stated.	**1** Raking. **2** Sloping. **3** Curved, radius stated.	**1** Nature of background. **2** Cove formers.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
15 Linings to channels.	m	**1** Net girth on face stated.	**1** Raking. **2** Sloping. **3** Curved, radius stated.	**1** Nature of background.	**1** Ends, angles and outlets are included.
16 Kerbs and cappings.	m	**1** Net girth on face stated.			
17 Coves. **18** Mouldings. **19** Cornices. **20** Architraves. **21** Ceiling ribs. **22** Bands.	m	**1** Girth and shape stated.	**1** Patterned, details stated. **2** Horizontal. **3** Raking. **4** Sloping. **5** Vertical. **6** Undercut. **7** Flush. **8** Raised. **9** Sunk.	**1** Method of fixing. **2** Nature of background.	**1** Measure the length in contact with the base. **2** All ends, angles and intersections are included.
		2 Dimensioned description.			
23 Special tiles, slabs or blocks	nr	**1** Dimensioned description.			**1** Special tiles are only measured here if not already measured under items 11–22 of this table.
	m^2	**2** Manufacturers' reference.			
24 Surface dressings, sealers or polishes.	m^2	**1** Type stated. **2** Rate of coverage stated.	**1** Horizontal. **2** Sloping. **3** Vertical. **4** Soffits.	**1** Nature of finish being treated.	**1** Dressings include carborundum grains, stone chippings, etc. **2** Sealers include waterproofers, hardeners, dustproofers, polishes, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
25 Movement joints. **26** Cover strips. **27** Dividing strips. **28** Beads, function stated. **29** Nosings.	m	**1** Dimensioned description.		**1** Method of fixing. **2** Nature of background.	**1** Movement joints include expansion joints. **2** Function of beads include angle beads, stop beads, shadow gap beads, casing beads, etc.
30 Reinforcement, details stated. **31** Metal mesh lathing, details stated. **32** Board insulation, thickness stated. **33** Quilt insulation, thickness stated. **34** Isolation membranes, thickness stated.	m/m^2	**1** To walls. **2** To ceilings. **3** To floors. **4** To roofs. **5** To isolated beams. **6** To isolated columns.	**1** Depth of suspension.	**1** Method of fixing. **2** Nature of background.	
35 Accessories.	nr	**1** Dimensioned description.	**1** Method of fixing.	**1** Nature of background.	**1** Accessories include access panels, special panels in raised access floors, vent grilles, ornaments, etc.
36 Precast plaster components.	m	**1** Dimensioned description or proprietary reference.	**1** Method of fixing.	**1** Nature of background.	**1** The dimensioned description should fully describe the component including stating the end use such as cornice, moulded band, architrave, etc.

Work section 29: Decoration

In this work section:

- painting and clear finishes
- intumescent coatings
- decorative papers or fabrics
- anti-corrosion treatments.

Drawings that should accompany this section of measurement:

1 plans and elevation drawings showing the scope and location of the work

2 painting/decorating schedule(s).

Information that should be provided:

1 type and quality of materials

2 nature of base

3 description of surface if not smooth

4 preparatory work to base

5 type and number of priming or sealing coats

6 type and number of undercoats

7 type and number of finishing coats

8 method of application

9 type of treatment applied between coats

10 pattern of decorative papers

11 method of fixing and jointing papers or fabrics.

Notes:

1 The method of application is left to the contractor unless stated otherwise.

2 The nature of non-smooth base includes a description of base texture and profile such as corrugated, fluted, moulded or carved.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 Ceilings over 3.5m above finished floor level.

Works and materials included:

1 all cutting to line

2 multi-coloured work on differing surfaces

3 all cutting to papers and fabrics

4 rubbing down between coats

5 work to opening edges and portions of frames covered by opening lights and sashes.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Painting general surfaces. **2** Painting glazed surfaces irrespective of pane sizes. **3** Painting structural metalwork. **4** Painting radiators, type stated. **5** Painting gutters. **6** Painting pipes. **7** Painting services, type stated.	m/m^2/ nr	**1** ≤ 300mm girth. **2** > 300mm girth. **3** Isolated areas ≤ 1m^2 irrespective of location or girth.	**1** Internal. **2** External.	**1** Work to ceilings or beams over 3.5m but not exceeding 5m above finished floor level and thereafter in 3m stages. **2** Surfaces to remain unpainted. **3** Multi-coloured on one surface. **4** Patterned, details stated. **5** Fire rating. **6** Application on site before fixing. **7** Application off site before fixing.	**1** The area or girth measured is that covered. **2** The girth of frames, etc. is calculated from one edge to the other over all trims, architraves, stops, etc. and assume doors have been removed before painting. **3** The girth designated as external on door frames, etc. is the part of the frame that is visible when the door is closed. **4** Examples of radiator types are flat, panelled, column, tubular, etc.
8 Painting railings, fences and gates.	m/m^2/ nr	**1** ≤ 300mm girth. **2** > 300mm girth. **3** Isolated areas ≤ 1m^2 irrespective of location or girth.	**1** Closed. **2** Open. **3** Ornamental.		**1** Closed means no gaps whatsoever.
Decorative papers or fabrics					

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
9 Walls and columns. **10** Ceilings and beams.	nr/m^2	**1** Areas ≤ 1m^2. **2** Areas > 1m^2.	**1** Curved surfaces, radii stated.	**1** Lining paper. **2** Work to ceilings or beams over 3.5m but not exceeding 5m above finished floor level and thereafter in 3m stages.	**1** No deduction made for voids ≤ 1m^2.
11 Borders.					**1** Mitres, ends angles, scribing or cutting is included.
12 Motifs.	nr	**1** Dimensioned description or diagram.			

Work section 30: Suspended ceilings

In this work section:

- demountable suspended ceilings
- solid suspended ceilings.

Drawings that should accompany this section of measurement:

1 plans showing the location of the work

2 reflected ceiling plans showing the scope and complexity of the work.

Information that should be provided:

1 type and quality of materials

2 size(s) of panels and strips

3 construction of suspension framing and systems

4 method of fixing

5 nature of background

6 nature of services located in the ceiling void

7 nature of integral services and fittings.

Notes:

1 All work is internal unless described as external.

2 Secondary steel or timber support work is measured elsewhere.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 services located in the ceiling void

2 location of integral services and fittings.

Works and materials included:

1 working over and around obstructions

2 all cutting

3 forming openings and holes

4 all additional support work including bridging for fittings

5 all extra work required for work described as patterned.

Notes:

1 Integral fittings are those designed to be incorporated into the ceiling structure.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Ceilings. **2** Plenum ceilings. **3** Beams. **4** Bulkheads.	m^2	**1** Depth of suspension ≤ 150mm. **2** Depth of suspension 150–500mm. **3** Depth thereafter in 500mm stages.	**1** Type and thickness of lining. **2** Method of fixing lining to suspension. **3** Integral insulation. **4** Integral vapour barrier. **5** Height of work exceeding 3.50m above finished floor level in 1.50m stages.	**1** Patterned, details stated. **2** Sloping. **3** Curved, radius and plane of curve stated. **4** Suspension obstructed by services. **5** Trims at regular intervals in area of ceiling, details stated.	**1** The area measured is that on the exposed face. **2** The depth of suspension is measured from the underside of the main structural soffit or secondary support work to back surface of lining. **3** The height of work is measured from the finished floor level to the face of the ceiling. **4** Where ceilings are suspended from sloping, curved or irregular structures with an average depth of suspension should be stated.
5 Isolated strips.	m	**1** Width ≤ 600mm. **2** Width thereafter in 300mm stages.			
6 Upstands.	m	**1** Height ≤ 600mm. **2** Height thereafter in 300mm stages.			
7 Access panels.	nr	**1** Dimensioned description. **2** Proprietary reference.	**1** Composition. **2** Method of fixing.	**1** Method of locking.	**1** Access panels include all additional support work, framing, edge trim and fixings.
8 Edge trims. **9** Angle trims.	m	**1** Dimensioned description.	**1** Plain. **2** Floating.	**1** Centres of fixing. **2** Nature of background.	**1** Plain trims are those fixed to the structure. **2** Floating trims are those fixed to the ceiling system. **3** Trims include ends and angles.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
10 Fire barriers.	m/m^2	**1** Dimensioned description. **2** Thickness stated.	**1** Fire rating where required.	**1** Method of fixing in position. **2** Obstructed by services stated.	**1** Fire barriers include all support work, scribing or forming to fit, angles, ends and working around structures, support work and services.
11 Collars for services passing through fire barriers.	nr	**1** Diameter of pipe. **2** Size of trunking.	**1** Pipes. **2** Trunking.	**1** Length of sleeve each side of barrier stated. **2** Fire rating.	**1** Collars are only measured here where they are integral to the fire barrier. If they are not integral they should be measured in accordance with the items in work section 40.
12 Fittings.	m/nr	**1** Dimensioned description.		**1** Nature of background stated.	
13 Shadow gap battens.	m	**1** Dimensioned description.		**1** Centres of fixing. **2** Nature of background.	**1** Ends, angles, etc. are included.

Work section 31: Insulation, fire stopping and fire protection

In this work section:

- board, sheet, quilt, sprayed, loose fill or foamed insulation and fire protection installations.

Drawings that should accompany this section of measurement:

1 plans, sections and details that are sufficient to show the scope and location of the various works relating to this section.

Information that should be provided:

1 type, quality and thickness of materials

2 fire rating where required

3 extent of laps

4 method of fixing, laying or applying where not at the discretion of the contractor.

Works and materials included:

1 all cutting

2 working around or over all members and services.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Boards. **2** Sheets. **3** Quilts. **4** Loose.	m^2	**1** Thickness stated.	**1** Plain areas. **2** Laid across joists, rafters, partition framing or similar members, centres of members stated. **3** Laid between joists, rafters, partition framing or similar members, centres of members stated.	**1** Horizontal. **2** Vertical. **3** Sloping. **4** Soffit.	**1** The area measured is that covered. **2** No deduction is made for voids ≤ $1m^2$. **3** The area of joists, rafters, partition framing or similar members is deducted when the material is laid between such members. **4** Sloping is the upper surface that is not horizontal. **5** Soffits are the underside of any horizontal or sloping structure.
	m	**2** Purpose and dimensioned description.	**4** Location stated		
5 Sprayed.	m^2	**1** Thickness stated.		**1** Nature of background.	
6 Filling cavities.	m^2	**1** Thickness stated.	**1** Mineral fibre. **2** Plastic beads. **3** Cellulose fibre. **4** Expanding foam. **5** Other type of blown or injected material.	**1** Internal. **2** External.	**1** Drilling holes in the structure to allow injection of material and subsequent making good is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
7 Fire stops, type stated.	m	**1** Dimensioned description. **2** Fire rating.	**1** Horizontal. **2** Vertical. **3** Raking. **4** Stepped. **5** Curved, radius stated.	**1** Method of fixing. **2** Background when mechanically fixed.	
8 Fire sleeves, collars, etc.	nr	**1** Dimensioned description. **2** Fire rating.		**1** Method of fixing. **2** Background when mechanically fixed.	

Work section 32: Furniture, fittings and equipment

In this work section:

- general fixtures, furnishings and equipment
- kitchen fittings
- catering equipment
- sanitary appliances and fittings
- notices and signs
- site and street furniture
- bird/vermin control
- fall restraint and fall arrest systems.

Drawings that should accompany this section of measurement:

1 location drawings.

Information that should be provided:

1 enough information to design, procure or manufacture the item

2 type and quality of materials

3 details of all associated building work

4 tests with which materials and equipment should comply.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 components.

Works and materials included:

1 marking positions

2 connecting to services

3 commissioning

4 all associated excavations and concrete foundations or bases unless stated as measured elsewhere.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Fixtures, fittings or equipment without services. **2** Fixtures, fittings or equipment with services.	nr	**1** Component drawing reference. **2** Dimensioned diagram. **3** Manufacturers reference.	**1** Ancillary items provided with the equipment. **2** Integral controls and indicators. **3** Remote controls and indicators. **4** Supports, mountings and brackets.	**1** Nature of fixing. **2** Nature of background.	**1** Accepting delivery, unloading, transporting about site, storing and handling and disposing of all packing materials are included.
3 Ancillary items not provided with the item of equipment.	nr	**1** Type, size and method of jointing stated.			
4 Fixtures, fittings or equipment supplied by the employer.	nr	**1** Type and size.	**1** Collecting from location off site, details stated.		
5 Signwriting.	nr	**1** Dimensioned description.	**1** Font.	**1** Nature of background.	
6 Fall restraint and fall arrest systems.	item	**1** Manufacturer/supplier and/or enough information on the scope of works required to complete installation. **2** Training. **3** Commissioning.	**1** Total area(s) of roof/surface to be accessible from system.		**1** Each roof or surface area should be separated.

Work section 33: Drainage above ground

In this work section:

- rainwater installations
- foul drainage installations.

Drawings that should accompany this section of measurement:

1 roof plan(s)

2 floor plans of any floors that have drainage installations

3 principal sections and elevations.

Information that should be provided:

1 location of installation

2 nature of background

3 method and spacing of fixing

4 method and spacing of joints

5 Description of material

6 type of brackets or supports

7 finish.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 scope and location of work.

Works and materials included:

1 all joints

2 all brackets and supports.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Pipework.	m	**1** Nominal diameter.	**1** Straight, curved, flexible. **2** Extendable. **3** Method of jointing.	**1** Method of fixing to background.	**1** Measured over all fittings.
2 Pipework ancillaries.	nr	**1** Dimensioned description.			**1** Ancillaries include valves, non-return flaps, reducers, tapers, bends, hoppers, gullies, tun dishes, rodding eyes, traps, access doors, angles, offsets, shoes, sockets, tappings, bosses, etc. **2** This list is not exhaustive.
3 Items extra over the pipe in which they occur.	nr	**1** Fittings, nominal pipe size ≤ 65mm. **2** Fittings, nominal pipe size > 65mm.	**1** One end. **2** Two ends. **3** Three ends. **4** Other, details stated.	**1** With inspection door. **2** Method of jointing stated where different from pipe in which the fitting occurs.	**1** Cutting and jointing pipes to fittings is included. **2** Fittings that are reducing are measured extra over the largest pipe in which they occur.
4 Pipe sleeves through walls, floors and ceilings.	nr	**1** Type and nominal diameter of pipe. **2** Length of sleeve or thickness of structure being passed through. **3** Fire rating.	**1** Type of structure being passed through described.	**1** Method of fixing and packing. **2** Handing to others for fixing.	**1** All making good including fire stopping is included.
5 Gutters.	m	**1** Nominal size.	**1** Straight, curved, flexible. **2** Extendable. **3** Method of jointing.	**1** Method of fixing to background.	**1** Measured over all fittings.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Gutter ancillaries.	nr	**1** Dimensioned description.			**1** Ancillaries include stop ends, angles, outlets, overflows, tapers, reducers, etc. **2** The list is not exhaustive.
7 Items extra over the gutter in which they occur.	nr	**1** Dimensioned description.			
8 Marking, position of and leaving or forming all holes, mortices, chases, etc. required in the structure.	item	**1** Number and type of installations.			
9 Identification.	nr	**1** Plates. **2** Discs. **3** Labels. **4** Tapes. **5** Symbols or numbers. **6** Bands. **7** Charts or diagrams. **8** Other, type stated.	**1** Details stated.	**1** Method of fixing.	
10 Testing and commissioning.	item	**1** Installation stated.	**1** Attendance required. **2** Insurances required by employer.	**1** Preparatory operations stated. **2** Stage tests (nr) listed and purpose stated.	**1** All fuel and power used is included. **2** Provision of test certificates is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
11 Preparing drawings.	item	**1** Number of copies stated.	**1** Method stated. **2** Information to be shown stated.	**1** Working drawings. **2** As fitted drawings.	
12 Operating manuals and instructions.	item				

Work section 34: Drainage below ground

In this work section:

- storm water drain systems
- foul drain systems
- pumped drain systems
- land drainage.

Drawings that should accompany this section of measurement:

1 drainage layout(s).

Information that should be provided:

1 type and quality of materials.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 layout of drainage showing scope of work

2 invert depths

3 cover levels

4 pipe sizes

5 details of manholes, inspection chambers and other pits, tanks, chambers, etc.

6 work outside site boundary.

Works and materials included:

1 earthwork support

2 compacting bottoms of excavations

3 trimming excavations

4 backfilling with excavated materials

5 compacting backfill

6 disposal of surplus excavated materials

7 disposal of all water

8 lengths of pipes in manhole walls

9 building in ends of pipes

10 bedding and pointing.

Notes:

1 Work outside site boundary should be measured separately.

2 Work below buildings should be measured separately.

3 All trenches should be measured as cover level to invert level, irrespective of the starting level of the trench. Any site-specific information affecting this should be identified as a condition of pricing.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Drain runs.	m	**1** Average trench depth in 500mm increments. **2** Type and nominal diameter of pipe. **3** Multiple pipes stating number and nominal diameter of pipes.	**1** Method of jointing pipes. **2** Pipe bedding and/or surround, details stated. **3** Type of backfill if not obtained from the excavations.	**1** Vertical. **2** Curved. **3** Below groundwater level. **4** Next to existing roadway or path. **5** Next to existing building. **6** Specified multiple handling, details stated. **7** Disposal of excavated material where not at the discretion of the contractor, details stated.	**1** Drain runs are measured from the external face of the manhole to the external face of the manhole or accessory. **2** Average depth is calculated for each run irrespective of maximum depth.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
2 Items extra over drain runs irrespective of depth or pipe size.	m^2	**1** Breaking up hard surface pavings, thickness stated. **2** Lifting and preserving turf, thickness stated.	**1** Reinstating to match existing, details stated. **2** Relaying turf previously set aside.		**1** The measurement of these extra over items should be based on the designed width of beds in the trench. In the absence of a bed the width should be calculated as the nominal size of the service plus 300mm subject to a minimum width of 500mm. **2** Hard material is any material that can only be removed by special plant or explosives due to its size, position or consistency.
	m^3	**3** Breaking out hard materials. **4** Excavating in and removing hazardous material. **5** Excavating in running silt, running sand or other unstable ground. **6** Excavating below groundwater level.	**1** Details stated.		
	m	**7** Next to existing live services.			**1** This should be measured where precautions are specifically required. The method of protection is left to the discretion of the contractor. **2** If in doubt the surveyor should measure an item giving the nature of the service.
	nr	**8** Around existing live services crossing trench.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Pipe fittings.	nr	**1** Dimensioned description.	**1** Type stated. **2** Method of jointing to pipes.		**1** Pipe fittings include bends, junctions, inspection pipes, rodding eyes, etc.
4 Accessories.	nr				**1** Accessories include gullies, traps, inspection shoes, fresh air inlets, non-return flaps, valves, rodding eyes, etc. and include gratings, covers, frames, baskets, filters and all other integral and/or associated fittings. **2** This list is not exhaustive.
5 Pumps.	nr	**1** Size and capacity stated.	**1** Integral controls. **2** Remote controls. **3** Indicators. **4** Supports.	**1** Method of fixing. **2** Nature of background.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
6 Manholes. **7** Inspection chambers. **8** Soakaways. **9** Cesspits. **10** Septic tanks. **11** Other tanks and pits, type stated.	nr	**1** Detailed description stating maximum internal size of chamber. **2** Depth from the top surface of cover to invert level in 250 mm stages. **3** Proprietary system, details stated.	**1** Base slab thickness. **2** Wall thickness. **3** Cover slab dimensions. **4** Intermediate slab dimensions. **5** Benching dimensions. **6** Main channel diameter and configuration. **7** Number and diameter of branch channels. **8** Internal finish. **9** External finish. **10** Step irons.		**1** The size stated is the maximum internal size of the chamber. **2** Rocker joints are included. **3** Other tanks and pits would include catch pits, service chambers, stopcock pits, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
12 Extra over the excavation for:	m^2	**1** Breaking up hard surface pavings, thickness stated. **2** Lifting and preserving turf, thickness stated.			**1** Making good around edges of surfaces is included.
	m^3	**3** Breaking out hard materials. **4** Excavating in and removing hazardous materials. **5** Excavating in running silt, running sand or other unstable ground. **6** Excavating below ground water level.			
13 Sundries.	nr	**1** Detailed dimensioned description.	**1** Intercepting traps. **2** Backdrops. **3** Any other associated item, type stated.		**1** Bedding, jointing and building is included. **2** These items may be included with their associated manhole or chamber if part of a proprietary system.
14 Covers and frames.	nr	**1** Dimensioned description.	**1** Manufacturer's reference.	**1** Method of fixing frame.	**1** Bedding covers in grease is included.
15 Marker posts.	nr	**1** Dimensioned description.	**1** Identification plates, details stated.	**1** Method of fixing, details stated.	**1** Excavation, disposal of spoil and concrete for base is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
16 Connections.	item	**1** Details stated.			
17 Testing and commissioning.	item	**1** Detailed description. **2** Type of test and standard to be achieved.	**1** Attendance required. **2** Instruments and equipment to be provided.	**3** Preparatory operations stated. **4** Stage tests (nr) listed.	**1** Provision of all fuel, power, water and other supplies is included. **2** Provision of test certificates is included.

Work section 35: Site works

In this work section:

- road and path pavings
- hard landscaping
- sports surfacing.

Drawings that should accompany this section of measurement:

1 site plans and sections

2 component details.

Information that should be provided:

1 type, quality, shape and size of materials and components

2 treatment and layout of joints

3 nature of base

4 preparatory work

5 bedding and/or methods of fixing.

Notes:

1 Unless stated as included, all associated excavations, disposals and fillings are measured in accordance with work section 5.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 scope and location of the work.

Works and materials included:

1 all work is external unless described as internal

2 formwork and all other temporary support

3 fair joints

4 fair edges

5 working over and around obstructions and into recesses and shaped inserts

6 forming shallow channels

7 cutting

8 disposal of surplus excavated material off site.

Notes:

1 The areas measured are those in contact with the base.

2 No deductions made in superficial items for voids ≤ 1m^2.

3 All thicknesses stated are nominal or finished after laying and compacting.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Kerbs. **2** Edgings. **3** Channels. **4** Paving accessories.	m	**1** Dimensioned description.	**1** Curved, radius stated.	**1** Foundation, size and details stated. **2** Reinforcement, details stated. **3** Method of fixing or support.	**1** Excavation and disposal is included. **2** Ends, angles, outlets and intersections are included. **3** Edgings include pegs and supports.
5 Extra over for:	nr	**1** Special unit. **2** Accessories.	**1** Dimensioned description.		
6 In-situ concrete. **7** Formwork. **8** Reinforcement. **9** Joints. **10** Worked finishes. **11** Accessories cast in.		**1** All measured in accordance with rules of work section 11.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
12 Coated macadam and asphalt.	m^2/m	**1** Over 300mm wide, thickness stated. **2** Not exceeding 300mm wide, thickness and width stated.	**1** Roads. **2** Pavings.	**1** Level and to falls only. **2** To falls and crossfalls and slopes ≤ 15° from horizontal. **3** To slopes > 15° from horizontal. **4** Method of application. **5** Surface treatment or finish. **6** Special curing of finished work.	
		1 Thickness and girth on face stated.	**3** Linings to channels.	**7** Horizontal. **8** To falls.	**1** Arrises, coves, ends, angles and outlets are included.
13 Gravel, hoggin and woodchip.	m^2/m	**1** Over 300mm wide, thickness stated. **2** Not exceeding 300mm wide, thickness and width stated.	**1** Roads. **2** Pavings.	**1** Level and to falls only. **2** To falls and crossfalls and slopes ≤ 15° from horizontal. **3** To slopes > 15° from horizontal. **4** Method of application. **5** Surface treatment or finish. **6** Special curing of finished work.	**1** The area measured is that in contact with the base.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
14 Interlocking brick and blocks, slabs, bricks, blocks, setts and cobbles.	m^2/m	**1** Over 300mm wide. **2** Not exceeding 300mm wide, thickness and width stated.	**1** Roads. **2** Pavings. **3** Treads. **4** Risers. **5** Margins or bands. **6** Channels.	**1** Bedding, thickness stated. **2** Level and to falls only. **3** To falls, crossfalls and slopes ≤ 15° from horizontal. **4** To slopes > 15° from horizontal. **5** Laid in bays, average size of bays stated. **6** Joint pattern stated. **7** Curved, radius stated. **8** Foundation and haunching.	**1** Setting pavings into recessed manhole covers is included. **2** All cutting and fitting is included. **3** Excavation and disposal is included. **4** Ends, angles, outlets and intersections are included
	m	**3** Thickness and girth on face stated.	**7** Linings to channels.	**9** Horizontal. **10** To falls.	**5** Arrises, coves, ends, angles and outlets are included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
15 Extra over for:	nr	**1** Special units. **2** Accessories.	**1** Dimensioned description.		**1** Special units include gulley surrounds, hoppers and the like.
16 Accessories	m^2	**1** Thickness stated.	**1** Membranes.		
	m	**2** Dimensioned description.	**2** Movement joints. **3** Expansion joints		**1** Joints located at the discretion of the contractor are not measuarable.
17 Site furniture	nr	**1** Dimensioned description. **2** Manufacturers reference.	**1** Tree grilles. **2** Bollards. **3** Litter bins. **4** Seats. Other: type stated	**1** Method of fixing.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
18 Liquid applied surfacings **19** Sheet surfacings **20** Tufted surfacings **21** Proprietary coloured sports surfacings **22** Surface dressings	m^2	**1** Thickness stated.	**1** Number of costs or layers.	**1** Level and to falls only. **2** To falls and crossfalls and slopes ≤ 15° from horizontal. **3** To slopes > 15° from horizontal. **4** Method of application or fixing. **5** Surface treatment or finish. **6** Special curing of finished work. **7** Extent of laps. **8** Type of seams.	
23 Line markings, width stated	m	**1** Width ≤ 300mm. **2** Width > 300mm: width stated.	**1** Straight, continuous. **2** Straight, broken. **3** Curved, continuous: radius stated. **4** Curved, broken: radius stated.	**1** Number of coats. **2** Method of application. **3** Treatment applied between coats. **4** Colour.	
24 Letters, figures and symbols	nr	**1** Dimensioned description.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
25 Sheet linings to pools, lakes, ponds, waterways and the like	m m^2	**1** Width ≤ 500mm **2** Width > 500mm	**1** Horizontal. **2** Sloping, slope stated. **3** Curved, radius stated. **4** Vertical.	**1** Underlays.	**1** The area measured is net and is that in contact with base. **2** No deduction is made for voids ≤ 1.00m^2. **3** No allowance is made for laps and the like. **4** All other requirements of Work Section 19: Waterproofing will apply to the measurement of this work.
26 Spot items	nr	**1** Dimensioned diagram. Or **2** Dimensioned description.	**1** Sumps. **2** Outlets. **3** Collars or sleeves. **4** Other, type stated.		**1** Spot item work is deemed to include joints, dressing and bonding to surrounding work, undercloaks and other associated linings, ends, angles, bedding, pointing, fixings and the like.

Work section 36: Fencing

Drawings that should accompany this section of measurement:

1 site plans and sections

2 component details.

Information that should be provided:

1 type and quality of materials

2 method of construction

3 surface treatments or finishes applied as part of the manufacturing process or applied before delivery to site

4 nature and size of backfilling.

Notes:

1 Unless stated as included, all associated excavations, disposals and fillings are measured in accordance with work section 5.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 scope and location of the work

2 location of fencing designed for sloping ground

3 pre-contract groundwater level(s) and date(s) established.

Works and materials included:

1 all excavations, backfilling and disposal off site of surplus materials

2 earthwork support

3 disposal of ground and surface water

4 in-situ concrete for post bases, etc.

5 temporary supports

6 formwork.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Fencing, type stated.	m	**1** Height of fence.	**1** Spacing, height and depth of supports.	**1** Set to curve but straight between posts. **2** Curved, radius stated. **3** Ground sloping > 15° from horizontal. **4** Lengths ≤ 3m.	**1** Fencing is measured over all supports. **2** The height of fencing is measured from the finished surface of the ground to the top of the infilling or, where there is no infilling, to the top wire or rail unless otherwise stated. **3** Supports are posts, struts, etc. occurring at regular intervals. **4** Curved fencing is fencing curved between supports. **5** The depth of supports and special supports is the depth below the ground surface or other stated base. **6** The height of supports and special supports is the height above the ground surface or other stated base.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
2 Extra over for special supports.	nr	**1** Size, height and depth stated.	**1** End post. **2** Angle or corner post. **3** Integral gate post. **4** Straining post. **5** Other, type stated.	**1** Method of fixing. **2** Background stated. **3** Details of backstays or struts stated.	**1** Integral and independent gate posts include slamming stops and hanging pins or fillets.
3 Independent gate posts.	nr				
4 Items extra over fencing, supports and special supports and independent gate posts irrespective of type.	m^3	**1** Excavating below groundwater level. **2** Excavating in hazardous material, details stated.			**1** If the post-contract groundwater level differs from the pre-contract groundwater level, the measurements are adjusted accordingly.
	m^3/m^2	**3** Breaking out existing. **4** Breaking up existing hard pavings, thickness stated.	**1** Rock. **2** Concrete. **3** Reinforced concrete. **4** Brickwork, blockwork or stonework. **5** Tarmacadam or asphalt.		**1** Rock is any hard material that can only be removed with wedges, rock hammers, special plant or explosives due to its size or location. **2** A boulder ≤ $5m^3$ in volume or one that can be lifted out in the bucket of an excavator will not constitute rock. **3** Degraded or friable rock that can be scraped out by the excavator bucket does not constitute rock. **4** Making good existing hard pavings is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
5 Gates.	nr	**1** Height and width stated.	**1** Type stated.	**1** Power supply.	**1** Gates include stops, catches, independent stays, sounders, warning lights and all associated work.
6 Ironmongery.	nr	**1** Type of item, unit or set stated.	**1** Type and quality of materials and fixings. **2** Surface finish. **3** Constituent parts of the units or sets.	**1** Method of fixing. **2** Nature of base.	**1** Ironmongery includes fixing with screws or bolts to match and preparing the base to receive it.

Work section 37: Soft landscaping

Drawings that should accompany this section of measurement:

1 site plans and sections

2 component details

3 planting schedule.

Information that should be provided:

1 type, quality, size and composition of materials

2 preparatory work

3 timing of operations

4 size and type of pits, holes and trenches, either excavated or formed

5 types of supports and ties

6 special filling materials

7 method of labelling

8 work on roofs, etc. stated

9 work in crib walls stated.

Notes:

1 Unless stated as included, all associated excavations, disposals and fillings are measured in accordance with work section 5.

2 Supply of, placing and working with topsoil (imported or site won) is measured in accordance with work section 5.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 scope and location of the work.

Works and materials included:

1 all work is external unless described as internal

2 all excavations and backfilling

3 all necessary multiple handling of excavated material

4 disposal of surplus excavated material off site

5 removal of stones and rubbish

6 watering

7 labelling.

Notes:

1 The areas measured are those in contact with the base.

2 No deductions are made in superficial items for voids ≤ 1m^2.

3 All thicknesses stated are nominal or finished after laying and compacting.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Cultivating.	m^2	**1** Depth stated.	**1** Method and degree of tilth.		
2 Surface applications.	m^2	**1** Type and rate stated. **2** Method of application stated.	**1** Herbicides. **2** Weedkillers. **3** Peat. **4** Manure. **5** Compost. **6** Mulch. **7** Fertiliser. **8** Sand. **9** Soil ameliorates. **10** Other, details stated.	**1** Before sowing or planting. **2** After planting. **3** Around individual plants. **4** To general areas. **5** To beds. **6** To planters. **7** To pots	**1** Working in is included.
3 Seeding.	m^2	**1** Rate stated.	**1** Grass seed. **2** Cultivated plant seed. **3** Wildflower seed. **4** Other, type stated.		**1** Raking in, harrowing and rolling is included.
4 Turfing.	m^2	**1** Type and thickness stated.			**1** Cutting includes trimming edges.
	m	**2** Type, width and thickness stated.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
5 Trees.	nr	**1** Botanical name.	**1** British Standard (BS)size designation and root system stated. **2** Girth, height and clear stem and root system stated.	**1** Planting in cultivated or grassed areas prepared by others should be stated including all necessary reinstatement. **2** Planting indoors should be stated. **3** Details of initial cut back should be stated. **4** Details of watering should be stated. **5** Backfill type should be stated if not the material arising from excavations.	**1** Supports and ties are included. **2** BS size includes standard, advanced nursery stock or semi-mature types. **3** Young nursery stock includes seedlings, transplants and whips.
6 Young nursery stock trees.	nr		**3** Height and root system stated.		
7 Shrubs.	nr				
8 Hedge plants.	nr		**4** Height stated.		
	m		**5** Height, spacing, number of rows and layout stated.		
9 Plants.	nr		**6** Size stated.		
	m^2		**7** Size and number per m^2 stated.		
10 Bulbs, corms and tubers.	nr		**8** Size stated		
	m^2		**9** Size and weight per m^2 stated.		
11 Plant containers.	nr	**1** Dimensioned description.	**1** Linings, type stated.	**1** Method of fixing.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
12 Protection.	m	**1** Temporary fencing, type and duration stated.	**1** Ultimate ownership, details stated.		**1** Permanent fencing is measured in accordance with the rules of work section 36.
	nr	**2** Tree guards, dimensioned description.	**2** Type stated.	**1** Method of fixing stated.	
	nr	**3** Wrappings, height of wrapping and girth of tree stated.	**3** Chemical application stated.	**2** Method of fixing stated.	
	nr	**4** Anti-desiccant sprays, height and girth of tree or spread of plant stated.	**4** Type stated.	**3** Rate of spray stated.	
	item	**5** General, details stated.	**5** Duration.		
13 Maintenance.	item	**1** Details stated			

Work section 38: Mechanical services

Drawings that should accompany this section of measurement:

1 floor and site plans detailing layout of systems

2 system schematics

3 cross-sections and elevations

4 detailed layouts for plantrooms and principal services installation areas

5 installation details for equipment and fittings

6 equipment schedules.

Information that should be provided:

1 type, quality and size or thickness of materials

2 method of fixing

3 location.

Notes:

1 Where the information is available, measurement of pipework and/or ductwork should be fully detailed with the measurement of fittings identified and measured separately, in accordance with item 4 in the table below. However, where the information is not available, pipework/ductwork and associated insulation and fire protection should be measured inclusive of fittings.

Works and materials included:

1 all waste

2 extra material for labour-made fittings

3 all couplings, brackets, supports, fixings and cast-in channels

4 all labelling, tagging, identification and charts

5 marking of all holes, chases and mortices

6 earth connectors, straps and links.

Notes:

1 All work is internal unless stated as external.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Primary equipment.	nr	**1** System.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors.	**1** Type, size, capacity, load, rating, special finishes, casings, in-fills, associated integrated or remote ancillaries, controls, indicators or components, anti-vibration mountings, acoustic performance/treatment and method of fixing.	**1** Primary equipment is defined as plant or equipment from which a system originates, e.g. boiler, main storage tank, air handling unit, fan, etc. **2** This should be cross-referenced to drawings and/or a full specification. **3** High and low level should be in accordance with national health and safety recommendations and national working rule agreements.
	nr	**2** Off-load and position primary equipment.			
	nr	**3** Assembly of composite items of primary equipment.			
2 Terminal equipment and fittings.	nr	**1** System.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors.	**1** Type, size, capacity, load, rating, special finishes, casings, in-fills, associated integrated or remote ancillaries, controls, indicators or components, anti-vibration mountings, acoustic performance/treatment and method of fixing.	**1** Terminal equipment and fittings are defined as any item to which a system is distributed to, e.g. heat emitters, grilles, fan coil units, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Pipework.	m	**1** Material, finish, nominal diameter, method of jointing, fixings and background for fixing.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.		**1** Generally, all pipework should be measured inclusive of all fittings, i.e. unions, connectors, flanges, bends, tees, junctions, reducers, test points, bosses, sockets, tappings, etc. **2** Unless measured separately, all fittings are included.
4 Alternative – pipe fittings.	nr	**1** Type, material, finish, nominal diameter, method of jointing.			**1** Unions, connectors, flanges, bends, tees, sets, junctions, reducers, test points, bosses, sockets, tappings, etc.
5 Pipe ancillaries.	nr	**1** Type, material, finish, nominal diameter, method of jointing.			**1** Valves, strainers, expansion bellows, anchors, guides and rollers, gullies, outlets, rainwater heads, tundishes, traps, pipe sleeves, wall, floor and ceiling plates, etc.
6 Ventilation ducts.		**1** Material, finish, section shape, dimensions, method of jointing, fixings and background for fixing. **2** Unless measured separately, all fittings are to be included.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors.		**1** Generally, all ductwork should be measured inclusive of all fittings, i.e. connectors, flanges, bends, tees, junctions, reducers, spigots, test holes, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
7 Alternative – duct fittings.	nr	**1** Type, material, finish, shape, dimensions, method of jointing.			**1** Joints, flanges, bends, tees, sets, junctions, reducers, spigots, test holes, etc.
8 Duct ancillaries.	nr	**1** Type, material, finish, shape, dimensions, method of jointing.			**1** Dampers, in-duct heater/cooling coils.
9 Insulation and fire protection.	nr	**1** Type, material, finish.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.	**1** To equipment and fittings.	
	m	**2** Thickness, material, finish, nominal diameter of pipe.		**1** To pipework.	**1** Generally, all insulation to pipework should be measured inclusive of all fittings, i.e. unions, connectors, flanges, bends, tees, sets, junctions, reducers, test points, bosses, sockets, tappings, etc.
		3 Unless measured separately, all fittings are included.			
10 Alternative – insulation and fire protection to pipe fittings.	nr	**1** Type, material, finish, nominal diameter, method of jointing.			**1** Unions, connectors, flanges, bends, tees, sets, junctions, reducers, test points, bosses, sockets, tappings, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
11 Insulation and fire protection to pipe ancillaries.	nr	**1** Type, material, finish, nominal diameter, method of jointing.			**1** Valves, strainers, expansion bellows, gullies, outlets, tundishes, traps, pipe sleeves, etc.
12 Insulation and fire protection to ventilation ducts.	m^2	**1** Thickness, material, finish, duct dimensions.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.		**1** Generally, all insulation to ductwork should be measured inclusive of all fittings, i.e. connectors, flanges, bends, tees, sets, junctions, reducers, spigots, test holes, etc. on the external girth of the duct to be insulated.
		2 Unless measured separately, insulation and fire protection to all fittings is included.			
13 Alternative – insulation and fire protection to duct fittings.		**1** Type, material, finish, nominal diameter, method of jointing.			**1** Joints, flanges, bends, tees, sets, junctions, reducers, spigots, test holes, etc.
14 Insulation and fire protection to equipment.	m^2	**1** Thickness, material, finish, nominal area, performance rating.			**1** Insulation to equipment is measured separately where not given in the description of the items to which it relates.
15 Fire stopping.	nr	**1** Material, location, size of opening to be stopped, size of service stopping to be installed around, depth and fire rating.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
16 Identification.	item	**1** Plates. **2** Discs. **3** Labels. **4** Tapes. **5** Symbols or numbers. **6** Bands. **7** Charts or diagrams. **8** Other, type stated.			
17 Testing.	item				**1** This includes chemical treatment, purging, sterilisation, pressure testing.
18 Commissioning.	item				**1** This includes all final balancing, calibration and setting to work.
19 System validation.	item				
20 Operation and maintenance manuals.	item				
21 Drawing preparation.	item	**1** Classification of drawings.			**1** Installation, coordination, as installed, and record drawings.
22 Training.	item				

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
23 Loose ancillaries.	item	**1** Keys, tools, spares, chemicals, etc.			
24 Post-completion services.	item	**1** Maintenance, adjustments, servicing, etc.			**1** See glossary of terms for definition of completion.

Work section 39: Electrical services

Drawings that should accompany this section of measurement:

1 floor and site plans detailing layout of systems

2 system schematics

3 cross-sections and elevations

4 detailed layouts for plantrooms and principal services installation areas

5 specific installation details for equipment and fittings

6 equipment schedules.

Information that should be provided:

1 type, quality and size or thickness of materials

2 method of fixing

3 location.

Works and materials included:

1 all work is internal unless stated as external

2 all waste

3 extra material for labour-made fittings

4 al brackets, supports, fixings and cast-in channels

5 all labelling, tagging, identification and charts

6 marking of all holes, chases and mortices

7 earth connectors, straps and links.

Notes:

1 Where the information is available, measurement of cable containment and busbars should be fully detailed with the measurement of fittings identified and measured separately, in accordance with item 4 in the table below. However, where the information is not available, cable containment and busbars should be measured inclusive of fittings.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 Primary equipment.	nr	**1** System.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors.	**1** Type, size, capacity, load, rating, associated integrated or remote ancillaries, controls, indicators or components and method of fixing.	**1** Primary equipment is defined as plant or equipment from which a system originates, e.g. main switchboard, main control box, etc. **2** High and low level should be in accordance with national health and safety recommendations and national working rule agreements.
	nr	**2** Off-load and position primary equipment. **3** Assembly of composite items of primary equipment.			
2 Terminal equipment and fittings.	nr	**1** System.	**1** Type, size, capacity, load, rating, special finishes, casings, in-fills, associated integrated or remote ancillaries, controls, indicators or components and method of fixing.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors.	**1** Terminal equipment and fittings are defined as any item to which a system is distributed to, e.g. luminaires, switches, actuators, etc.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Cable containment.	m	**1** Type, material, finish, section shape, dimensions, number of compartments, method of jointing, fixings and background for fixing.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.		**1** Generally all cable containment to be measured inclusive of all fittings, i.e. joint boxes, connectors, flanges, bends, tees, junctions, reducers, spigots, fire barriers, etc.
		2 Unless measured separately, all fittings are deemed to be included.			
4 Alternative – cable containment fittings.	nr	**1** Type, material, finish, shape, dimensions, method of jointing.			**1** Joint boxes, connectors, flanges, bends, tees, sets, junctions, reducers, spigots, fire barriers, etc.
5 Cables.	m	**1** Type, rating, size, number of cores, material, armouring, sheathing, method of jointing, fixings and background for fixing.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.		
6 Cable terminations and joints.	nr	**1** Type, rating, size, number of cores, material, armouring, sheathing.			**1** This includes all pots, seals, glands, lugs, connector blocks and shrouds.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
7 Final circuits.	nr	**1** Cable type, rating, size, material, sheathing, number and type of points.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors.		**1** This includes all containment not measured separately, junction boxes, terminations, pots, seals, glands, lugs, connector blocks and shrouds. **2** This includes fixing containment or cables in chases, surface or suspended from soffits.
8 Modular wiring systems.	nr	**1** Cable type, rating, size, material, sheathing, number and type of points.			**1** This includes all containment not measured separately, junction boxes, terminations, pots, seals, glands, lugs, connector blocks and shrouds. **2** This includes fixing containment or cables in chases, surface or suspended from soffits.
9 Busbar.	m	**1** Type, rating, material, number of bars, method of jointing, fixings and background for fixing.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.		**1** Generally all busbar should be measured inclusive of all fittings, i.e. connectors, flanges, bends, tees, sets, junctions, feeder units, tap-off boxes fire barriers, etc.
		1 Unless measured separately, all fittings are included.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
10 Alternative – busbar fittings.	nr	**1** Type, material, finish, shape, dimensions, method of jointing.			**1** Connectors, flanges, bends, tees, sets, junctions, feeder units, tap-off boxes fire barriers, etc. **2** Joints, flanges, bends, tees, sets, junctions, reducers, spigots, test holes, etc.
11 Tapes.	m	**1** Type, rating, size, material, sheathing, method of jointing, fixings and background for fixing.	**1** Location of installation – roofs, high or low level in plantrooms, risers or service ducts, high or low level on floors, in trenches.		**1** This includes all connections, joints, test clamps.
12 Electrodes, earth rods, air terminations, termination bars.	nr	**1** Type, rating, size, material, method of jointing, fixings and background for fixing.			
13 Fire stopping and other associated fire protection work.	nr	**1** Material, location, size of opening to be stopped, size of service stopping to be installed around, depth and fire rating.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
14 Identification.	item	**1** Plates. **2** Discs. **3** Labels. **4** Tapes. **5** Symbols or numbers. **6** Bands. **7** Charts or diagrams. **8** Other, type stated.			
15 Testing.	item				
16 Commissioning.	item				
17 System validation.	item				
18 Operation and maintenance manuals.	item				
19 Drawing preparation.	item	**1** Classification of drawings.			**1** Installation, coordination, as installed and record drawings.
20 Training.	item				
21 Loose ancillaries.	item	**1** Keys, tools, spares, chemicals.			
22 Post-practical completion services.	item	**1** Maintenance, adjustments and servicing.			

Work section 40: Transportation systems

Drawings that should accompany this section of measurement:

1 location plans.

Information that should be provided:

1 type, quality and size or thickness of materials

2 location

3 earth connectors, straps and links.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 overall dimensions of items or systems.

Works and materials included:

1 all waste

2 extra material for labour-made fittings

3 all brackets, supports, fixings and cast-in channels

4 all labelling, tagging, identification and charts

5 marking of all holes, chases and mortices.

Notes:

1 All work is internal unless stated as external.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
1 System.	nr	**1** Type, size, capacity, load, rating, length, number of stops, storey height, associated integrated or remote ancillaries, controls, indicators or components.			**1** This should be cross-referenced to drawings and/or a full specification detailing finishes.
	nr	**2** Off-load and position primary equipment.			
	nr	**3** Assembly of composite items of primary equipment.			
	item	**4** Free issue fixing steelwork and other components for installation by others.	**1** Type of free issue materials.		
	item	**5** Interface with and connection to systems supplied and installed by others.	**1** Type of system.	**1** Nature of interface.	**1** Systems supplied and installed by others will include telephones, intercoms, fire alarm, etc.
2 Fire stopping and other associated fire-protection work.	nr	**1** Material, location, size of opening to be stopped, size of service stopping to be installed around, depth and fire rating.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
3 Identification.	item	**1** Plates. **2** Discs. **3** Labels. **4** Tapes. **5** Symbols or numbers. **6** Bands. **7** Charts or diagrams. **8** Other, type stated.			
4 Testing and commissioning.	item				
5 System validation.	item				
6 Operation and maintenance manuals.	item				
7 Drawing preparation.	item	**1** Classification of drawings.			**1** Installation, coordination, as installed and record drawings.
8 Training.	item				
9 Loose ancillaries.	item	**1** Keys, tools, spares, chemicals.			
10 Post-practical completion services.	item	**1** Maintenance, adjustments and servicing.			

Work section 41: Builder's work in connection with mechanical, electrical and transportation installations

Drawings that should accompany this section of measurement:

1 layout of each type of service installation.

Information that should be provided:

1 type and quality of materials.

Notes:

1 Builder's work refers to the general work needed to accommodate the installation of the mechanical and electrical systems, and transportation installations after completion of the building structure as defined in items 1 and 2 of this work section. Any other work required by these installations should be measured in accordance with the relevant work section rules.

Minimum information that should be shown on the drawings that accompany this section of measurement:

1 construction of structure

2 fire compartmentation

3 service runs.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Work for services installations in new buildings					
1 General builder's work in connection with (the relevant type of installation as set out in the Notes column):	item	**1** Type of installation stated.			**1** An item should be given for each services installation. **2** Examples of installations are cold water services, hot water services, lighting installations, power installations, lift installations. In the case of large projects, it may be necessary to subdivide each installation into locations. **3** This item means every type of general builder's work necessary in connection with the service installation except those included in items 3 to 27.
2 Marking position of holes, mortices and chases in the structure.	item				
3 Pipe and duct sleeves.	nr	**1** Size and type stated.	**1** Fire rating stated.	**1** Nature and thickness of structure stated. **2** Method of fixing stated. **3** Sleeves supplied by others stated.	**1** Making good around the sleeve is included.
4 Bases, plinths, etc.	nr	**1** Size stated.	**1** Method of forming or construction stated.	**1** Anti-vibration pads. **2** Acoustic pads.	

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
5 Duct covers and frames.	m/nr	**1** Width and type stated. **2** Size and type stated.	**1** Limitations to lengths of covers stated. **2** Finish stated.	**1** Method of fixing stated. **2** Nature of background stated.	
6 Supports for services not provided by services contractor.	m/nr	**1** Size and type stated. **2** Size, length and type stated.	**1** Pylons. **2** Poles. **3** Wall brackets. **4** Soffit hangers. **5** Stays. **6** Proprietary supports. **7** Manufacturers reference stated.		
7 Catenary cables.	m	**1** Size and type stated.	**1** Eye bolts, details stated. **2** Shackles, details stated. **3** Straining screws, details stated.		**1** The length is net with no allowance made for sag.
Work for services installations in existing buildings					
8 Cutting holes through existing structures.	nr	**1** Size stated.	**1** Nature and thickness of structure stated.		**1** Making good to match existing or preparing for new work is included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
9 Cutting mortices and sinkings in existing structure.	nr	**1** Size stated.	**1** Nature of structure stated.		
10 Cutting chases through existing structures.	m	**1** Size and number of services stated.			
11 Lifting and replacing floorboards.	m	**1** Size and number of services stated.			**1** No distinction is made between routes parallel or at an angle to the floorboards. **2** Cutting boards and notching or holing joists is included.
12 Lifting and replacing duct covers or chequer plates.	m	**1** Width and type stated.			

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
Work for external services installations					
13 Underground service runs.	m	**1** Average trench depth in 500mm increments. **2** Type and nominal diameter of pipe duct. **3** Multiple pipe ducts stating number and nominal diameter of pipe ducts. **4** Pipe duct(s) supplied by others, type and nominal diameter. **5** Type and size of cover tile(s) or identification tape(s).	**1** Method of jointing pipe ducts. **2** Pipe duct bedding and/or surround, details stated. **3** Type of backfill if not obtained from the excavations.	**1** Vertical. **2** Curved. **3** Below groundwater level. **4** Next to existing roadway or path. **5** Next to existing building. **6** Specified multiple handling, details stated. **7** Disposal of excavated material where not at the discretion of the contractor, details stated.	**1** Pipe duct runs should run straight unless stated otherwise. **2** Pipe duct runs are measured from the external face of the manhole to the external face of the manhole or accessory. **3** The average depth is calculated for each run irrespective of maximum depth.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
14 Items extra over service runs irrespective of depth or pipe size.	m^2	**1** Breaking up hard surface pavings, thickness stated. **2** Lifting and preserving turf, thickness stated.	**1** Reinstating to match existing, details stated. **2** Relaying turf previously set aside.		**1** The measurement of these extra over items should be based on the designed width of beds in the trench. In the absence of a bed, the width should be calculated as the nominal size of the service plus 300mm, subject to a minimum width of 500mm.
	m^3	**3** Breaking out hard materials. **4** Excavating in and removing hazardous material. **5** Excavating in running silt, running sand or other unstable ground. **6** Excavating below groundwater level.	**3** Details stated.		**1** Hard material is any material that can only be removed by special plant or explosives due to its size, position or consistency.
	m	**7** Next to existing live services.			**1** This should be measured where precautions are required. **2** The method of protection is left to the discretion of the contractor.
	nr	**8** Around existing live services crossing trench.			
15 Pipe duct fittings.	nr	**1** Dimensioned description.	**1** Type stated.	**1** Method of jointing to pipe ducts.	**1** Pipe duct fittings include bends, junctions, inspection pipes, stop ends, etc. and connections to pipes.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
16 Accessories.	nr	**1** Dimensioned description.			**1** Accessories include all integral and or associated fittings and connections to pipes.
17 Manholes. **18** Access chambers. **19** Valve chambers. **20** Inspection chambers. **21** Surface boxes. **22** Stopcock pits.	nr	**1** Detailed description stating maximum internal size of chamber. **2** Depth from top surface of cover to top surface of base or invert level in 250mm stages. **3** Proprietary chambers boxes, etc., details stated.	**1** Base slab thickness. **2** Wall thickness. **3** Cover slab dimensions. **4** Intermediate slab dimensions. **5** Internal finish. **6** External finish. **7** Cover and frame, type stated.		**1** Size stated is the maximum internal size of the chamber. **2** Rocker joints are included.

Item or work to be measured	Unit	Level one	Level two	Level three	Notes
23 Extra over the excavation for:	m^2	**1** Breaking up hard surface pavings, thickness stated. **2** Lifting and preserving turf, thickness stated.			**1** Making good around edges of surfaces is included.
	m^3	**3** Breaking out hard materials. **4** Excavating in and removing hazardous material. **5** Excavating in running silt, running sand or other unstable ground. **6** Excavating below groundwater level.			
24 Marker posts. **25** Marker plates.	nr	**1** Dimensioned description.	**1** Identification plates, details stated. **2** Lettering required.	**1** Method of fixing, details stated.	**1** Excavation, disposal of spoil and concrete for base is included.
26 Connections.	item	**1** Details stated.			
27 Testing and commissioning.	item	**1** Detailed description. **2** Type of test and standard to be achieved.	**1** Attendance required. **2** Instruments and equipment to be provided.		**1** Provision of water and other supplies is included. **2** Provision of test certificates is included.

Appendix A: Guidance on the preparation of bill of quantities

A1 Bill of quantities breakdown structure

There a number of different breakdown structures for a BQ. They each have their own advantages and disadvantages. However, computerised BQ production systems with multiple sort facilities can be used to generate different BQ formats and make it easy to trace items – as long as items have been properly codified (refer to section 2.8 (Codification of bill of quantities)).

NRM 2 can be adopted as the rules of measurement for building works irrespective of what BQ breakdown structure is chosen. Reference could also be made to the cost classification system in ICMS. The main BQ breakdown structures are:

a **Elemental**: Measurement and description is done by group elements and each group element forms a separate section of the BQ, irrespective of the order of work sections in NRM 2. Group elements are subdivided through the use of elements, which are further subdivided by sub-elements. The group elements, elements and sub-elements used are those defined by NRM 1.

Elemental breakdown structure	
Bill No. 1	Preliminaries (main contract)
Bill No. 2	Facilitating works
Bill No. 3	Substructure
Bill No. 4	Superstructure
Bill No. 5	Internal finishes
Bill No. 6	Fittings, furnishings and equipment
Bill No. 7	Services
Bill No. 8	External works
Bill No. 9	Risks
Bill No. 10	Provisional sums
Bill No. 11	Credits
Bill No. 12	Daywork (provisional)

Figure A.1: Elemental BQ breakdown structures for a simple building project

An elemental breakdown structure supports a logical and structured approach to the quantification of a building project. Moreover, this type of breakdown structure makes it easier for the quantity surveyor/cost manager to analyse a contractor's tender price and collect real-time cost data for future use.

b **Work section**: Measurement and description is divided into the work sections listed in NRM 2 (refer to Part 3 of these rules).

Work section breakdown structure	
Bill No. 1	Preliminaries
Bill No. 2	Off-site manufactured materials, components or buildings
Bill No. 3	Demolitions
Bill No. 4	Alterations, repairs and conservation
Bill No. 5	Excavating and filling
Bill No. 6	Ground remediation and soil stabilisation
Bill No. 7	Piling
Bill No. 8	Underpinning
Bill No. 9	Diaphragm walls and embedded retaining walls
Bill No. 10	Crib walls, gabions and reinforced earth
Bill No. 11	In-situ concrete works
Bill No. 12	Precast/composite concrete
Bill No. 13	Precast concrete
Bill No. 14	Masonry
Bill No. 15	Structural metalwork
Bill No. 16	Carpentry
Bill No. 17	Sheet roof coverings
Bill No. 18	Tile and slate roof and wall coverings
Bill No. 19	Waterproofing
Bill No. 20	Proprietary walls, linings and partitions
Bill No. 21	Cladding and covering
Bill No. 22	General joinery

Work section breakdown structure	
Bill No. 23	Windows, screens and lights
Bill No. 24	Doors, shutters and hatches
Bill No. 25	Stairs, walkways and balustrades
Bill No. 26	Metalwork
Bill No. 27	Glazing
Bill No. 28	Floor, wall, ceiling and roof finishings
Bill No. 29	Decoration
Bill No. 30	Suspended ceilings
Bill No. 31	Insulation, fire stopping and fire protection
Bill No. 32	Furniture, fittings and equipment
Bill No. 33	Drainage above ground
Bill No. 34	Drainage below ground
Bill No. 35	Site works
Bill No. 36	Fencing
Bill No. 37	Soft landscaping
Bill No. 38	Mechanical services
Bill No. 39	Electrical services
Bill No. 40	Transportation systems
Bill No. 41	Builder's work in connection with mechanical, electrical and transportation installations
Bill No. 42	Risks
Bill No. 43	Provisional sums
Bill No. 44	Credits
Bill No. 45	Daywork (provisional)

Figure A.2: Work section BQ breakdown structures for a simple building project

This breakdown structure is often preferred by contractors for the purpose of pricing as all alike products and components are grouped together (e.g. the reinforced concrete columns, beams, floors, roofs and staircases), whereas they can be spread among a number of different elements

when an elemental breakdown structure is used. Codification of BQ items using computerised BQ systems will solve the problem of preferences (refer to section 2.8 (Codification of bill of quantities)).

c **Work package**: Measurement and description is divided into employer, quantity surveyor/ cost manager or contractor defined work packages, whichever is applicable. Works packages can be based on either a specific-trade (e.g. concrete work, brickwork and blockwork, roof coverings, painting and decorating, and wall tiling) or a single package comprising a number of different trades (e.g. a groundworks package might include all excavation and earthworks, below ground drainage and the ground-bearing concrete floor-slab so as to make a single works contractor responsible for the interface between the drainage and the ground-bearing concrete floor-slab).

Work section breakdown structure	
Bill No. 1	Contractor's preliminaries
Bill No. 2	Intrusive investigations
Bill No. 3	Demolition works
Bill No. 4	Groundworks
Bill No. 5	Piling
Bill No. 6	Concrete works
Bill No. 7	Roof coverings and roof drainage
Bill No. 8	External and internal structural walls
Bill No. 9	Cladding
Bill No. 10	Windows and external doors
Bill No. 11	Mastic
Bill No. 12	Non-structural walls and partitions
Bill No. 13	Joinery
Bill No. 14	Suspended ceilings
Bill No. 15	Architectural metalwork
Bill No. 16	Tiling
Bill No. 17	Painting and decorating
Bill No. 18	Floor coverings
Bill No. 19	Fittings, furnishings and equipment

Work section breakdown structure	
Bill No. 20	Combined mechanical and electrical engineering services
Bill No. 21	Lifts and escalators
Bill No. 22	Facade access equipment
Bill No. 23	External works and drainage
Bill No. 24	Risks
Bill No. 25	Provisional sums
Bill No. 26	Credits
Bill No. 27	Daywork (provisional)

Figure A.3: Typical BQ breakdown structure for discrete work package

Again, codification of BQ items using computerised BQ systems will enable the resorting of items from elements to works packages for the purposes of tendering, and vice versa for the purpose of overall cost control (refer to section 2.8 (Codification of bill of quantities)).

This breakdown structure is usually used by contractors to procure packages of work from their supply chain.

A2 Bill of quantities breakdown structure for projects comprising more than one building

Where a building project comprises more than one type of building, it is recommended that a separate bill of quantities be prepared for each building, culminating in a 'summary bill' for the entire building project.

A3 Order of items in bill of quantities

The order of items in a BQ is:

1 For elemental BQ:

- **a** Elements as contained in NRM 1.
- **b** Within each element the order of measured items is cubic, square, linear, enumerated items and itemised items.
- **c** Labour-only items should precede labour and material items within the subdivisions in (b).
- **d** Items within each subdivision in (b) and (c) should be placed in order of value, least expensive first.
- **e** Preambles should be incorporated in each element as appropriate.
- **f** PC sums should be incorporated in item descriptions.

g Contractor-designed works should be incorporated under the applicable element or sub-element, after measured work, under a heading of 'Contractor-designed work'. A price analysis for contractor-designed work should be incorporated (see section 2.5.5).

h Provisional sums should be listed and described in a separate bill.

i Construction risks to be transferred to the contractor should be identified and described in a 'schedule of construction risks' (see section 2.5.6).

j Where applicable, provision for the contractor to offer credits against items and components arising from demolition works and/or soft strip works should be provided (see section 2.5.8).

2 For work section BQ:

a Work sections as contained in NRM 2, although separate locational BQ sections such as facilitating works, substructure, superstructure and or external works might be required.

b Subdivisions:

i of work sections as contained in NRM 2

ii as required by NRM 2

iii of different types of materials, such as different mixes of concrete, different types of brick.

c Within each subdivision in (b), the order of cubic, square, linear, enumerated items and itemised items.

d Labour-only items should precede labour and material items within the subdivisions in (c).

e Items within each subdivision in (c) and (d) should be placed in order of value, least expensive first.

f Preambles should be incorporated in the appropriate work section.

g PC sums should be incorporated in item descriptions.

h Contractor-designed works should be incorporated under the applicable element or sub-element, after measured work, under a heading of 'Contractor-designed work'. A price analysis for contractor-designed work should be incorporated (see section 2.5.5).

i Provisional sums should be listed and described in a separate bill.

j Construction risks to be transferred to the contractor should be identified and described in a 'schedule of construction risks' (see section 2.5.6).

k Where applicable, provision for the contractor to offer credits against items and components arising from demolition works and/or soft strip works should be provided (see section 2.5.8).

3 For work package BQ:

a Work packages as defined by the employer, quantity surveyor/cost manager or contractor, whichever is applicable.

b Within each work package the order of measured items is cubic, square, linear, enumerated items and itemised items.

c Labour-only items should precede labour and material items within the subdivisions in (b).

d Items within each subdivision in (b) and (c) should be placed in order of value, least expensive first.

e Preambles should be incorporated in the appropriate work package.

f PC sums should be incorporated in item descriptions.

g Contractor-designed works should be incorporated into the applicable work package bill, after measured work, under a heading of 'Contractor-designed work'. A price analysis for contractor-designed work is to be included (see section 2.5.5).

h Provisional sums should be listed and described in a separate bill.

i Construction risks to be transferred to the contractor should be identified and described in a 'schedule of construction risks' (see section 2.5.6).

j Where applicable, provision for the contractor to offer credits against items and components arising from demolition works and/or soft strip works should be provided (see section 2.5.8).

A4 Format of bill

The bill for each element or work section should start on a new sheet. The ruling of the paper and typical headings for each type of bill are shown in Figures A.4 and A.5.

Bill No. 3 Superstructure						
3.2.5 External walls						
3.2.5.1	External walls above ground floor level					
3.2.5.1.1	Common brickwork in cement: lime mortar (1:1:6)					
3.2.5.1.1.1	Walls 102.5mm thick, brickwork; built against other work	196	m^2			
3.2.5.1.1.2	Walls 215mm thick, brickwork	369	m^2			

Figure A.4: Typical BQ format for an elemental bill of quantities

Bill No. 2 Superstructure						
2.14 Masonry						
2.14.1	Brick/block walling					
2.14.1.1	Common brickwork in cement: lime mortar (1:1:6)					
2.14.1.1.1	Walls 102.5mm thick, brickwork; built against other work	196	m^2			
2.14.1.1.2	Walls 215mm thick, brickwork	369	m^2			

Figure A.5: Typical BQ format for a work section bill of quantities

Bill No. 8 External and internal structural walls						
8.1 Masonry						
8.1.1	Brick/block walling					
8.1.1.1	Common brickwork in cement: lime mortar (1:1:6)					
8.1.1.1.1	Walls 102.5mm thick, brickwork; built against other work	196	m^2			
8.1.1.1.2	Walls 215mm thick, brickwork	369	m^2			

Figure A.6: Typical BQ format for a work package bill of quantities

A5 Codifying items

As well as for the purpose of making it easy to search, it is important that every item in the BQ can be referenced back to the cost plan.

A6 Unit of measurement

The units of measurement for items are stipulated by the tabulated rules of measurement. For the purpose of clarity, the unit of measurement should be entered against each item in the BQ, irrespective of whether it is the same unit as the previous item.

A7 Order of sizes

Sizes or dimensions in descriptions are to be in the order: length, width, height. Sometimes the width of a component (e.g. a base unit) is referred to as its 'depth'. If there is likely to be any doubt the dimensions are to be stated.

For example:

Base unit: 1000mm long x 600mm wide x 900mm high

A8 Use of headings

Headings usually fall into one of four categories:

1. elemental or work section headings
2. element or sub-section headings
3. headings that partly describe a group of items
4. subdivisions required by NRM 2.

A9 Unit of billing

Other than enumerated and itemised items, the unit of measurement is the metre. The exception to this rule is steel bar reinforcement and structural steelwork, which are billed in tonnes to two decimal places.

A10 Framing of descriptions

The BQ is a legal document. Therefore, care should be taken when framing descriptions so that there is no doubt as to their meaning.

A11 Totalling pages

There are a number of ways in which the quantity surveyor/cost manager might indicate how the cash totals on each page of the bill are to be dealt with. The preferred method is for the total to be carried over to be added to the next page and so on until the end of the bill or subsection of the bill. Unless the bill section comprises only one page, the foot of the first and intermediate bill pages should be completed as follows:

		Carried forward	£		

The top of the following bill page is completed as follows:

BILL 3: SUPERSTRUCTURE					
2.5 EXTERNAL WALLS					
		Brought forward	£		

To end each bill section, the section is completed as follows:

	TOTAL carried to main summary		£		

Figure A.7: Examples of how to total pages

A12 Price summary

Templates for the pricing summary for elemental BQ (condensed and expanded versions) are included in Appendices D and E, respectively. The structure of pricing summaries for other BQ formats should follow the same principles.

Appendix B: Template for preliminaries (main contract) pricing schedule (condensed)

Cost centre	Component	Time-related charges	Fixed charges	Total charges
		£ p	£ p	£ p
1	**Preliminaries**			
1.1	Employer's requirements			
1.1.1	Site accommodation			
1.1.2	Site records			
1.1.3	Completion and post-completion requirements			
1.2	Main contractor's cost items			
1.2.1	Management and staff			
1.2.2	Site establishment			
1.2.3	Temporary services			
1.2.5	Safety and environmental protection			
1.2.6	Control and protection			
1.2.7	Mechanical plant			
1.2.8	Temporary works			
1.2.9	Site records			
1.2.10	Completion and post-completion requirements			
1.2.11	Cleaning			
1.2.12	Fees and charges			
1.2.13	Site services			
1.2.14	Insurance, bonds, guarantees and warranties			
	Totals £			
	Total carried to main summary		**£**	

Note: Costs relating to items of the main contractor's preliminaries that are not specifically identified in the contractor's full and detailed breakdown will be deemed to have no cost implications or have been included elsewhere within the contractor's rates and prices.

Appendix C: Template for preliminaries (main contract) pricing schedule (expanded)

Cost centre	Component	Time-related charges	Fixed charges	Total charges
		£ p	£ p	£ p
1.1	Employer's requirements			
1.1.1	Site accommodation			
1.1.1.1	Site accommodation			
1.1.1.2	Furniture and equipment			
1.1.1.3	Telecommunications and IT systems			
1.1.2	Site records			
1.1.2.1	Site records			
1.1.3	Completion and post-completion requirements			
1.1.3.1	Handover requirements			
1.1.3.2	Operation and maintenance services			
1.2	Main contractor's cost items			
1.2.1	Management and staff			
1.2.1.1	Project specific management and staff			
1.2.1.2	Visiting management and staff			
1.2.1.3	Extraordinary support costs			
1.2.1.4	Staff travel			
1.2.2	Site establishment			
1.2.2.1	Site accommodation			
1.2.2.2	Temporary works in connection with site establishment			
1.2.2.3	Furniture and equipment			
1.2.2.4	IT systems			
1.2.2.5	Consumables and services			
1.2.2.6	Brought-in services			

Cost centre	Component	Time-related charges	Fixed charges	Total charges
1.2.2.7	Sundries			
1.2.3	Temporary services			
1.2.3.1	Temporary water supply			
1.2.3.2	Temporary gas supply			
1.2.3.3	Temporary electricity supply			
1.2.3.4	Temporary telecommunication systems			
1.2.3.5	Temporary drainage			
1.2.4	Security			
1.2.4.1	Security staff			
1.2.4.2	Security equipment			
1.2.4.3	Hoardings, fences and gates			
1.2.5	Safety and environmental protection			
1.2.5.1	Safety programme			
1.2.5.2	Barriers and safety scaffolding			
1.2.5.3	Environmental protection measures			
1.2.6	Control and protection			
1.2.6.1	Survey, inspections and monitoring			
1.2.6.2	Setting out			
1.2.6.3	Protection of works			
1.2.6.4	Samples			
1.2.6.5	Environmental control of building			
1.2.7	Mechanical plant			
1.2.7.1	Generally			
1.2.7.2	Tower cranes			
1.2.7.3	Mobile cranes			
1.2.7.4	Hoists			
1.2.7.5	Access plant			
1.2.7.6	Concrete plant			
1.2.7.7	Other plant			
1.2.8	Temporary works			
1.2.8.1	Access scaffolding			
1.2.8.2	Temporary works			
1.2.9	Site records			
1.2.9.1	Site records			

Cost centre	Component	Time-related charges	Fixed charges	Total charges
1.2.10	Completion and post-completion requirements			
1.2.10.1	Testing and commissioning plan			
1.2.10.2	Handover			
1.2.10.3	Post-completion services			
1.2.11	Cleaning			
1.2.11.1	Site tidy			
1.2.11.2	Maintenance of roads, paths and pavings			
1.2.11.3	Building clean			
1.2.12	Fees and charges			
1.2.12.1	Fees			
1.2.12.2	Charges			
1.2.13	Site services			
1.2.13.1	Temporary works			
1.2.13.2	Multi-service gang			
1.2.14	Insurance, bonds, guarantees and warranties			
1.2.14.1	Works insurance			
1.2.14.2	Public liability insurance			
1.2.14.3	Employer's (main contractor's) liability insurance			
1.2.14.4	Other insurances			
1.2.14.5	Bonds			
1.2.14.6	Guarantees			
1.2.14.7	Warranties			
	Totals £			
	Total carried to main summary £			

Note: Costs relating to items of the main contractor's preliminaries that are not specifically identified in the contractor's full and detailed breakdown will be deemed to have no cost implications or have been included elsewhere within the contractor's rates and prices.

Appendix D: Template for pricing summary for elemental bill of quantities (condensed)

Cost centre	Element	£/p	£/p
0.0	**Facilitating works**		**£0.00**
1.0	**Substructure**		**£0.00**
2.0	**Superstructure**		**£0.00**
3.0	**Internal finishes**		**£0.00**
4.0	**Fittings, furnishings and equipment**		**£0.00**
5.0	**Services**		**£0.00**
6.0	**Prefabricated buildings and building units**		**£0.00**
7.0	**Work to existing building**		**£0.00**
8.0	**External works**		**£0.00**
	TOTAL (Building works, including M&E engineering services)		**£0.00**
9.0	**Main contractor's preliminaries**		**£0.00**
	Subtotal		£0.00
10.0	**Provisional sums:**		**£0.00**
10.1	Defined provisional sums	£0.00	
10.2	Undefined provisional sums	£0.00	
10.3	Works to be carried out by statutory undertakers	£0.00	
	Subtotal		£0.00
11.0	**Risks**		**£0.00**
11.1	Subtotal		£0.00
12.0	**Main contractor's overheads and profit (insert required % adjustment)**	0.00%	**£0.00**
	Subtotal		£0.00
13.0	**Credit (for retained arisings)**		**£0.00**
	Subtotal		£0.00
14.0	**Main contractor's fixed price adjustment (insert required % adjustment)**	0.00%	**£0.00**

Cost centre	Element	£/p	£/p
	Subtotal		£0.00
15.0	**Director's adjustment (insert required adjustment (+/-))**		**£0.00 or £(0.00)**
	Subtotal		£0.00
16.0	**Dayworks (Provisional)**		**£0.00**
	Total tender price, exclusive of VAT (carried to form of tender)		**£0.00**

Appendix E: Template for pricing summary for elemental bill of quantities (expanded)

Cost centre	Element	£/p	£/p
0.0	Facilitating works		£0.00
0.1	Toxic/hazardous/contaminated material treatment	£0.00	
0.2	Major demolition works	£0.00	
0.3	Specialist ground works	£0.00	
0.4	Temporary diversion works	£0.00	
0.5	Extraordinary site investigation works	£0.00	
1.0	Substructure		£0.00
1.1	Substructure	£0.00	
2.0	Superstructure		£0.00
2.1	Frame	£0.00	
2.2	Upper floors	£0.00	
2.3	Roof	£0.00	
2.4	Stairs and ramps	£0.00	
2.5	External walls	£0.00	
2.6	Windows and external doors	£0.00	
2.7	Internal walls and partitions	£0.00	
2.8	Internal doors	£0.00	
3.0	Internal finishes		£0.00
3.1	Wall finishes	£0.00	
3.2	Floor finishes	£0.00	
3.3	Ceiling finishes	£0.00	
4.0	Fittings, furnishings and equipment		£0.00
4.1	Fittings, furnishings and equipment	£0.00	
5.0	Services		£0.00

Cost centre	Element	£/p	£/p
5.1	Sanitary installations	£0.00	
5.2	Services equipment	£0.00	
5.3	Disposal installations	£0.00	
5.4	Water installations	£0.00	
5.5	Heat source	£0.00	
5.6	Space heating and air conditioning	£0.00	
5.7	Ventilation	£0.00	
5.8	Electrical installations	£0.00	
5.9	Fuel installations/systems	£0.00	
5.10	Lift and conveyor installations/systems	£0.00	
5.11	Fire and lightning protection	£0.00	
5.12	Communication, security and control systems	£0.00	
5.13	Special installations/systems	£0.00	
5.14	Builder's work in connection with services	£0.00	
6.0	Complete buildings		£0.00
6.1	Pre-fabricated buildings	£0.00	
7.0	Work to existing building		
7.1	Minor demolition works and alteration works	£0.00	
7.2	Repairs to existing services	£0.00	
7.3	Damp proof courses/fungus and beetle eradication	£0.00	
7.4	Facade retention	£0.00	
7.5	Cleaning existing surfaces	£0.00	
7.6	Renovation works	£0.00	
8.0	External works		£0.00
8.1	Site preparation works	£0.00	
8.2	Roads, paths and pavings	£0.00	
8.3	Soft landscaping, planting and irrigation systems	£0.00	
8.4	Fencing, railings and walls	£0.00	
8.5	Site/street furniture and equipment	£0.00	
8.6	External drainage	£0.00	
8.7	External services	£0.00	
8.8	Minor building works and ancillary buildings	£0.00	
	Total (Building works, including M&E engineering services)		£0.00

Cost centre	Element	£/p	£/p
9.0	Main contractor's preliminaries		£0.00
	Subtotal		£0.00
10.0	Provisional sums:		£0.00
10.1	Defined provisional sums	£0.00	
10.2	Undefined provisional sums	£0.00	
10.3	Works to be carried out by statutory undertakers	£0.00	
	Subtotal		£0.00
11.0	Risks		£0.00
	Subtotal		£0.00
12.0	Main contractor's overheads and profit (insert required % adjustment)	0.00%	
	Subtotal		£0.00
13.0	Credit (for retained arisings)		£0.00
	Subtotal		£0.00
14.0	Main contractor's fixed price adjustment (insert required % adjustment)	0.00%	
	Subtotal		£0.00
15.0	Director's adjustment (insert required adjustment (+/-))		£0.00 or £(0.00)

Appendix F: Templates for provisional sums, risks and credits

Schedule of provisional sums

Cost centre	Provisional sum	£/p
	Defined provisional sums	
	Undefined provisional sums	
	Total provisional sums, exclusive of VAT (carried to main summary)	

Schedule of construction risks

Cost centre	Risk description	£/p
R001		
R002		
R003		
R004		
R005		
R006		
	Total risk allowance, exclusive of VAT (carried to main summary)	

Credits

Cost centre	Description	£/p
C001		
C002		
C003		
C004		
C005		
	Total credits, exclusive of VAT (carried to main summary)	

Appendix G: Example of a work package breakdown structure

This appendix shows a typical example of suffix codes used for codifying work packages when a work package BQ breakdown structure is used.

Serial no.	Work package title/content	Suffix
1.	Main contractor's preliminaries	/01.1
2.	Intrusive investigations: • Asbestos and other hazardous materials • Geotechnical and environmental investigations • Attendance on archaeological investigations • Work package contractor's preliminaries	/02 /01.2
3.	Demolition works: • Asbestos and other hazardous materials removal/treatment works • Soft strip of building components and subcomponents • Soft strip of mechanical and electrical engineering services • Demolition • Work package contractor's preliminaries	/03 /01.2
4.	Groundworks: • Contaminated ground material removal • Preparatory earthworks • Excavation and earthworks, including basement excavation, earthwork support and disposal • Temporary works – propping of existing basement retaining walls • Below ground drainage • Ground beams • Pile caps • Temporary works – piling mats/platforms • Ground bearing base slab construction, including waterproofing • Basement retaining wall structures, including waterproofing • Work package contractor's preliminaries	/04 /01.2

Serial no.	Work package title/content	Suffix
5.	Piling: • Piling works • Work package contractor's preliminaries	/05 /01.2
6.	Concrete works: • Frame • Upper floors, including roof structure • Core and shear walls • Staircases • Work package contractor's preliminaries	/06 /01.2
7.	Roof coverings and roof drainage: • Roof cladding/coverings • Flashings • Roof drainage • Work package contractor's preliminaries	/07 /01.2
8.	External and internal structural walls: • Structural steelwork • Masonry (brickwork and blockwork) • Roof systems and rainwater goods • Cladding • Curtain walling • Carpentry • General joinery • Bespoke joinery • Windows and external doors • Dry linings and partitions • Architectural metal work • Work package contractor's preliminaries	/08 /01.2
9.	Cladding: • Cladding systems, including integral windows and external doors • Work package contractor's preliminaries	/09 /01.2

Serial no.	Work package title/content	Suffix
10.	Windows and external doors (non-integral to cladding system): • Windows • Louvers • External doors • Shop fronts • Work package contractor's preliminaries	/10 /01.2
11.	Mastic: • Mastic to windows, louvers and external door frames • Mastic to wet areas • Work package contractor's preliminaries	/11 /01.2
12.	Non-structural walls and partitions: • Tiling (floor and wall) • Internal stone finishes • Painting and decorating • Soft floor coverings • Suspended ceilings • Work package contractor's preliminaries	/12 /01.2
13.	Joinery: • Reception desk • Internal door sets • Screens • Toilet cubicles • Timber wall linings to toilet cubicles • Skirtings • All other second fix joinery items • Work package contractor's preliminaries	/13 /01.2
14.	Suspended ceilings: • Suspended ceilings • Work package contractor's preliminaries	/14 /01.2
15.	Architectural metalwork: • All architectural metalwork items • Work package contractor's preliminaries	/15 /01.2

Serial no.	Work package title/content	Suffix
16.	Tiling: • Internal stone finishes • Wall tiling • Floor tiling • Work package contractor's preliminaries	/16 /01.2
17.	Painting and decorating: • Painting and decorating • Work package contractor's preliminaries	/17 /01.2
18.	Floor coverings: • Carpet • Vinyl tiles • Work package contractor's preliminaries	/18 /01.2
19.	Fittings, furnishings and equipment: • Cupboards and shelves to storerooms • Loose fittings, furnishings and equipment • Signage • Work package contractor's preliminaries	/19 /01.2
20.	Combined M&E engineering services: • Sanitary appliances, including kitchette sinks • Mechanical engineering services installations • Electrical engineering services installations • Public health engineering services installations (above ground) • Lifts (by named subcontractor) • Work package contractor's preliminaries	/20 /01.2
21.	Lifts and escalators: • Passenger lifts • Firefighting lift • Platforms • Escalators	/21 /01.2

Serial no.	Work package title/content	Suffix
22.	Facade access equipment: • Building maintenance units (BMUs), including proprietary storage units • Work package contractor's preliminaries	/22 /01.2
23.	External works and drainage: • External drainage • Soft landscape works • Hard landscape works • Work package contractor's preliminaries	/231 /01.2

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