

# NRM 1

## New rules of measurement

Order of cost estimating and cost planning for capital building works

# NRM 1: ORDER OF COST ESTIMATING AND COST PLANNING FOR CAPITAL BUILDING WORKS

RICS guidance note, UK

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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 can be understood 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 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 Standard (ICMS): Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions**
- **International Property Measurement Standards (IPMS)**
- **Cost prediction**, RICS professional statement
- *RIBA Plan of Work 2020* and
- *RIBA Digital Plan of Work (DPoW)*.

# RICS professional standards and guidance

## RICS guidance notes

### Definition and scope

RICS guidance notes set out good practice for RICS members and for firms that are regulated by RICS. An RICS guidance note is a professional or personal standard for the purposes of *RICS Rules of Conduct*.

Guidance notes constitute areas of professional, behavioural competence and/or good practice. RICS recognises that there may be exceptional circumstances in which it is appropriate for a member to depart from these provisions – in such situations RICS may require the member to justify their decisions and actions.

### Application of these provisions in legal or disciplinary proceedings

In regulatory or disciplinary proceedings, RICS will take account of relevant guidance notes in deciding whether a member acted professionally, appropriately and with reasonable competence. It is also likely that during any legal proceedings a judge, adjudicator or equivalent will take RICS guidance notes into account.

RICS recognises that there may be legislative requirements or regional, national or international standards that take precedence over an RICS guidance note.

## Document status defined

The following table shows the categories of RICS professional content and their definitions.

### Publications status

Type of document	Definition
<i>RICS Rules of Conduct for Members and RICS Rules of Conduct for Firms</i>	These Rules set out the standards of professional conduct and practice expected of members and firms registered for regulation by RICS.
International standard	High-level standard developed in collaboration with other relevant bodies.
RICS professional statement (PS)	Mandatory requirements for RICS members and RICS-regulated firms.
RICS guidance note (GN)	A document that provides users with recommendations or an approach for accepted good practice as followed by competent and conscientious practitioners.
RICS code of practice (CoP)	A document developed in collaboration with other professional bodies and stakeholders that will have the status of a professional statement or guidance note.
RICS jurisdiction guide (JG)	This provides relevant local market information associated with an RICS international standard or RICS professional statement. This will include local legislation, associations and professional bodies as well as any other useful information that will help a user understand the local requirements connected with the standard or statement. This is not guidance or best practice material, but rather information to support adoption and implementation of the standard or statement locally.

# Introduction

NRM 1 provides a structured basis for measuring building works and presents a consistent approach for dealing with other key cost components associated with a building project when preparing order of cost estimates and elemental cost plans. It provides an elemental work breakdown structure (WBS), a cost breakdown structure (CBS) and codification framework that has been designed for use with both projects using BIM and those using traditional design approaches. The codification framework allows for cost plans to be initiated using the traditional elemental approach, and then for components and subcomponents (and their associated costs) to be reallocated to work packages for tendering purposes. This simplifies the reconciliation of actual costs against cost targets and facilitates management of the cost limit (i.e. the client's project budget).

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 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.

In addition, NRM 1 incorporates the principles of cost prediction reporting set out in the current edition of **Cost prediction**, RICS professional statement. RICS members and RICS-regulated firms must adhere to these principles when producing cost prediction reports. The **Cost prediction**, RICS professional statement considers cost prediction as a system of inputs, processes, outputs and information stages. Table 1.1 (see [section 1.2](#)) shows how the information stages specified in the professional statement align with the formal cost estimating and cost planning stages and various plans of work.

NRM 1 also takes account of both the *RIBA Plan of Work 2020* and the RIBA DPoW. The NRM 1 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* 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, and 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](#).

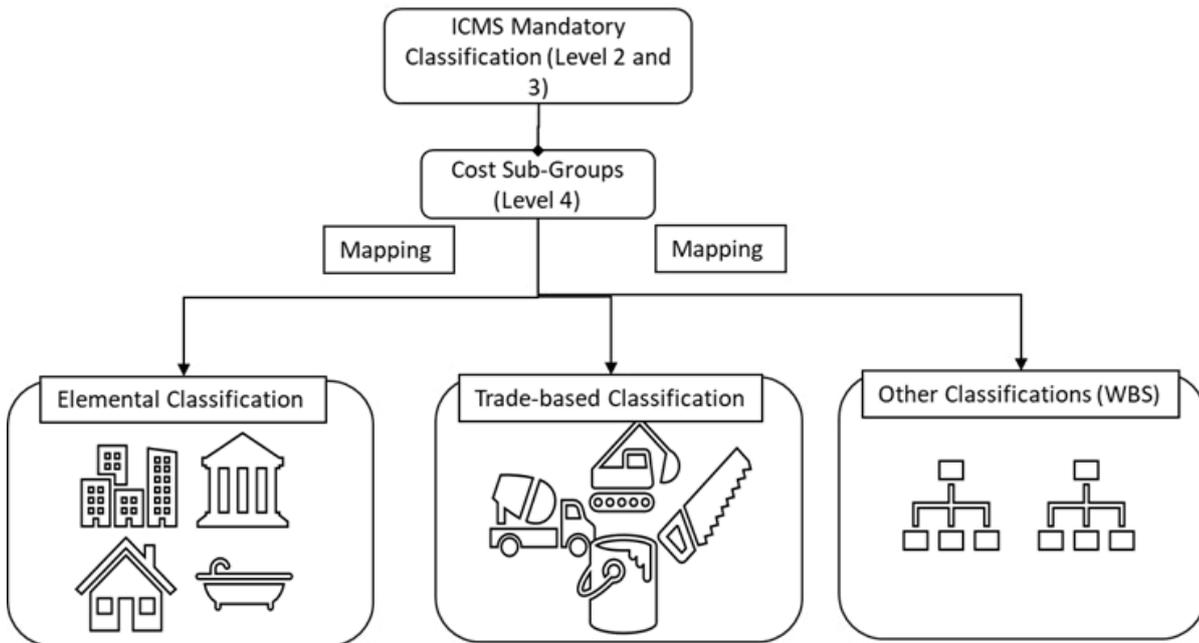


Figure 0.1: ICMS mapping

The hierarchy of the various documents in the suite is:

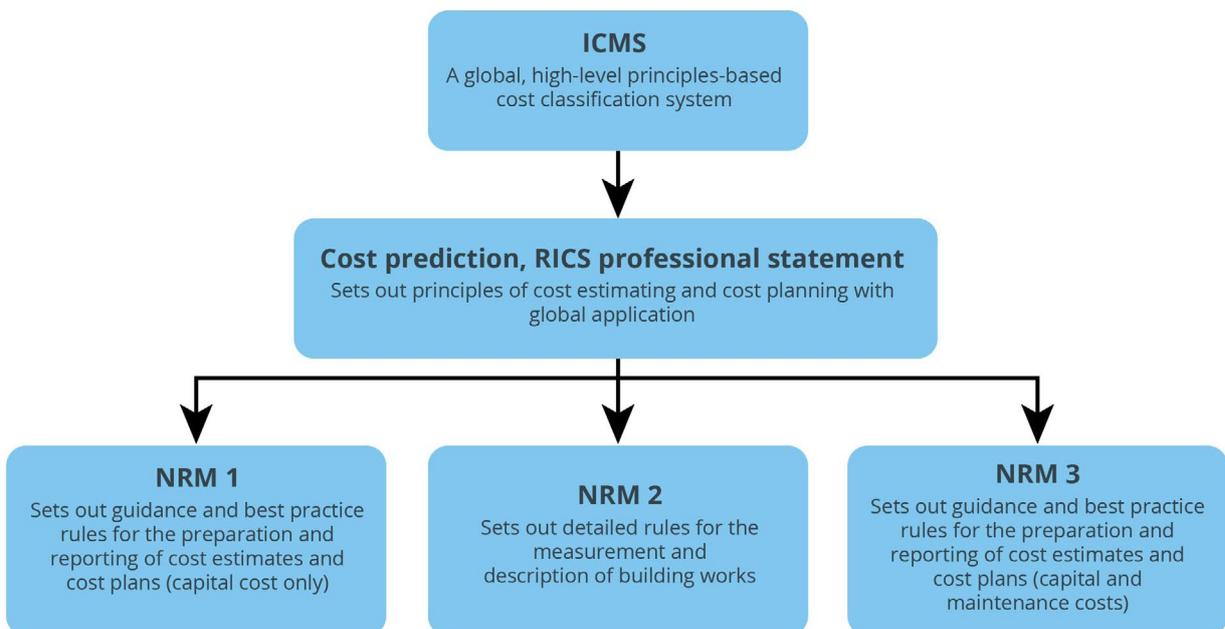


Figure 0.2: NRM hierarchy

# Glossary

## Symbols used for measurement

ft <sup>2</sup>	square foot
ha	hectare
kg	kilogramme
kN	kilonewton
kW	kilowatt
m	linear metre
m <sup>2</sup>	square metre
m <sup>3</sup>	cubic metre
mm	millimetre
nr	number
t	tonne

## Abbreviations

BIM	Building information modelling
Cost/ft <sup>2</sup> of GIFA	Cost per square foot of gross internal floor area
Cost/m <sup>2</sup> of GIFA	Cost per square metre of gross internal floor area
ICMS	International Cost Management Standard (formerly International Construction Measurement Standards)
IPMS	International Property Measurement Standards
OGC	Office of Government Commerce (although the Office no longer exists, the acronym OGC has not been changed and remains a recognised phrase in the UK construction industry)
RIBA	Royal Institute of British Architects
RPI	Retail price index
TPI	Tender price index

Definitions	
<b>Architectural concept</b>	The architectural vision for the project, developed in RIBA Stage 2 (Concept Design), which may start as several options that are tested against the project brief. As the initial ideas solidify, following design reviews with the client and other stakeholders, strategic engineering aspects are incorporated into the architectural concept before it is concluded and becomes part of the end of Stage 2.
<b>Base cost estimate</b>	An evolving estimate of known factors without any allowances for risk and uncertainty, or element of inflation. The base cost estimate is the sum of the works cost estimate, the project and design team fees estimate, and the other development and project costs estimate.
<b>Base date of cost data or base date</b>	The date at which the costs reported in the cost estimate or cost plan apply, exclusive of any adjustments for risk allowances and/or inflation.
<b>Bill of quantities (BQ)</b>	A list of items giving detailed identifying descriptions and quantities of the work comprising a contract.
<b>Building systems</b>	The constituent parts of a building, or built asset, including, but not limited to, structural systems, mechanical and electrical systems, facades, ceiling, floor and wall systems.
<b>Building work(s)</b>	All components measured and incorporated in group elements 1 to 8.
<b>Building works estimate</b>	The sum of the cost targets for group elements 1 to 8. It excludes the facilitating works estimate, as well as those relating to main contractor's preliminaries, main contractor's overheads, profit and design team fees estimate, other development and project costs estimate and risk allowances.
<b>Client (or employer)</b>	The person or legal entity who pays for the works and services provided.
<b>Client requirements</b>	A statement or document that defines the project outcomes and sets out what the client is seeking to achieve. It is used to develop the business case, which examines the viable options that meet the client requirements.
<b>Component</b>	A measured item that forms part of a sub-element. The quantity of one or more items will be measured and the cost estimated to ascertain the cost target for an element or sub-element.

Definitions	
<b>Construction inflation</b>	An allowance included in the order of cost estimate or cost plan for fluctuations in the basic prices of labour, plant and equipment, and materials during the period from the date of tender return to the mid-point of the construction period. See also tender inflation.
<b>Construction information</b>	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 building systems and prescriptive information.
<b>Cost breakdown structure (CBS)</b>	In the context of order of cost estimates and cost plans, the cost breakdown structure (CBS) represents the cost breakdown of a building project into cost targets for elements or work packages. The CBS, in conjunction with the work breakdown structure (WBS), provide a codification framework order of cost estimates and cost plans. This facilitates the easy transference of items into works packages or contract works for the purposes of procurement, for example.  Note: the terms 'cost group' and 'cost sub-group' are used in by ICMS, instead of group element, element, and sub-element.
<b>Cost checks (or cost checking)</b>	Take place during all design stages and are concerned with comparing current estimated costs against cost targets previously set for elements or sub-elements of the building.
<b>Cost code</b>	A numeric code that uniquely identify projects, sub-projects, group elements, elements, sub-elements and components.
<b>Cost codification framework</b>	A numeric coding structure that may be used to uniquely identify projects, sub-projects, group elements, elements, sub-elements and components. The cost codification structure is derived from the cost breakdown structure (CBS).
<b>Cost control</b>	The process of planning, predicting and controlling the costs of building(s). Takes place throughout the duration of the construction project.
<b>Cost exercises</b>	Exercises used to develop the cost plan and to verify that the specification for the building systems and components meet the available cost targets and cost limit. See also cost limit.

Definitions	
<b>Cost limit (or project budget)</b>	The maximum expenditure the client is prepared to make in relation to the completed building. Includes construction costs, the cost of professional services, certain other project costs, items required post completion and during its operation, and risk allowances.
<b>Cost per functional unit (or functional unit cost)</b>	The unit rate that, when multiplied by the number of functional units, gives the total building works estimate (i.e. works cost estimate minus main contractor's preliminaries and main contractor's overheads and profit). The total recommended cost limit (i.e. the cost limit, including inflation) can also be expressed as a cost per functional unit when reporting costs.
<b>Cost per m<sup>2</sup> of gross internal floor area (cost/m<sup>2</sup> of GIFA)</b>	The unit rate that, when multiplied by the GIFA, gives the total building works estimate (i.e. works cost estimate minus main contractor's preliminaries and main contractor's overheads and profit). Other cost estimates that form part of an order of cost estimate or a cost plan should also be converted to cost/m <sup>2</sup> of GIFA when reporting costs to the client and project team (i.e. to express cost targets for group elements, elements and sub-elements, as well as the cost limit). They are also used in cost analyses and benchmarking as a means of documenting costs of previously completed building projects.
<b>Cost plan (or elemental cost plan)</b>	In the context of <b>Cost prediction</b> , RICS professional statement, a cost plan is 'an estimate based on a specific design. A statement showing an apportionment of an estimate of or an agreed budget between cost headings'. This would not necessarily be in elemental form. Cost planning is a method of cost prediction.
<b>Cost target</b>	The recommended total expenditure for an element. The cost target for each element is likely to be derived from several sub-elements and components.
<b>Deflation</b>	Sustained decrease in the general price level of resources (ISO 15686 – 5), i.e. the opposite of inflation.
<b>Descriptive information</b>	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.
<b>Design reviews</b>	Reviews of the architectural concept by the client and other project stakeholders to obtain comments and determine whether it meets the requirements of the project brief.
<b>Design studies</b>	Detailed studies that develop aspects of the building, or built asset, further during RIBA Stage 3 (Spatial Coordination).

Definitions	
<b>Design team</b>	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.
<b>Element</b>	A major part of a group element (e.g. the elements that comprise 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.
<b>Elemental cost plan (or cost plan)</b>	The critical breakdown of the cost limit for the building(s) into cost targets for each element of the building(s). It provides a statement of how the design team proposes to distribute the available budget among the elements of the building, and a frame of reference from which to develop the design and maintain cost control. It also provides both a work breakdown structure (WBS) and a cost breakdown structure (CBS), which, by codifying, can be used to redistribute work in elements to construction work packages for procurement purposes. Cost planning is a method of cost prediction.
<b>Elemental method</b>	A budget-setting technique that considers the major elements of a building and provides an order of cost estimate based on an elemental breakdown of a building project. The elemental method can also be used to develop an initial cost model as a prerequisite to developing an elemental cost plan. The method involves the use of element unit quantities (EUQ) and element unit rates (EUR). The elemental method of estimating is a method of cost prediction.
<b>Element unit quantity (EUQ)</b>	A unit of measurement that relates solely to the quantity of the element or sub-element itself (e.g. the area of the external walls, the area of windows and external doors, and the number of internal doors).
<b>Element unit rate (EUR)</b>	The total cost of an element divided by the element unit quantity (EUQ). For example, the EUR for external walls is the total cost of the external walls divided by the EUQ for external walls. EURs include the cost of all materials, labour, plant, subcontractor's preliminaries, subcontractor's design fees, and subcontractor's overheads and profit. EURs exclude main contractor's preliminaries, main contractor's overheads and profit and other allowances, such as project and design team fees, other development and project costs, risk allowances and inflation. These items should be assessed separately.

Definitions	
<b>Enabling works</b>	Works executed ahead of the main building contract. Enabling works are client and/or project team specified works, which might include a mixture of facilitating works and new building works (e.g. site preparatory works, such as major demolition, removal of contaminated materials, reptile harm mitigation measures and soil stabilisation, together with new sewers, new access roads, new drainage, new retaining walls and minor new building works).
<b>Estimate base date</b>	The date on which the cost limit (excluding inflation, i.e. the sum of the works cost estimate, project and design team fees estimate, other development and project costs estimate and risk allowance estimate) is established as a basis for calculating inflation, changes or other related variances.
<b>Facilitating works</b>	All components measured and incorporated in group element 0. It includes specialist works that normally need to be completed before any building works can commence (e.g. major demolition works, soil stabilisation works and/or temporary diversion of mains drainage).
<b>Facilitating works estimate</b>	The sum of the cost targets for group element 0. It excludes the building works estimate, as well as those relating to main contractor's preliminaries, main contractor's overheads, profit and design team fees estimate, other development and project costs estimate and risk allowances.
<b>Facilitating works and building works estimate</b>	The sum of the cost targets for group elements 0 to 8. It excludes cost targets relating to main contractor's preliminaries and main contractor's overheads, profit and design team fees estimate, other development and project costs estimate and risk allowances.
<b>Final project brief</b>	The initial project brief amended so that it is aligned with RIBA Stage 2 (Concept Design) and any briefing decisions made during RIBA Stage 2. Both the concept design and the final project brief are information exchanges at the end of RIBA Stage 2.
<b>Final specifications</b>	The specifications issued at RIBA Stage 4 (Technical Design). These specifications can be descriptive or prescriptive.
<b>Formal cost plan</b>	The elemental cost plan that is reported to the client on completion of a specific RIBA Stage or OGC Gateway.
<b>Formal cost plan stage</b>	The point at which the quantity surveyor/cost manager formally submits an elemental cost plan to the client for consideration. The formal cost plan stages are interlinked with the appropriate RIBA Stages and OGC Gateways.

Definitions	
<b>Functional unit</b>	A unit of measurement used to represent the prime use of a building or part of a building (e.g. per bed space, per house and per m <sup>2</sup> of retail area). It also includes all associated circulation space.
<b>Functional unit method</b>	A rough budget-setting technique that consists of selecting a suitable standard functional unit of use for the project and multiplying the projected number of units by an appropriate cost per functional unit.
<b>Gross external floor area (GEFA) – IPMS 1 measurement</b>	The total external floor area measured in accordance with IPMS 1 (external) as per the applicable International Property Measurement Standards.
<b>Gross internal floor area (GIFA) or internal area – IPMS 2 measurement</b>	The total internal floor area measured in accordance with IPMS 2 (internal) as per the applicable International Property Measurement Standards.
<b>Group element</b>	The main headings used to describe the facets of an elemental cost plan.
<b>Initial project brief</b>	The brief following discussions with the client to ascertain the project objectives, the client's business case and, in certain circumstances, in response to a site feasibility study.
<b>Inflation</b>	<p>Sustained increase in the general price level of resources (ISO 15686-5), i.e. the opposite of deflation.</p> <p>It is included as an allowance in the order of cost estimate or cost plan for fluctuations in the basic prices of labour, plant and equipment and materials. Refer to tender inflation and construction inflation.</p>
<b>Information requirements (or exchanges)</b>	The formal issuing of information for review and sign-off by the client at key stages of the building project.
<b>Main contractor (or prime contractor)</b>	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).
<b>Main contractor's overheads and profit</b>	The main contractor's costs associated with head office administration proportioned to each building contract plus the main contractor's return on capital investment.

Definitions	
<b>Main contractor's preliminaries</b>	<p>Items that cannot be allocated to a specific element, sub-element or component. (See group element 9.)</p> <p>Note: main contractor's preliminaries exclude costs associated with subcontractor's preliminaries, which should be included in the unit rates applied to building works.</p>
<b>Manufacturing information</b>	Information prepared for the manufacture of building systems and/or components during RIBA Stage 4 (Technical Design).
<b>Net internal area (NIA) – IPMS 3 measurement</b>	The total internal floor area available to the occupier measured in accordance with IPMS 3 as per the applicable International Property Measurement Standards.
<b>Normal working hours</b>	Normal working hours, typically 08:30 to 17:30 Monday to Friday (excluding statutory holidays). Note that actual working hours may vary and should be stated in the assumptions.
<b>OGC Gateway Process (or other equivalent Project Gateway Process)</b>	A process that 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. The process is best practice in UK central government, the health sector and the defence sector.
<b>OGC Gateways (or other equivalent Project Gateways)</b>	Key decision points within the OGC Gateway Process.
<b>Option cost</b>	An estimate of the cost of alternative design solutions to achieve the project objectives, so that they can be compared and appraised. Option costs will be incorporated into the overarching cost report.
<b>Order of cost estimate</b>	An estimate based on benchmark data for a similar type of project based on the client's strategic definition or initial brief. Its purpose is to establish affordability of a proposed development for a client. It takes place prior to the preparation of a full set of working drawings or bills of quantities and forms the initial build-up to the cost planning process. Order of cost estimates are a method of cost prediction.
<b>Other project costs</b>	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 client (e.g. land acquisition costs, fees for letting agents, marketing costs and contributions associated with planning permission).
<b>Outline specification</b>	Sufficient information to enable the client to understand what is proposed for each building system and/or component.

Definitions	
<b>Prescriptive information</b>	Complete, instructive information used to manufacture and construct building systems and components, produced by the design team or the construction team.
<b>Price stability</b>	The boundary between inflation and deflation.
<b>Prime cost sum (PC sum)</b>	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 <sup>2</sup> , 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.
<b>Project</b>	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 a defined start and end dates. A project may comprise several sub-projects.
<b>Project and design team fee(s)</b>	Consultants' fees for services related to pre-construction, construction and post-construction, other consultants' fees, fees and charges for intrusive site investigations, specialist support consultants' fees and main contractor's fees for the provision of pre-construction services. See group element 11 for an indicative list of project and design team fees.
<b>Project and design team fees estimate</b>	The total estimated cost of all project and design team fees at the estimate base date (i.e. excluding tender inflation and construction inflation).
<b>Project brief derogations</b>	A record used to identify and agree where aspects of the design do not need to comply with the project brief.
<b>Project information</b>	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.
<b>Project outcomes</b>	The client's desired outcomes for the project.
<b>Project programme</b>	The overall period for briefing, design, manufacturing, construction and post-completion activities on a building project.

Definitions	
<b>Project strategies</b>	<p>Strategies to support the design process, which generally developed in parallel with RIBA Stages 2 (Concept Design) and 3 (Spatial Coordination) – in outline and in detail, respectively. Typically include:</p> <ul style="list-style-type: none"> <li>• conservation strategy</li> <li>• cost strategy</li> <li>• fire safety strategy</li> <li>• health and safety strategy</li> <li>• inclusive design strategy</li> <li>• maintenance and operation strategy</li> <li>• planning strategy</li> <li>• plan for use strategy</li> <li>• procurement strategy and</li> <li>• sustainability strategy.</li> </ul>
<b>Project team</b>	<p>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 one has been engaged by the client to provide pre-construction services.</p>
<b>Quality aspirations</b>	<p>The objectives that set out the quality aspects of a project. Could be defined by reference to a set of inherent characteristics of an object that fulfils requirements (EN ISO 9000-9001-9002).</p>
<b>Residual risk (or retained risk)</b>	<p>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.</p>
<b>Responsibility matrix</b>	<p>A matrix determining who is responsible for the different tasks to be undertaken at each RIBA Stage.</p>
<b>RIBA Plan of Work</b>	<p>Refers to <i>RIBA Plan of Work</i>, a framework setting out the stages of a building project. It consists of eight Stages. The <i>RIBA Plan of Work</i> specifies the tasks to be undertaken by the project team at each Stage.</p>
<b>RIBA Stage</b>	<p>The Stage the project is at. The <i>RIBA Plan of Work</i> consists of eight Stages identified by the numbers 0 to 7. Tendering and the awarding of works contracts are treated as a variable task, as they depend on the selected procurement route and can occur at any time between Stages.</p>

Definitions	
<b>Risk</b>	A probability or threat of liability, loss or any other negative occurrence that is caused by external vulnerabilities, errors, or oversights and that may be avoided by pre-emptive action.
<b>Risk allowance</b>	A quantitative allowance set aside as a precaution against risks and future requirements to allow for uncertainty of outcome. See residual risk.
<b>Risk register (or risk log)</b>	A schedule of identified risks.
<b>Risk value</b>	An estimate of the cost of an individual risk.
<b>Site area (SA)</b>	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.
<b>Site information</b>	Specific project information in the form of surveys or reports relating to the site/context for a project, including site surveys.
<b>Spatial requirements</b>	A schedule of rooms and/or spaces that will achieve the client requirements.
<b>Spatially coordinated</b>	Design in which the client's spatial requirements and spaces required for any building systems and/or components – such as structural and building services engineering aspects, including grids, risers and plant rooms – have been determined and fixed to allow RIBA Stage 4 (Technical Design) to progress without further iteration.
<b>Strategic engineering</b>	Engineering information that is crucial to the development of the architectural concept, including plant room and/or riser information, or required to develop the cost plan for the consideration of project risks and risk allowances.
<b>Subcontractor</b>	A contractor who undertakes specific work within the building project. They are known as specialist-, works-, trade-, work package- and labour-only subcontractors.
<b>Subcontractor's preliminaries</b>	Preliminaries that relate specifically to building works to be carried out by a subcontractor. Costs associated with subcontractor's preliminaries should be included in the unit rates applied to sub-elements and individual components.

Definitions	
<b>Sub-element</b>	<p>A part of an element. As with elements, a separate cost target can be established for each sub-element (e.g. the sub-elements that comprise element 2.1 Frame are: 2.1.1 Steel frames; 2.1.2 Space frames/decks; 2.1.3 Concrete casings for steel frames; 2.1.4 Concrete frames; 2.1.5 Timber frames; and 2.1.6 Specialist frames).</p> <p>Note the use of the term 'cost sub-group' in the context of ICMS.</p>
<b>Taxes and levies</b>	<p>Mandatory costs taxed or levied in connection with any phase of the project by national government, municipalities or government agencies, whether paid by the client, the contractor or the operator.</p>
<b>Temporary works</b>	<p>Non-permanent work or activity that is necessary for the completion of permanent construction work.</p>
<b>Tender inflation</b>	<p>An allowance included in the order of cost estimate or cost plan for fluctuations in the basic prices of labour, plant and equipment, and materials during the period from the estimate base date to the date of tender return. See also construction inflation.</p>
<b>Total development cost</b>	<p>The cost limit (including inflation, i.e. the total of the works cost estimate, the project and design team fees estimate, other development and project costs estimates, tender inflation and construction inflation) for the building project.</p>
<b>Unit rate(s)</b>	<p>The monetary rate applied to an element, sub-element or component per unit of measurement (e.g. cost per m, cost per m<sup>2</sup> and cost per m<sup>3</sup>). The term also includes costs/m<sup>2</sup> of GIFA and cost per functional unit (or functional unit cost).</p>
<b>Works cost estimate</b>	<p>The combined total estimated cost of the building works estimate, main contractor's preliminaries, and main contractor's overheads and profit, prepared using prices current at the time the estimate is prepared (or updated). The works cost estimate contains no allowance for project and design team fees, other development and project costs, risk allowances, tender inflation or construction inflation.</p>

# 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)	Level 2 Estimate	2	Delivery Strategy
			Elemental cost estimate		3A	Design Brief and Concept Approval <sup>1</sup>
2	Concept Design	Definition	Formal cost plan 1	Level 3 Estimate	3B	Detailed Design Approval <sup>1</sup>
3	Spatial Coordination		Formal cost plan 2 <sup>2</sup>	Level 4 Estimate		
4	Technical Design	Design	Formal cost plan 3 <sup>2</sup>	Level 5 Estimate	3C	Investment Decision <sup>1</sup>
	Contractor Engagement	Contractor Engagement	Pre-tender estimate <sup>3</sup> Pricing documents <sup>3</sup> (for obtaining tender prices) Post-tender estimate <sup>4</sup>	Level 5 Estimate(s)		
5	Manufacturing and Construction	Build and Commission				
6	Handover	Handover and Closeout	Formal cost plan 4 <sup>5</sup> (renew/maintain)	Level 6 Estimate	4	Readiness for Service
7	Use	Operation	(measured in accordance with NRM 3)		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 3C (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 RIBA 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 1 provides guidance on the quantification of building works for preparing cost estimates and cost plans. Direction on how to quantify other items that form part of the cost of a building project, but which are not reflected in the measurable building work items (i.e. preliminaries, overheads and profit, project and design team fees, risk allowances, inflation, and other development and project costs) is also provided.

NRM 1 is the cornerstone of good cost management for construction projects, enabling more effective and accurate cost advice to be given to clients and other project team members, as well as facilitating better cost control. It provides a standard set of measurement rules that are understandable by all those involved in a construction project, including the client, thereby aiding communication between the project team, the design team and the client.

NRM 1 provides rules of measurement for the preparation of order of cost estimates and elemental cost plans. Direction on how to describe and deal with costs and allowances that form part of the cost of a building, but which are not reflected in the measurable building work items, is also provided.

Although written primarily for the preparation of order of cost estimates and cost plans, NRM 1 will be invaluable when preparing approximate estimates. In addition, NRM 1 can be used as a basis for capturing historical cost data in the form required for order of cost estimates and elemental cost plans, thereby completing the cost management cycle.

NRM 1 does not explain estimating methods, cost planning techniques, procurement methods or contract strategies; advice on these can be obtained in other RICS publications and other external publications.

Where an order of cost report or a cost plan report has been prepared in accordance with NRM 1, this should be stated in the report.

## 1.4 Use

NRM 1 deals with measurement for the preparation of:

- order of cost estimates, including 'rough' order of cost estimates
- elemental cost models
- cost plans
- cost analyses and
- benchmark analyses.

Users of this document are advised to adopt metric units as the standard system of measurement. Where the client requires reference to imperial units, these may be provided as supplementary information (e.g. in parentheses).

Although [BS 8888:2020 Technical product documentation and specification](#) recommends the inclusion of a comma rather than a point as a decimal marker, and a space instead of a comma as a thousands separator, the traditional UK convention has been adopted in these rules (i.e. a point as a decimal marker and a comma as a thousands separator). Users should take care to ensure that this does not conflict with client requirements.

## 1.5 Effective date

This document is effective from 1 December 2021.

# 2 Measurement rules for order of cost estimating

## 2.1 Introduction

This section describes the purpose and content of an order of cost estimate, situates order of cost estimates in the context of the *RIBA Plan of Work* and OGC Gateway Process, and sets out the rules of measurement for the preparation of order of cost estimates using the following estimating methods:

- floor area method
- functional unit method (e.g. per bed space, per house type or per m<sup>2</sup> of retail area) and
- elemental method (i.e. individual elements).

The content and application of unit rates (i.e. cost/m<sup>2</sup> of GIFA, functional unit rates and element unit rates (EURs)) to measured quantities, in order to generate the base cost of the building works, are also described, together with the methods of dealing with cost allowances for:

- main contractor's preliminaries
- main contractor's overheads and profit
- project and design team fees
- other project costs
- risk allowances
- inflation and
- VAT.

In addition, the basic information requirements (supplied by the client and other project team members) needed by the quantity surveyor/cost manager to complete order of cost estimates are outlined. The essential content of the quantity surveyor's/cost manager's order of cost estimate report to the client is also described.

The rules of measurement for the element unit quantities (EUQs) used for the elemental method of estimating can also be used as a basis for measuring EUQs for the cost analysis of building projects.

## 2.2 Purpose of an order of cost estimate

Order of cost estimates are produced as an intrinsic part of RIBA Stages 0 and 1, or OGC Gateways 1 and 2. The requirements of RIBA Stages 0 and 1, as described in the *RIBA Plan of Work*, are described in more detail here.

### 2.2.1 RIBA Stage 0: Strategic Definition

**Outcome:** The best means of achieving the client requirements.

The primary goal of Stage 0 is strategic – to ratify that a construction project, or otherwise, is the best means of achieving the client requirements. Stage 0 focuses on making the right strategic decisions and capturing them in a business case and developing the strategic brief before the initial project brief is developed. The Stage involves considering the pros and cons, project risks and project budget for a range of options and, where necessary, carrying out site surveys and corresponding planning appraisals, before undertaking a comparative analysis, recommending and ratifying the best option for delivering the client requirements.

Stage 0 may require a review of several sites or alternative options, such as extension, refurbishment or new build. By asking the right questions, the consultants, in collaboration with the client, can properly define the scope for a project and the preparation and briefing process can begin.

OGC Gateway 1 is comparable to RIBA Stage 0.

**Task:** The quantity surveyor/cost manager is to prepare a rough order of cost estimate of one or more option, which captures a very high-level calculation of the construction costs to meet the client requirements including high-level spatial requirements, taking into consideration any project risks. The estimated construction cost will be stated in terms of estimated cost per square metre of gross internal floor area (cost/m<sup>2</sup> of GIFA) or by reference to the estimated cost of a functional type (e.g. school place, bed space, etc.) (cost per functional unit), taking account of feedback from previous similar construction projects.

The estimated construction costs will be used to inform the initial project budget, which forms part of the business case, with the addition of professional fees and land acquisition costs.

### 2.2.2 RIBA Stage 1: Preparation and Briefing

**Outcome:** Initial project brief approved by the client and confirmed that it can be accommodated on the site.

The client requirements for the project are considered in more detail, in connection with a specific site or sites.

The initial project brief will contain guidance on the project outcomes, sustainability outcomes and quality aspirations. These will influence how the client, design and construction teams are assembled to form the project team as part of the procurement strategy, defining each party's roles and responsibilities within the responsibility matrix as well as the methods of information exchange. It may also dictate the core milestones in the project programme.

Stage 1 is about developing the information that the design team will need to commence the design process at RIBA Stage 2 (Concept Design).

The preparation of the initial project brief is the most important task undertaken during Stage 1. The time required to prepare it will depend on the complexity of the project.

The importance of properly establishing the project team cannot be underestimated, given the increasing use of technology that enables remote communication and project development using BIM. For Stage 2 to commence in earnest, it is essential that the project team is properly assembled.

OGC Gateway 2 is comparable to RIBA Stage 1.

**Tasks:** The quantity surveyor/cost manager is to:

- 1 Prepare order of cost estimates to test the feasibility of achieving the emerging project brief including quality aspirations and project strategies when carrying out feasibility studies (also referred to as option studies), taking into consideration any project risks associated with each option.
- 2 Break down the cost of elements to highlight any areas that might cause significant cost-related project risks (e.g. foundation type) and consider the risk profile of potential market changes and effects of inflation. Refer to section 2.7.
- 3 Agree the cost limit.

The purpose of an order of cost estimate is to establish whether the proposed building project is affordable and, if so, to establish a realistic cost limit for the building project. The cost limit is the maximum expenditure that the client is prepared to make in relation to the completed project (i.e. authorised budget), which will be managed by the project team.

## 2.3 Information requirements for order of cost estimates

To enable preparation of an order of cost estimate, the following information is required:

**From client:**

- Location of the site and the availability of the site for commencement of the building project.
- A statement of building use.
- Spatial requirements – a statement of floor area (or number of functional units) and schedule of accommodation – in conjunction with the architect.
- Requirements for refurbishment (if the project comprises rehabilitation of an existing building) – in conjunction with the architect. Details of the new use and any outstanding maintenance or repairs necessary to give the building fabric the required life expectancy are required.
- Quality aspirations – in conjunction with the architect.
- Sustainability aspirations – in conjunction with the architect.
- Fit-out requirements – in conjunction with the architect.
- Details of any enabling works, decanting or other specific requirements.
- Indicative programme, including key dates (e.g. planning application and occupation dates).

- Details of any restraints – imposed by the client, planning authorities, conservation areas or statutory undertakers, for example – in conjunction with the architect (e.g. work in a secure area, limitations on building position, work in a conservation area, work to a historic or listed building, external appearance and number of storeys).
- Site information – in conjunction with the architect (e.g. sloping site, likelihood of contaminated ground, demolition of existing buildings, adequacy and condition of existing mains services).
- Fire safety requirements – in conjunction with the architect.
- Health and safety site information (e.g. asbestos) – in conjunction with the architect.
- Budget/cash flow constraints.
- Initial views (if any) on construction procurement options and contract strategies.
- Target life span (e.g. 10-year, 25-year or 60-year).
- An indication of the proposed storey heights of the building – in conjunction with the architect.
- The introduction of raised access floors for IT cabling or deep suspended ceiling voids for mechanical and electrical service installations could significantly increase storey height, thus increasing estimated costs. Where such a requirement is known, it is recommended this is stated.
- Requirements in respect of mechanical and electrical service installations – in conjunction with the architect (and mechanical and electrical services engineer if appointed).
- Requirements in respect of:
  - treatment of project and design team fees
  - approach to other development and project costs
  - treatment of inflation and
  - treatment of VAT.
- Other considerations (e.g. approach to dealing with capital allowances, land remediation and grants).

**From architect:**

- Design study sketches or drawings for each alternative design/development option, to a suitable scale, comprising:
  - floor plans (for each different floor plate configuration/shape and use)
  - roof plan(s)
  - elevations and
  - sections.
- Schedule of GEFA, GIFA and NIA, i.e. (in the case of NIA) usable area for shops, supermarkets and offices, on a floor-by-floor basis and site area.
- Minimum storey heights.
- Schedule of accommodation – in conjunction with the client.

- Number of car parking spaces and whether above ground or below ground.
- Indicative specification and design intent for building option(s).
- Indicative environmental/sustainability strategy – in conjunction with the mechanical and electrical services engineer.
- Advice on likely site constraints.
- Advice on likely planning constraints.
- Definition of 'fit-out' works.
- Initial risk register.

**From mechanical and electrical services engineer (if appointed):**

- Specification of indicative services and design intent for building option(s).
- Indicative environmental/sustainability strategy – in conjunction with the architect.
- Advice on availability and/or adequacy of utility service connections to the site.
- Initial risk register.

**From structural engineer (if appointed):**

- Advice on probable ground conditions.
- Specification of indicative services and design intent for building option(s).
- Initial risk register.

The accuracy of an order of cost estimate will depend on the quality of the information supplied to the quantity surveyor/cost manager. 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 qualify the order of cost estimate accordingly.

## 2.4 Constituents of an order of cost estimate

The key constituents of an order of cost estimate are shown in Table 2.1.

#	Constituent	Cross reference
1	Facilitating works estimate	See section 2.5
2	Building works estimate	See section 2.6
3	Main contractor's preliminaries estimate	See section 2.11
4	<b>Subtotal = 1 + 2 + 3</b>	
5	Main contractor's overheads and profit estimate	See section 2.12
6	<b>Works cost estimate = 4 + 5</b>	
7	Project and design team fees estimate = <b>7a</b> + <b>7b</b> + <b>7c</b> , where: <ul style="list-style-type: none"> <li>• <b>7a</b> = consultant's fees</li> <li>• <b>7b</b> = main contractor's pre-construction fee estimate (if applicable) and</li> <li>• <b>7c</b> = main contractor's design fees estimate (if applicable).</li> </ul>	See section 2.13
8	<b>Subtotal = 6 + 7</b>	
9	Other project costs estimate	See section 2.14
10	<b>Base cost estimate = 8 + 9</b>	
11	Risk allowances estimate = <b>11a</b> + <b>11b</b> + <b>11c</b> + <b>11d</b> , where: <ul style="list-style-type: none"> <li>• <b>11a</b> = design development risks estimate</li> <li>• <b>11b</b> = construction risks estimate</li> <li>• <b>11c</b> = employer change risks estimate and</li> <li>• <b>11d</b> = employer other risks estimate.</li> </ul>	See section 2.15
12	<b>Cost limit (excluding inflation) = 10 + 11</b>	
13	Tender inflation estimate	See section 2.16
14	<b>Cost limit (excluding construction inflation) = 12 + 13</b>	
15	Construction inflation estimate	See section 2.16
16	<b>Cost limit (including inflation) = 14 + 15</b>	
17	VAT assessment	See section 2.17

**Table 2.1: Key constituents of an order of cost estimate**

The base cost estimate (item 10 in Table 2.1) is the total of the facilitating works estimate (item 1), building works estimate (item 2), main contractor's preliminaries estimate (item 3), main contractor's overheads and profit estimate (item 5), project and design team fees estimate (item 7), and the other development and project costs estimate (item 9). The base cost estimate is to contain no allowances for risk or inflation.

Allowances for risk and inflation should be calculated separately and added to the base cost estimate to determine the cost limit for the building project.

Reference should also be made to the classification of high-level costs as contained in ICMS.

## 2.5 Measurement rules for facilitating works

'Facilitating works' is a term used to describe specialist works that normally need to be completed before any building works can commence (e.g. demolition works, works involving the removal of hazardous and deleterious materials, and soil stabilisation). The terms 'facilitating works' and 'enabling works' cannot be confused. Enabling works is a term commonly used to define a package of works, which often includes facilitating works, temporary works and new permanent works (e.g. a combination of major demolition works, intrusive site investigations, a new access road and the provision of mains services by statutory undertakings).

Quantities for facilitating works should be based on either the site area, the area affected (in m<sup>2</sup>), cubic metres (m<sup>3</sup>), linear metres (m), time (weeks), enumerated (nr) or itemised (item) as deemed appropriate. Where the quantity is based on the site area, this is 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 or buildings), less the footprint of any existing buildings, measured on a horizontal plane.

## 2.6 Measurement rules for building works

Quantities for building works should be determined by measuring the total GIFA of the building(s) (using the floor area method) or by projecting the number of functional units (using the functional unit method). In certain circumstances, a combination of both floor area methods and functional unit methods may need to be employed.

Where the external works are to be measured separately, the site area is to be measured. The site area is 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 or buildings), excluding the footprint of the new building(s), measured on a horizontal plane.

### 2.6.1 Floor area method

The total GIFA of the building or buildings is measured and multiplied by an appropriate cost/m<sup>2</sup> of GIFA. The equation for calculating the total estimated cost of building works is:

$$c = a \times b$$

where:

- **a** = GIFA
- **b** = cost/m<sup>2</sup> of GIFA for building works
- **c** = building works estimate

Where measurement is for more than one building, the measurement for each building is to be shown separately.

Where a single building comprises more than one user function (e.g. residential, retail and offices), the GIFA of each function is to be calculated and quantified separately. The sum total of the GIFA for each separate function is to be equal to the GIFA for the whole building. To establish the GIFA of each separate building function, the centre line of the party wall is used to delineate the functions.

## 2.6.2 Functional unit method

Functional units are a unit of measurement used to represent the prime use of a building or part of a building. It is essential that the functional unit is clearly identified when measurements are expressed in this way. A list of commonly used functional units and functional units of measurement for buildings is provided in Appendix A.

A suitable functional unit for the building is to be selected. The total number of functional units is determined and multiplied by an appropriate cost per functional unit. The equation for calculating the total estimated cost of building works is:

$$c = a \times b$$

where:

- **a** = number of functional units
- **b** = cost per functional unit
- **c** = building works estimate

Where measurement for the functional unit is to be expressed as retail area, the retail area of the shop is to be measured in accordance with the 'Special Use Definition: Shops' in [RICS Property measurement](#) (2nd edition), RICS professional statement.

## 2.7 Elemental method

The elemental method is an alternative approach for calculating the building works estimate. The elemental method considers the major elements of a building and provides an order of cost estimate based on an elemental breakdown of the building project. Ordinarily, the group elements and elements used in the elemental method are the same as those used in the elemental cost planning process (see Parts 3 and 4 of these rules). However, the choice and number of elements used to break down the cost of building works will be dependent on the information available. See Appendix B for a detailed list of all the group elements and elements used for elemental cost planning. The method of measuring and the unit of measurement for each of the elements is set out in Table 2.2.

If suitable information is available, the EUQ for an element is measured in accordance with the rules, and priced with a suitable EUR to ascertain the cost target for an element. Where insufficient information is available for an element, the EUQ for the element is based on the GIFA. The equation for calculating the cost target for an element is therefore:

$$c = a \times b$$

where:

- **a** = EUQ
- **b** = EUR
- **c** = cost target (for element)

The building works estimate is ascertained by adding together the cost target for each element. The equation for calculating the building works estimate using the elemental method is:

$$b = \sum (a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8 + a9)$$

where:

- **a1, a2, a3**, etc. = cost target for each element
- **b** = building works estimate

Where a building project comprises more than one building, the measurement for each building is to be shown separately.

The elemental method can also be used to generate an initial cost model (or an outline elemental cost plan) at the commencement of RIBA Stage 2 or OGC Gateway 3A, whichever is applicable. This elemental breakdown provides a frame of reference from which formal cost plan 1 can be developed (see Part 3 of these rules). The initial EUQs and EURs will eventually be superseded by more detailed measurement of elements, sub-elements, components and unit rates once suitable design information has been prepared and the elemental cost plan evolves.

The measurement rules for the elemental method of estimating in Table 2.2 can also be used as a basis for measuring EUQs for cost analyses and benchmark analyses of building projects. The content of each group and element is defined in Part 4.

## 2.8 Measurement rules for elemental method of estimating

Table 2.2 comprises the rules of measurement for EUQs, which can be used to develop an order of cost estimate using the elemental method of estimating. The table comprises the rules of measurement for building works (i.e. for group elements 0 to 8).

The definition of each group element and element used in the elemental method of cost estimating are the same as those defined for elemental cost plans in Part 4.

If suitable information is available, EUQs are measured for a group element or element in accordance with the rules and priced with suitable EURs to ascertain the cost target for an element. Where insufficient information is available for an element, the EUQ for that element is to be the GIFA.

The measurement rules for the elemental method of estimating in Table 2.2 can also be used as a basis for measuring EUQs to perform cost analyses and benchmark analyses of tendered building projects.

Group element	Element	Unit	Measurement rules	Notes
0 Facilitating works	0.1 Toxic/hazardous/contaminated material treatment	m <sup>2</sup>	The area measured is the site area (i.e. the total area of the site).	Costs to be shown separately for each type of toxic/hazardous material to be removed.
	0.2 Major demolition works		1 The area measured is the GIFA of the building(s) demolished.	Costs to be shown separately for each building demolished.
			2 The area measured is measured in accordance with the rules of measurement for ascertaining GIFA.	
	0.3 Temporary support for adjacent structures		The area measured is the area of wall to be supported.	Costs to be shown separately for each structure to be supported.
	0.4 Specialist groundworks		The area measured is the site area (i.e. the total area of the site).	Costs to be shown separately for each element.
	0.5 Temporary diversion works			
0.6 Extraordinary site investigation works				
1 Sub-structure	1.1 Substructure	m <sup>2</sup>	1 The area measured is the area of the lowest floor measured to the internal face of the external perimeter walls.	
			2 The area of the lowest floor should be measured in accordance with the rules of measurement for ascertaining the GIFA.	
			3 Area of basements to be shown separately.	
			4 The area of basements shall be measured in accordance with the rules of measurement for ascertaining the GIFA.	

Group element	Element	Unit	Measurement rules	Notes
2 Super-structure	2.1 Frame	m <sup>2</sup>	<p>1 The area measured is the area of the floors related to the frame.</p> <p>2 The area of the frame shall be measured in accordance with the rules of measurement for ascertaining the GIFA.</p>	<p>Buildings with open ground floors, etc. exclude the area of the open ground floor (i.e. for a completely framed building this would equate to the GIFA).</p> <p>Where balconies are included, the sum of the upper floors and lowest floor will exceed the GIFA.</p>
	2.2 Upper floors		<p>1 The area measured is the total area of upper floors.</p> <p>2 The area of the upper floors should be measured in accordance with the rules of measurement for ascertaining the GIFA.</p> <p>3 Sloping surfaces such as galleries, tiered terraces, etc. should be measured flat on plan.</p> <p>4 Areas for balconies, galleries, tiered terraces, service floors, walkways, internal bridges, external links and roofs to internal buildings shall be shown separately.</p>	
	2.3 Roof	m <sup>2</sup>	The area measured is the area of the roof on plan measured to the inside face of the external walls.	
	2.4 Stairs and ramps	nr	<p>1 Enumerate, giving total number of storey flights, i.e. the number of staircases or ramps multiplied by the number of floors served (excluding the lowest floor served in each case).</p> <p>2 The total vertical rise of each staircase or ramp is to be stated, measured from top of structural floor level to top of structural floor level.</p>	

Group element	Element	Unit	Measurement rules	Notes
2 Super-structure	2.5 External walls	m <sup>2</sup>	The area measured is the area of the external wall, measured on the internal perimeter (i.e. the internal face) of the external wall, less the area of windows.	<p>1 It is unlikely that the thickness of external wall construction will be known at RIBA Stages 0 and 1 or OGC Gateways 1 and 2.</p> <p>2 Costs to be shown separately for each type of external wall system.</p> <p>3 Sub-element includes costs in connection with forming openings for windows and external doors.</p>
	2.6 Windows and external doors		The area measured is the area of windows and external doors measured over frames.	Costs in connection with forming openings for windows and external doors to be included in sub-element 2.5.
	2.7 Internal walls and partitions		The area measured is the area of internal walls and partitions – measured on the centre line.	Costs to be shown separately for each type of internal wall or partition.
	2.8 Internal doors	nr	Enumerate, giving total number of internal doors.	Irrespective of door type.
3 Internal finishes	3.1 Wall finishes	m <sup>2</sup>	The area measured is the total area of wall finishes (i.e. the area of wall to which finishes are applied).	
	3.2 Floor finishes		The area measured is the total area of floor finishes (i.e. the area of floor to which finishes are applied).	
	3.3 Ceiling finishes		The area measured is the total area of ceiling finishes (i.e. the area of ceiling to which finishes are applied).	
4 Fittings, furnishings and equipment	4.1 Fittings, furnishings and equipment	m <sup>2</sup>	<p>1 The area measured is the GIFA.</p> <p>2 The area measured is measured in accordance with the rules of measurement for ascertaining the GIFA.</p>	

Group element	Element	Unit	Measurement rules	Notes
5 Services	5.1 Sanitary installations	nr	<p>1 Enumerate, giving total number of appliances.</p> <p>2 The total number of appliances enumerated is the total number of items of:</p> <ul style="list-style-type: none"> <li>a domestic sanitary appliances</li> <li>b specialist sanitary appliances</li> <li>c bathroom pods</li> <li>d toilet pods</li> <li>e shower room pods.</li> </ul>	
	5.2 Services equipment		<p>1 Enumerate, giving total number of items.</p> <p>2 The total number of items enumerated is the total number of items of:</p> <ul style="list-style-type: none"> <li>a commercial catering equipment</li> <li>b sinks supplied as an integral part of catering equipment</li> <li>c food storage equipment</li> <li>d specialist equipment.</li> </ul>	
	5.3 Disposal installations		<p>1 Enumerate, giving total number of aboveground waste installations to sanitary appliances and service equipment, and entry chutes to refuse disposal installations.</p> <p>2 The total number of items enumerated is the total number of items listed below:</p> <ul style="list-style-type: none"> <li>a waste points for sanitary appliances</li> <li>b waste points for service equipment</li> <li>c waste points for laboratory and industrial liquid waste</li> </ul>	<p>1 Do not separately enumerate ancillary fittings/items. Costs of ancillary fittings/items to be included in unit cost for item.</p> <p>2 Costs and measurements to be shown separately for:</p> <ul style="list-style-type: none"> <li>a drainage for sanitary appliances</li> <li>b drainage for services equipment (e.g. sinks)</li> </ul>

Group element	Element	Unit	Measurement rules	Notes
5 Services	5.3 Disposal installations (continued)	nr	<ul style="list-style-type: none"> <li><b>d</b> entry points for rubbish chutes</li> <li><b>e</b> entry points for chemical and industrial waste appliances.</li> </ul>	<ul style="list-style-type: none"> <li><b>c</b> drainage for laboratory and industrial liquid waste</li> <li><b>d</b> refuse disposal installations</li> <li><b>e</b> chemical and industrial refuse disposal installations.</li> </ul>
	5.4 Water installations		<p>1 Enumerate, giving total number of draw-off points.</p> <p>2 The total number of draw-off points enumerated is the total number of items of:</p> <ul style="list-style-type: none"> <li><b>a</b> mains supply draw-off points</li> <li><b>b</b> cold water draw-off points</li> <li><b>c</b> hot water draw-off points</li> <li><b>d</b> steam and condensate draw-off points.</li> </ul>	<p>Costs to be shown separately for each:</p> <ul style="list-style-type: none"> <li><b>a</b> mains supply draw-off point</li> <li><b>b</b> cold water draw-off point</li> <li><b>c</b> hot water draw-off point</li> <li><b>d</b> steam and condensate draw-off point.</li> </ul>
	5.5 Heat source	kW	State total number of kilowatts.	<p>1 Costs to be shown separately for each heat source.</p> <p>2 State number and type of each heat source.</p> <p>3 Rating in kilowatts to be stated for each heat source.</p>
	5.6 Space heating and air conditioning systems	m <sup>2</sup>	<p>1 The area measured is the area serviced by the system.</p> <p>2 The area serviced is measured in accordance with the rules of measurement for ascertaining the GIFA.</p>	Costs to be separately shown for each type of system.
5.7 Ventilation systems	<p>3 Where more than one system is employed, the area measured for each system is the area serviced by the system.</p>			
5.8 Electrical installations				
	5.9 Fuel installations			

Group element	Element	Unit	Measurement rules	Notes
5 Services	5.10 Lift and conveyor installations	nr	Enumerate, giving total number of lift and conveyor installations.	<p>Costs to be shown separately for each type of lift and/or conveyor installation:</p> <ul style="list-style-type: none"> <li><b>a</b> lifts (passenger, goods, firefighting, etc.); also state number of levels served</li> <li><b>b</b> enclosed hoists; also state number of levels served</li> <li><b>c</b> escalators; also state number of levels served (nr), rise (m) and length of travel (m)</li> <li><b>d</b> moving pavements; also state length of travel (m)</li> <li><b>e</b> powered stairlifts</li> <li><b>f</b> conveyors (passenger or goods); also state length of travel (m)</li> <li><b>g</b> dock levellers and scissor lifts; also state total rise (m) and designed load (kN)</li> <li><b>h</b> cranes, unenclosed cranes and unenclosed hoists; also state total rise (m) and designed load (kN)</li> <li><b>i</b> car lifts; also state number of levels served</li> </ul>

Group element	Element	Unit	Measurement rules	Notes
5 Services	5.10 Lift and conveyor installations (continued)	nr	Enumerate, giving total number of lift and conveyor installations.	<p><b>j</b> car stacking systems; also state capacity</p> <p><b>k</b> car/lorry turntables and the like</p> <p><b>l</b> document handling systems</p> <p><b>m</b> other lift and conveyor installations.</p>
	5.11 Fire and lightning protection	m <sup>2</sup>	1 The area measured is the area serviced by the system.	Costs to be separately shown for each type of system.
	5.12 Communication, security and control systems		2 The area serviced is measured in accordance with the rules of measurement for ascertaining the GIFA.	
	5.13 Specialist installations		3 Where more than one system is employed, the area measured for each system is the area serviced by the system. Areas to be measured using the rules of measurement for ascertaining the GIFA.	
5.14 Builder's work in connection with services		1 The area measured is the GIFA.		
			2 The area measured is measured in accordance with the rules of measurement for ascertaining the GIFA.	
6 Pre-fabricated buildings and building units	6.1 Prefabricated buildings and building units	m <sup>2</sup>	<p>1 The area measured is the GIFA of the complete buildings or prefabricated room units.</p> <p>2 The area measured is measured in accordance with the rules of measurement for ascertaining the GIFA.</p>	<p>Costs to be separately shown for each:</p> <p><b>a</b> complete prefabricated building</p> <p><b>b</b> type of prefabricated room unit (stating number of units).</p>

Group element	Element	Unit	Measurement rules	Notes	
7 Work to existing buildings	7.1 Minor demolition and alteration works	m <sup>2</sup>	1 The area measured is the GIFA of the building(s) demolished or altered.	Costs to be shown separately for each building demolished or altered.	
	7.2 Repairs to existing services		2 The area measured is measured in accordance with the rules of measurement for ascertaining GIFA.		
	7.3 Damp-proof courses/fungus and beetle eradication	m <sup>2</sup>	1 The area measured is the GIFA of the room(s) treated.	Costs to be shown separately for each building demolished or altered.	
	7.4 Facade retention		The area measured is the area of facade to be retained.		
	7.5 Cleaning existing surfaces		The area measured is the surface area of the surface to be cleaned. No deduction for voids.		Costs to be shown separately for each type of surface.
	7.6 Renovation works		The area measured is the area to be renovated.		Costs to be shown separately for each type of surface renovated.
8 External works	8.1 Site preparation works	m <sup>2</sup>	The area measured is the site area, less the footprint of the building (or buildings) measured on the horizontal plane.	Costs to be shown separately for each element.	
	8.2 Roads, paths, pavings and surfacings				
	8.3 Soft landscapes, planting and irrigation systems				
	8.4 Fencing, railings and walls				
	8.5 External fixtures				
	8.6 External drainage				
	8.7 External services				
	8.8 Minor building works and ancillary buildings	1 The area measured is the GIFA of the building(s).	Costs to be shown separately for each element.		
	2 The area measured is measured in accordance with the rules of measurement for ascertaining the GIFA.				

Group element	Element	Unit	Measurement rules	Notes
9 Main contractor's preliminaries		%	The cost of main contractor's preliminaries as a percentage of the total cost of facilitating works and building works.	
10 Main contractor's overheads and profits		%	The cost of main contractor's overheads and profit as a percentage of the total cost of facilitating works, building works and main contractor's preliminaries.	

Table 2.2: Rules of measurement for elemental method of estimating

## 2.9 Unit rates and EURs used to estimate the cost of facilitating works and building works

The unit rates used should be current at the time the order of cost estimate is produced, i.e. they should exclude any allowances for future inflation or deflation (refer to section 2.16).

Unit rates applied to measured quantities should be applicable to the method of measurement used (i.e. rates based on cost/m<sup>2</sup> of GIFA to be used for measured quantities determined using the floor area method, a cost per functional unit for measured quantities calculated using the functional unit method and appropriate EURs where measured quantities are derived using the elemental method).

Both unit rates (i.e. cost/m<sup>2</sup> of GIFA or cost per functional unit) and EURs used to estimate the total cost of building works should include the cost of all materials, labour and plant that are specifically required to construct the building or element. Unit rates and EURs should include allowances for any subcontractors' or suppliers' design fees, subcontractors' preliminaries and subcontractors' overheads and profit. Unit rates and EURs should exclude allowances for main contractor's preliminaries; main contractor's overheads and profit; and other allowances, such as project and design team fees, other development and project costs, risk allowances and inflation. These items should be assessed separately and added to the estimated cost of facilitating works and building works.

The cost/m<sup>2</sup> of GIFA, the cost per functional unit and the EURs can be interpolated from cost analyses or benchmark analyses of previous buildings of a similar type. Unit rates ascertained from cost analyses or benchmark analyses of previous buildings should, if necessary, be adjusted to reflect changes in specification level between the previous building and the proposed building. Time and regional variations in costs should also be considered.

When using unit rates from cost analyses and benchmark analyses, it is recommended that such rates are adjusted to reflect prices current at the time the order of cost estimate is prepared (i.e. adjusted to remove allowance for construction inflation). Consider the following scenario:

A cost analysis is to be prepared on a building project, where:

- Tender return date: 7 December 2021
- Original contract sum (i.e. the agreed tender price): £30,600,900
- Possession of the site (and commencement date of the contract period): 11 February 2022

- Contract period (i.e. construction period): 30 months
- Date for completion: 6 August 2024
- Tender price index (TPI) to be stated in cost analysis: December 2021 (or 4th quarter 2021)

Based on the preceding scenario, the original contract sum (and rates and prices within) will include an allowance by the main contractor for construction inflation (i.e. an allowance to cover the risks of inflation during the period from the tender return date to the date for completion). If no adjustment for construction inflation is made to the original contract sum (and the rates and prices within) in the cost analysis, and the TPI is given as the tender return date, there is a significant risk that a quantity surveyor/cost manager will over-allow for construction inflation when developing an order of cost estimate. Therefore, it is recommended that all construction inflation is omitted from cost analysis and benchmark analysis data.

It is further recommended that cost analyses and benchmark analyses be based on the agreed tender price (i.e. the original contract sum), not on the final contract sum (i.e. the agreed final account sum). The two main reasons for this are:

- The cost analyses or benchmark analyses will not be available until after the final account sum has been agreed, which could be three or four years after an analysis is undertaken at the tender stage.
- It is much more difficult to analyse both the original contract sum and variation account than to analyse the original contract sum alone.

## 2.10 Updating unit rates and other costs to current estimate base date

An estimate base date is required in order to calculate an order of cost estimate. It is essential, therefore, that the unit rates used from cost analyses and benchmark analyses are updated to bring them into line with the estimate base date established for the order of cost estimate.

To update a unit rate from cost analysis or benchmark analysis data to the current estimate base date, the unit rate is increased by the amount of inflation occurring during the period from the base date of cost data to the current estimate base date. The equation for calculating the updated unit rate is therefore:

$$Ra2 = Ra1 + (Ra1 \times p)$$

where:

- **Ra1** = unit rate at base date of cost data
- **Ra2** = unit rate at current estimate base date
- **p** = percentage addition for inflation

The percentage addition for inflation (p) can be computed using published indices (i.e. TPIs, building cost indices or RPIs). Alternatively, the percentage addition can be derived from in-house sources of indices. Using published indices, the equation for calculating the percentage addition for inflation is:

$$p = ((\text{index 2} - \text{index 1}) \div \text{index 1}) \times 100$$

where:

- **index 1** = index at base date of cost data
- **index 2** = index at current estimate base date
- **p** = percentage addition for inflation

Care should be taken not to update previous rates that were based on percentage additions (e.g. main contractor's preliminaries, main contractor's overheads and profit, and project and design team fees). Such items will be systematically updated when the percentage addition is applied to the updated unit rates (and other rates).

## 2.11 Measurement rules for main contractor's preliminaries

Main contractor's preliminaries should be added as a percentage to the total cost of building works (i.e. to the building works estimate). The percentage addition to be applied for main contractor's preliminaries can be derived from a properly considered assessment of cost analyses of previous building projects and the construction programme. The percentage can be ascertained by calculating the main contractor's preliminaries as a percentage of the total cost of all elements forming the building works. Benchmark data from previously completed building projects can also be used to assess the level of main contractor's preliminaries to be applied to a new building project.

The estimated cost of main contractor's preliminaries is to be calculated by applying the selected percentage addition for main contractor's preliminaries to the cost of the building works. The equation for calculating the total estimated cost of main contractor's preliminaries is:

$$c = a \times p$$

where:

- **a** = building works estimate
- **p** = percentage for main contractor's preliminaries
- **c** = main contractor's preliminaries estimate

The main contractor's preliminaries estimate is added to the building works estimate.

If known at this early stage, costs relating to known site constraints, special construction methods, sequencing of works or other non-standard requirements should be assessed and identified separately.

Allowance for subcontractors' preliminaries, design fees, risk allowances and overheads and profit should be incorporated in the cost/m<sup>2</sup> of GIFA, cost per functional unit or EURs used to calculate the building works estimate.

A list of typical items found within main contractor's preliminaries is provided in Part 4 (group element 9: Main contractor's preliminaries). This list is not definitive or exhaustive but is simply a guide.

## 2.12 Measurement rules for main contractor's overheads and profit

Main contractor's overheads and profit should be based on a percentage addition. The estimated cost of any main contractor's overheads and profit is to be calculated by applying the selected percentage addition for overheads and profit to the combined total cost of the building works estimate and the main contractor's preliminaries estimate. The equation for calculating the total estimated cost of main contractor's overheads and profit is:

$$c = (a + b) \times p$$

where:

- **a** = building works estimate
- **b** = main contractor's preliminaries estimate
- **p** = percentage for main contractor's overheads and profits
- **c** = main contractor's overheads and profit estimate

The percentage addition to be applied for main contractor's overheads and profit is to be derived from a properly considered assessment of main contractor's overheads and profit for previous building projects.

The main contractor's overheads and profit estimate is added to the combined total of the building works estimate and the main contractor's preliminaries estimate. This gives the works cost estimate. The equation for calculating the works cost estimate is:

$$d = a + b + c$$

where:

- **a** = building works estimate
- **b** = main contractor's preliminaries estimate
- **c** = main contractor's overheads and profit estimate
- **d** = works cost estimate

A typical list of items to be found within main contractor's overheads and profit, is provided in Part 4 (group element 10: Main contractor's overheads and profit). This list is not meant to be definitive or exhaustive but is simply a guide.

## 2.13 Measurement rules for project and design team fees

Project and design team fees are those fees that are associated with the design team and other specialist consultants required for the building project. Project and design team fees may also include main contractor's pre-construction fees. A typical list of project and design team fees, including items to be found within main contractor's pre-construction fees, is provided in Part 4 (group element 11: Project and design team fees). This list is not meant to be definitive or exhaustive but is simply a guide.

Project and design team fees should be included in order of cost estimates unless specifically excluded at the request of the client.

It is recommended that a single allowance be made for project and design team fees.

For order of cost estimates, it is recommended that project and design team fees be based on a percentage addition. Project and design team fees should be calculated by applying the selected percentage addition for project and design team fees to the works cost estimate. The equation for calculating project and design team fees is:

$$c = a \times p$$

where:

- **a** = works cost estimate
- **p** = percentage for project and design team fees
- **c** = project and design team fees estimate

The project and design team fees estimate is added to the works cost estimate.

## 2.14 Measurement rules for other project costs

Other project costs are for costs that are not necessarily directly associated with the works costs or project and design team fees, but form part of the total cost of the building project to the client, for example insurances, planning fees, fees in connection with party wall awards, decanting and relocation costs, marketing costs and contributions associated with planning permissions (such as Section 106 and Section 278 Agreements in the UK). Examples of other project costs are provided in Part 4 (group element 12: Other project costs). These examples do not provide a definitive or exhaustive list of items but are simply a guide.

Other project costs should be included in order of cost estimates unless specifically excluded at the request of the client. Other project costs should be added as a lump sum allowance.

The nature of other project costs and the extent of the lump sum allowance to be included in the order of cost estimate should be ascertained in conjunction with the client.

The total estimated cost of other project costs is added to the combined total of the works cost estimate and the project and design team fees estimate.

The combined total of the works cost estimate, the project and design team fees estimate, and the other project costs estimate is the base cost estimate (i.e. the risk-free estimate).

## 2.15 Measurement rules for risk allowances

All building projects involve risks: some obvious, some less so. The proper management of risks saves time and money. Risks can occur at any point in a building project and it is essential they are identified, assessed, monitored and controlled.

Risk exposure (i.e. the potential effect of risks) changes as the building project progresses, meaning continually managing risks is essential. As the design evolves, more of the project requirements are defined and a risk response can be decided. For example:

- **Risk avoidance:** risks have such serious consequences for the project outcome they are totally unacceptable. Risk avoidance measures might include a review of the project brief and a reappraisal of the project, perhaps leading to an alternative development mix, alternative design solution or project cancellation.
- **Risk reduction:** the level of risk is unacceptable. Typical action to reduce risk can take the form of:
  - redesign: combined with improved value engineering
  - more detailed design or further site investigation: to improve the information on which cost estimates and programmes are based
  - different materials or engineering services: to avoid new technology, unproven systems or long delivery items
  - different methods of construction: to avoid inherently risky construction techniques
  - changing the project execution plan: to package the work content differently or carry out enabling works or
  - changing the contract strategy: to allocate risk between the project participants in a different way.
- **Risk transfer:** accepting the risk would not give the client best value for money. The object of transferring risk is to pass the responsibility to another party able to better control the risk. Whenever risk is transferred there is usually a premium to be paid (i.e. the receiving party's valuation of the cost of the risk). To be worthwhile, risk transfer should give better overall value for money to the client (the total cost of the risk to the client is reduced by more than the cost of the risk premium). Risk transfer measures include taking out insurance cover where appropriate.
- **Risk sharing:** risk is not entirely transferred, and the client retains some element of risk.
- **Risk retention:** risks retained by the client that are not necessarily controllable. This remaining risk is called the residual risk exposure.

Considering the limited information about the building project and site conditions, the risk allowance at RIBA Stages 0 and 1, and the OGC Gateways 1 and 2, can be a significant percentage of the total estimated cost; whereas, after completion (when all accounts are settled) the requirement for a risk allowance will be zero. Proper risk identification, assessment, monitoring and control are therefore a prerequisite of realistic cost estimates and of minimising the consequential costs arising from the client's residual risk exposure.

It is recommended that risk allowances are not a standard percentage, but a properly considered assessment of the risk, considering the completeness of the design and other uncertainties such as the amount of site investigation done.

It is recommended that separate allowances be made for each of the following:

- **Design development risks:** an allowance for use during the design process to provide for the risks associated with design development, changes in estimating data, third party risks (e.g. planning requirements, legal agreements, covenants, environmental issues and pressure groups), statutory requirements, procurement methodology and delays in tendering.
- **Construction risks:** an allowance for use during the construction process to provide for the risks associated with site conditions (e.g. access restrictions/limitations, existing buildings,

boundaries, and existing occupants and users), ground conditions, existing services and delays by statutory undertakers.

- **Employer change risks:** an allowance for use during both the design process and the construction process to provide for the risks of client driven changes (e.g. changes in scope of works or brief, changes in quality and changes in time).
- **Employer other risks:** an allowance for other client risks (e.g. early handover, postponement, acceleration, availability of funds, liquidated damages or premiums on other contracts due to late provision of accommodation, unconventional tender action and special contract arrangements).

Lists of typical risks for each category of risk are in Part 4 (group element 13: Risks). These lists are not meant to be definitive or exhaustive but are simply a guide.

Risk allowances should be included in the order of cost estimates. Even at the RIBA Stages 0 and 1, and the OGC Gateways 1 and 2, it is recommended that the size of the initial risk allowance is based on the results of a formal risk analysis. If the risk characteristics are not acceptable to the client, it is advisable that the risk allowance is not determined until management action has been taken to review the client's risk exposure and to identify suitable risk responses that will reduce this exposure to an acceptable level. It is recommended that a revised risk analysis is undertaken to determine the most likely out-turn cost and the risk allowance.

Throughout the RIBA Stages 0 and 1, and the OGC Gateways 1 and 2, of a building project, it is advisable that effort is concentrated upon the main sources of risk. It may be beneficial, even at this stage of the project, to prepare a project specific risk register incorporating the major risks identified and a risk management strategy. It is recommended that risks are not excluded without due consideration. Take care not to allow the natural optimism that surrounds the early stages of a building project to influence the judgements made.

The risks that can influence the cost of a project change as the building project progresses through the subsequent RIBA Stages. It is recommended risk registers and risk estimates are reassessed at regular intervals throughout the various formal stages of cost planning that follow once the cost limit has been authorised by the client.

For order of cost estimates, risk allowances for design development risks, construction risks and client's risks based on the application of percentage additions should be calculated by multiplying the base cost estimate by the selected percentage additions. The equations for calculating the risk allowances for design development risk, construction risk and client's risk are:

- for design development risks:  $R1 = a \times p1$
- for construction risks:  $R2 = a \times p2$
- for employer change risks:  $R3 = a \times p3$
- for employer other risks:  $R4 = a \times p4$

The equation for calculating the total risk allowance estimate is therefore:

$$RA = R1 + R2 + R3 + R4$$

where:

- **a** = base cost estimate
- **p1** = percentage risk allowance for design development risks

- **p2** = percentage risk allowance for construction risks
- **p3** = percentage risk allowance for employer change risks
- **p4** = percentage risk allowance for employer other risks
- **R1** = risk allowance estimate for design development risks (i.e. total estimated cost of risk allowance for design development risks)
- **R2** = risk allowance estimate for construction risks (i.e. total estimated cost of risk allowance for construction risks)
- **R3** = risk allowance estimate for employer change risks (i.e. total estimated cost of risk allowance for employer change risks)
- **R4** = risk allowance estimate for employer other risks (i.e. total estimated cost of risk allowance for employer other risks)
- **RA** = risk allowances estimate

The risk allowance estimate is added to the base cost estimate. This gives the proposed cost limit (excluding inflation). The equation for calculating the cost limit (excluding inflation) is:

$$CL = a + b$$

where:

- **a** = base cost estimate
- **b** = risk allowances estimate
- **CL** = cost limit (excluding inflation)

## 2.16 Measurement rules for inflation

An order of cost estimate is to be prepared using rates and prices current at the time the estimate is prepared. However, it is also necessary to consider possible future effects of inflation on these rates and prices over a period of time (i.e. from the estimate base date to construction completion). The rules divide inflation over a period of time into two categories:

- **Tender inflation:** the period from the estimate base date to the date of tender return.
- **Construction inflation:** the period from the date of tender return to the mid-point of the construction period.

For order of cost estimates, a simple approach can be used to ascertain the amounts of tender inflation and construction inflation to be included.

The amount of tender inflation is ascertained by applying a single percentage rate for tender inflation to the cost limit (excluding inflation). The addition of tender inflation gives the projected cost limit (excluding construction inflation) for the building project. The equation for calculating the amount of tender inflation is:

$$t = CL \times p$$

where:

- **CL** = cost limit (excluding inflation)
- **p** = percentage for tender inflation

- **t** = tender inflation estimate

The percentage for tender inflation (**p**) can be computed using published indices (i.e. TPIs, building cost indices or RPIs). Alternatively, the percentage addition can be derived from in-house sources of indices.

The tender inflation estimate is added to the cost limit (excluding inflation). This gives the proposed cost limit (excluding construction inflation). The equation for calculating the cost limit (excluding construction inflation) is:

$$\text{CL2} = \text{CL1} + t$$

where:

- **CL1** = cost limit (excluding inflation)
- **CL2** = cost limit (excluding construction inflation)
- **t** = tender inflation estimate

The amount of construction inflation is ascertained by applying a single percentage rate for construction inflation to the cost limit (excluding construction inflation). The addition of construction inflation gives the projected cost limit (including inflation) for the building project. The equation for calculating the amount of construction inflation is:

$$c = \text{CL} \times p$$

where:

- **CL** = cost limit (excluding construction inflation)
- **p** = percentage for construction inflation
- **c** = construction inflation estimate

The percentage for construction inflation (**p**) can be computed using published indices (i.e. TPI, building cost indices or RPI). Alternatively, the percentage addition can be derived from in-house sources of indices.

The construction inflation estimate is added to the cost limit (excluding inflation). This gives the proposed cost limit (including inflation). The equation for calculating the cost limit (including inflation) is:

$$\text{CL2} = \text{CL1} + c$$

where:

- **CL1** = cost limit (excluding construction inflation)
- **CL2** = cost limit (including inflation)
- **c** = construction inflation estimate

Care should be taken to ensure that rates derived from cost analyses or benchmark analyses and used to calculate an order of cost estimate have been adjusted to reflect current prices at the time the order of cost estimate is prepared (i.e. adjusted to remove allowance for construction inflation).

It is recommended that potential cost increases caused by tendering conditions and the effects of changes in the market are also considered, such as:

- price increases associated with materials or products, or the impact of major projects sapping resources (home and abroad)
- particular specialist, works, trade, work package, and labour-only subcontractors or
- other countries buying major quantities of raw materials.

However, it is recommended that such potential cost increases caused by tendering conditions and the effects of changes in the market be initially dealt with under risk allowances.

## 2.17 VAT assessment

VAT in relation to buildings is a complex area. Therefore, it is recommended that VAT is excluded from order of cost estimates. Specialist advice should be sought on VAT matters to ensure that the correct rates are applied to the various aspects of a building project.

## 2.18 Other considerations

Other considerations include:

- capital allowances for taxation purposes
- land remediation relief and
- grants.

Capital allowances, land remediation relief and grants can provide valuable financial aid to a client on certain types of building project. However, specialist advice should be sought to maximise the availability and quantum of these. For that reason, it is recommended that allowances in connection with capital allowances, land remediation relief and grants be excluded from order of cost estimates.

## 2.19 Reporting of order of cost estimates

Items included or excluded from the estimated cost should be clearly communicated to the client when reporting the order of cost estimate.

Typical items to be included in order of cost estimates reports are:

- project title
- project description
- a statement of cost (including cost limit)
- details of the information and specification on which the cost plan was prepared
- a statement of the floor areas
- basis of cost estimates (i.e. assumptions)
- estimate base date (i.e. to which inflation has been applied)
- estimated costs of and a request for decisions on any alternative proposals (i.e. summary of option costs) and
- inclusions and exclusions (i.e. a clear and unambiguous statement of what is included in and excluded from the order of cost estimate).

# 3 Measurement rules for cost planning

## 3.1 Introduction

This section describes the purpose and content of elemental cost plans and gives guidance on the preparation of formal cost plans. The formal cost planning stages are also put in context with the *RIBA Plan of Work* and the OGC Gateway Process.

The content and application of unit rates to measured quantities to generate the base cost of the building works is described. The method of dealing with cost allowances for main contractor's preliminaries, main contractor's overheads and profit, project and design team fees, other development/project costs, risk allowances, inflation, VAT and capital allowances is also given.

In addition, the basic information needed by the quantity surveyor/cost manager to complete an elemental cost plan are outlined. The key content of the quantity surveyor's/cost manager's cost reports to the client is also described.

The measurement rules for elemental cost planning can also be used as a basis for measuring quantities for whole life cycle costing.

## 3.2 Purpose of cost planning

The main purpose of cost planning (or elemental cost planning) is to:

- ensure clients are provided with value for money
- make clients and designers aware of the cost consequences of their requirements
- provide advice to designers that enables them to arrive at practical and balanced designs within budget
- keep expenditure within the cost limit approved by the client and
- provide robust cost information with which the client can make informed decisions.

Cost planning is a budget distribution technique implemented during the design stages of a building project. It involves a critical breakdown of the cost limit (i.e. the client's authorised budget) for the building(s) into cost targets for each element of the building(s). Cost targets are the recommended expenditure for each element (e.g. substructure, frame, upper floors and roof).

The resulting elemental cost plan is a statement of how the project team proposes to distribute the available budget among the elements of the building. It provides a frame of reference from which to develop the design and maintain cost control. It also provides a WBS and a CBS which, by codifying, can be used to redistribute works in elements to construction work packages for procurement purposes.

Elemental cost planning is an iterative process, performed in steps of increasing detail as more design information becomes available.

Cost plans are produced as an intrinsic part of RIBA Stages 2, 3 and 4, or OGC Gateways 3A and 3B. The requirements of RIBA Stages 2, 3 and 4, as described in the *RIBA Plan of Work*, are summarised as follows.

### 3.2.1 RIBA Stage 2: Concept Design

**Outcome:** Architectural concept approved by the client and aligned with the project brief.

Stage 2 sets the architectural concept for a project. Proposals that align with the site information and the project brief, including the spatial requirements, are prepared. Regular design reviews are used to seek comments from the client and other project stakeholders and the design is iterated in response. Any project brief derogations are agreed, or the project brief is adjusted to align with the architectural concept.

The proposals should demonstrate that the spatial requirements are being achieved, along with any adjacency requirements. Any non-briefed areas, such as cores, must be developed sufficiently to coordinate with the architectural concept.

The project team also develops, in parallel with the concept design, several project strategies. Their importance at this Stage will depend on how these will influence the concept design. For example, the sustainability strategy is likely to be a fundamental component of the concept design, whereas a security strategy may have minimal or no impact and can therefore be developed during a later Stage.

It is essential to revisit the initial project brief during this Stage and it should be updated and issued as the final project brief as part of the information exchange at the end of Stage 2.

In parallel with design activity, several other related tasks need to be progressed in response to the emerging design, the development of a construction strategy, a maintenance and operational strategy and a health and safety strategy, and updating of the project execution plan.

OGC Gateway 3A is comparable to RIBA Stage 2.

**Tasks:** The quantity surveyor/cost manager is to:

- 1 Prepare an initial formal cost plan (formal cost plan 1), which takes into account initial design parameters established by the architectural concept and strategic engineering requirements, and which includes an elemental analysis of the significant elements of cost and initial bulk quantities of key items set out in the outline specification.
- 2 Review the cost implications of iterations of the architectural concept and strategic engineering requirements, considering the project outcomes, the procurement strategy, project programme implications and project risks.
- 3 Identify risk allowances and uncertain areas where either provisional sums, prime cost sums or prime cost prices are required.
- 4 Demonstrate that the architectural concept and outline specification are aligned to the project budget (i.e. the cost limit).

- 5 Agree the cost limit with the client before proceeding to next Stage.

### 3.2.2 RIBA Stage 3: Spatial Coordination

**Outcome:** Architectural and engineering information spatially coordinated.

Stage 3 is fundamentally about testing and validating the architectural concept, to make sure that the architectural and engineering information prepared at Stage 2 is spatially coordinated before detailed information required to manufacture and construct the building, or built asset, is produced at Stage 4.

Detailed design studies and engineering analysis are undertaken to ratify the assumptions made during Stage 2 and to layer more detail onto the design. Stage 3 is not about adjusting the architectural concept, which should remain substantially unaltered, although detailed design or engineering tasks may require adjustments to make sure that the building, or built asset, is spatially coordinated. Changes to the architectural concept, for whatever reason, should be agreed with the client via the change control procedure.

Design studies should be aligned to cost exercises and the development of the outline specification – iterations of the design may be required to ensure the cost plan aligns with the project budget.

In parallel with detailed design studies, the construction strategy, the maintenance and operational strategy and a health and safety strategy, and the project execution plan will be reviewed and updated if required.

**Tasks:** The quantity surveyor/cost manager is to:

- 1 Carry out cost exercises to allow more detailed aspects of the design, project strategies and outline specification to be tested, using design studies and involving suppliers or specialist subcontractors if necessary to determine affordability, and taking into consideration the cost implications of achieving the project outcomes, including compliance with statutory requirements.
- 2 Update formal cost plan 1 iteratively with increasing levels of cost certainty as greater detail of the design proposal is developed to align with the project budget (establishing formal cost plan 2). Greater certainty allows any cost increases to be balanced by transfer between cost targets and/or reductions in project risk allowances.
- 3 Identify risk allowances and uncertain areas where either provisional sums, prime cost sums or prime cost prices are required.
- 4 Demonstrate that the spatially coordinated design is aligned to the project budget (i.e. the cost limit).
- 5 Agree the cost limit with the client before proceeding to the next Stage.

### 3.2.3 RIBA Stage 4: Technical Design

**Outcome:** All design information required to manufacture and construct the building, or built asset, completed.

Stage 4 involves the preparation of all information required to manufacture and construct a building or built asset. The core documents at the start of Stage 4 are the responsibility matrix, the information requirements and the Stage 4 design programme, which will be heavily influenced by the procurement strategy.

The responsibility matrix, produced at Stage 1 (Preparation and Briefing), defines whether the design team will deliver prescriptive information or descriptive information (including final specifications) for each building system. Prescriptive information can be used for construction purposes, with descriptive information issued where a specialist subcontractor will design a building system for manufacturing and/or construction.

While the procurement strategy influences who takes ultimate responsibility for manufacturing information and construction information, it may also influence when the building systems will be designed – dictating how the Stage 4 design programme will be structured. The procurement strategy will also influence the structure of the project team. For example, one or more of the design team may be novated to the construction team.

Cost control measures applied during this Stage will vary from project to project. These might include the preparation of an updated cost plan (formal cost plan 3), bills of quantities or pricing schedules, as defined by the procurement strategy.

OGC Gateway 3A is comparable to RIBA Stages 3 and 4.

**Tasks:** The quantity surveyor/cost manager is to:

- 1 Update formal cost plan 2 iteratively – to a level of detail defined by the procurement strategy (establishing formal cost plan 3). Formal cost plan 3 becomes a pre-tender cost estimate (where the procurement strategy does not require either a full bills of quantities or pricing schedules).
- 2 Identify risk allowances and uncertain areas where either provisional sums, prime cost sums or prime cost prices are required.
- 3 Agree the cost limit with the client before tendering.
- 4 Review tender returns or contractors' proposals, including any alternatives proposed to reduce costs, against formal cost plan 3.

### 3.3 Constituents of a cost plan

The key constituents of an order of cost estimate are shown in Table 3.1.

#	Constituent	Cross reference
1	Facilitating works estimate	See section 3.10
2	Building works estimate	See section 3.11
3	Main contractor's preliminaries estimate	See section 3.14
4	<b>Subtotal = 1 + 2 + 3</b>	
5	Main contractor's overheads and profit estimate	See section 3.15

#	Constituent	Cross reference
6	<b>Works cost estimate = 4 + 5</b>	
7	Project and design team fees estimate = <b>7a + 7b + 7c</b> , where: <ul style="list-style-type: none"> <li>• <b>7a</b> = consultant's fees</li> <li>• <b>7b</b> = main contractor's pre-construction fee estimate (if applicable) and</li> <li>• <b>7c</b> = main contractor's design fees estimate (if applicable).</li> </ul>	See section 3.16
8	<b>Subtotal = 6 + 7</b>	
9	Other project costs estimate	See section 3.17
10	<b>Base cost estimate = 8 + 9</b>	
11	Risk allowances estimate = <b>11a + 11b + 11c + 11d</b> , where: <ul style="list-style-type: none"> <li>• <b>11a</b> = design development risks estimate</li> <li>• <b>11b</b> = construction risks estimate</li> <li>• <b>11c</b> = employer change risks estimate and</li> <li>• <b>11d</b> = employer other risks estimate.</li> </ul>	See section 3.18
12	<b>Cost limit (excluding inflation) = 10 + 11</b>	
13	Tender inflation estimate	See section 3.19
14	<b>Cost limit (excluding construction inflation) = 12 + 13</b>	
15	Construction inflation estimate	See section 3.19
16	<b>Cost limit (including inflation) = 14 + 15</b>	
17	VAT assessment	See section 3.20

**Table 3.1: The key constituents of an elemental cost plan**

The base cost estimate is the total estimated cost of the building works, main contractor's preliminaries and main contractor's overheads and profit. The base cost estimate should not contain allowances for risk or inflation (i.e. the risk-free estimate).

Allowances for risk and inflation should be calculated separately and added to the base cost estimate to determine the cost limit for the building project.

Reference should be made to the ICMS cost classification system where a high-level cost category model is used.

### 3.4 Formal cost planning stages

There are several formal cost planning stages, aligned with RIBA Stages 2, 3 and 4, and contractor engagement and OGC Gateways 3A and 3B for a building project. The client should approve the cost plan on completion of each RIBA Stage before authorising commencement of the next Stage.

For most building projects, formal cost plans should be completed, and submitted to the client for approval, for each of the RIBA Stages or OGC Gateways.

Formal cost plan	RIBA Stage
1	2: Concept Design
2	3: Spatial Coordination
3	4: Technical Design

**Table 3.2: Formal cost plan and RIBA Stages**

Formal cost plan	OGC Gateway
1	3A: Design Brief and Concept Approval
2	3B: Detailed Design Approval

**Table 3.3: Formal cost plan and OGC Gateways**

Formal cost plan 1 is prepared once the scope of work is fully defined and key criteria specified, but no detailed design has commenced. Formal cost plan 1 will provide the frame of reference for formal cost plan 2. Likewise, formal cost plan 2 will provide the frame of reference for formal cost plan 3. Neither formal cost plans 2 nor 3 involve the preparation of a completely new elemental cost plan: they are progressions of the previous formal cost plans developed through the cost checking of cost-significant components and cost targets as more design information and information about the site becomes available.

Whether or not a formal cost plan is prepared at each RIBA Stage or OGC Gateway is dependent on the procurement strategy selected. For example, the preparation of an updated cost plan might not be required at Stage 4 where a design and build contract strategy is selected.

The cost targets within each formal cost plan approved by the client will be used as the baseline for future cost comparisons. Each subsequent cost plan will require reconciliation with the preceding cost plan and explanations of changes made. It is therefore essential that records of any transfers made to or from the risk allowances, and any adjustments made to cost targets,

are maintained. This is so explanations concerning changes can be provided to the client and project team.

Employers and other project and design team members should be made aware of what is included in each element of the cost plan.

### 3.5 Reviewing and approving cost plans

Prior to the client authorising commencement of the next RIBA Stage or OGC Gateway, the formal cost plan for the preceding Stage or Gateway should be reviewed by the client and the project team to ensure that:

- the building project is affordable
- the cost target for each element of the project is reasonable and up to date and
- the cost limit has not been exceeded.

Following the review, the client should sign off the cost plan and give any necessary instructions and/or authorise commencement of the next Stage or Gateway.

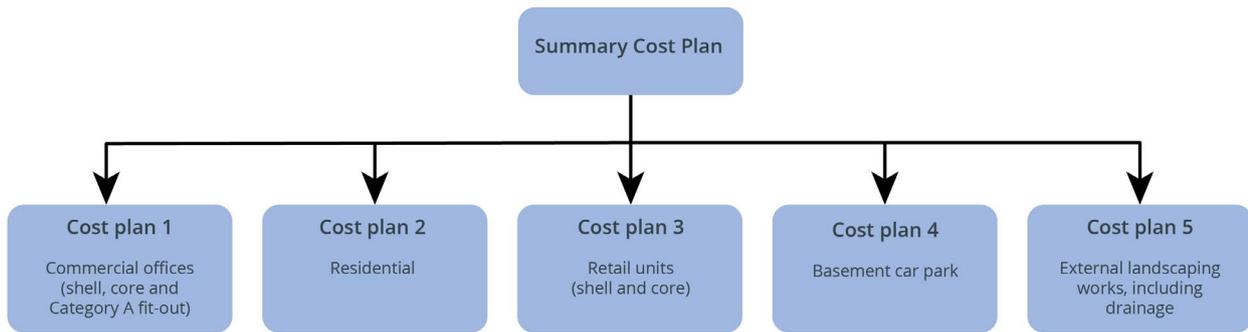
### 3.6 Cost control in procurement

The cost plan becomes a fundamental cost control mechanism where a building project is procured using separate work packages. By using codified cost plans, the components allocated to each element and sub-element can simply be redistributed into the required work packages. Redistributing components into work packages will provide cost targets for each package, which can be used as a cost management tool during the RIBA Stages 2, 3, 4, contractor engagement and 5, and OGC Gateway 4.

The method of codifying and redistributing cost targets from elements to work packages is found in section 4.5.

### 3.7 Building projects comprising multiple buildings

Where a building project comprises more than one type of building, a separate cost plan should be prepared for each building resulting in a 'summary cost plan' for the entire building project (see Figure 3.1).



**Figure 3.1: Typical cost plan breakdown structure for building projects comprising multiple components or buildings**

### 3.8 Information for inclusion in formal cost plans

The information base of the building project continues to expand during the RIBA Stages 2, 3, 4 and OGC Gateways 3A, 3B and 3C as more project and design team, main contractor and specialist subcontractor engagement and client interaction take place.

A list of the key information to enable preparation of formal cost plans is included in Appendix C.

### 3.9 Format, structure and content of elemental cost plans

Templates showing the format, structure and content of elemental cost plans, based on level 1 and level 2 code levels, are provided in Appendix D and Appendix E. Code levels are explained in section 4.2.

### 3.10 Measurement rules for facilitating works

The rules of measurement for facilitating works (i.e. group element 0) are detailed in Part 4.

The measurement rules applicable to facilitating works should be the same as those for the measurement of building works, as given in section 3.11.

### 3.11 Measurement rules for building works

The rules of measurement for building works (i.e. group elements 1 to 8) are detailed in Part 4.

The degree of detail to be measured for building work should be related to the cost significance of the elements in the design. Where enough information is available, cost-significant items should be measured using approximate quantities. Composite items are measured by combining or grouping together work items to common forms of measurement. Non-cost significant items (such as minor items and labours on cost significant items) are ignored in measurement but should be accounted for by increasing the applicable unit rate by an appropriate percentage or by other appropriate methods.

Quantities should be given to the nearest whole unit except any quantity of less than one whole unit, which should not be rounded up but stated as a whole unit only. Quantities measured in tonnes should be stated to two decimal places.

The method of measuring quantities for each formal cost plan are:

### 1 Formal cost plan 1

- This coincides with the completion of the concept design at the point where the scope of works is fully defined, and key criteria are specified but no detailed design has commenced.
- Cost plan 1 will provide the frame of reference for cost plan 2.
- The key information from the client and other project and design team members to enable preparation of formal cost plan 1 is set out in appendix C.
- For cost plan 1, a condensed list of elements is used, which will be developed into a full list of elements, sub-elements and components as more design and other information becomes available as the building project progresses.
- Quantities for building works should be determined in accordance with Part 4 (group elements 1 to 8).
- Where insufficient design information is available to quantify building works in accordance with the rules of measurement for elemental cost planning, the quantity measured should be the GIFA.

### 2 Formal cost plan 2

- This coincides with the completion of the design development. Formal cost plan 2 is a progression of formal cost plan 1. It is developed by cost checking cost-significant cost targets for elements as more detailed design information is made available by the design team.
- Cost plan 2 will provide the frame of reference for cost plan 3.
- The key information from the client and other project and design team members to enable preparation of formal cost plan 2 is set out in appendix C.
- The cost checks should be carried out against each pre-established cost target.
- Quantities for building works should be determined in accordance with Part 4 (group elements 1 to 8).
- Where insufficient design information is available to quantify building works in accordance with the rules of measurement for elemental cost planning, the quantity measured should be the GIFA.

### 3 Formal cost plan 3

- This third formal cost plan stage is based on technical designs, specifications and detailed information for construction. Formal cost plan 3 is a progression of formal cost plan 2. It is developed by cost checking of cost-significant cost targets for elements as more detailed design information is made available from the design team.
- Cost plan 3 will provide the frame of reference for appraising tenders.
- The key information from the client and other project and design team members to enable preparation of formal cost plan 3 is set out in Appendix C.
- The cost checks should be carried out against each pre-established cost target.
- Quantities for building works should be determined in accordance with Part 4 (group elements 1 to 8).

- Where insufficient design information is available to quantify building works in accordance with the rules of measurement for elemental cost planning, then the quantity measured should be the GIFA.

#### 4 Contractor-designed work

- As the procurement strategy is developed it is likely that the client will want the transfer of the design liability for all, or some, elements of the works to the contractor. When the contractor is to be liable for the design of specific elements only (i.e. not the entire building project), this is referred to as 'contractor-designed work'. Contractor-designed works include any works that require the contractor to undertake its design, whether directly or via a work package subcontractor. Contractor-designed work is sometimes referred to as the contractor's designed portion (CDP).
- Elements, sub-elements and components for which the contractor is required to take responsibility for the design, such as foundations, windows, pre-cast concrete components, roof trusses and/or mechanical and electrical engineering services, should be identified and described separately in the cost plan as contractor-designed works.
- The rules for dealing with contractor-designed works, where design liability for the entire building project is to be transferred to the contractor can be found in section 3.16.3.

### 3.12 Unit rates used to estimate the cost of building works

The unit rates (including element unit rates (EURs) and composite unit rates) used to estimate the total cost of building works should include the cost of all materials, labour and plant that are specifically required to construct the item. Costs are also to include any subcontractors' preliminaries, design fees, risk allowances, and overheads and profit.

Unit rates used to estimate the cost of building works (i.e. building works estimate) should exclude main contractor's preliminaries, main contractor's overheads and profit and other allowances, such as project and design team fees, other development/project costs, risk allowances and inflation. These items should be assessed separately and added to the building works estimate.

When using unit rates from cost analyses and benchmark analyses, care should be taken to ensure that such rates have been adjusted to reflect prices current at the time the cost plan is being prepared (i.e. adjusted to remove allowances included for construction inflation). Refer to section 2.9.

### 3.13 Updating unit rates and other costs to current estimate base date

The estimate base date is to be re-established at each formal cost plan. Therefore, before using the preceding order of cost estimate or formal cost plan to progress the next formal cost plan, unit rates and other rates used in the preceding order of cost estimate or formal cost plan should be updated to bring them into line with the estimate base date established for the next formal cost plan.

To update a unit rate and other rate from the previous estimate base date to the current, the unit rate (or other rate) is increased by the value of inflation occurring during the period from the previous estimate base date to the current. The equation for calculating the updated unit rate (or another rate) is therefore:

$$Ra2 = Ra1 + (Ra1 \times p)$$

where:

- **Ra1** = unit rate (or other rate) at previous estimate base date
- **Ra2** = unit rate (or other rate) at current estimate base date
- **p** = percentage addition for inflation

The percentage addition for inflation (p) can be computed using published indices (i.e. TPIs, building cost indices or retail price indices (RPIs)). Alternatively, the percentage addition can be derived from in-house sources of indices. Using published indices, the equation for calculating the percentage addition for inflation is therefore:

$$p = ((\text{index 2} - \text{index 1}) \div \text{index 1}) \times 100$$

where:

- **index 1** = index at base date of cost data
- **index 2** = index at current estimate base date
- **p** = percentage addition for inflation

Care should be taken not to update previous rates that were based on percentage additions (e.g. main contractor's preliminaries, main contractor's overheads and profit, and project and design team fees). Such items will be updated when the percentage addition is applied to the updated unit rates (and other rates). Similarly, updating percentages should not be applied to items for which fixed costs have been agreed (e.g. consultants' fees where based on a fixed lump sum).

### 3.14 Main contractor's preliminaries

Main contractor's preliminaries are a cost-significant element in most construction projects, directly influenced by the choice of construction method more than any other element. The cost checking of main contractor's preliminaries is an iterative process that is repeated for each formal cost plan.

The methods of estimating the cost of the preliminaries will vary according to the RIBA Stage or OGC Gateway reached. To begin with, for formal cost plan 1 (prepared for RIBA Stage 2 or OGC Gateway 1), the estimated cost of main contractor's preliminaries will be based on a percentage

addition derived from a considered assessment of cost analyses of previous buildings. However, as more information becomes available, a more detailed approach should be taken to cost checking the cost target for main contractor's preliminaries.

When preparing formal cost plans 2 and 3 (i.e. at RIBA Stages 3, 4 or at OGC Gateways 3A and 3B), to ensure that the previous cost target is sufficient, thorough cost checks should be carried out on cost-significant items of main contractor's preliminaries. To facilitate the cost checking process, it is recommended that the checklist of main contractor's preliminaries items included in this volume be used as a memory aid. Refer to section 4.2.

Where the estimated cost of main contractor's preliminaries, or any part of the main contractor's preliminaries, is to be based on a percentage addition, the estimated cost is to be calculated by applying the selected percentage addition for main contractor's preliminaries to the cost of the building works estimate.

The equation for calculating the total estimated cost of main contractor's preliminaries is therefore:

$$c = a \times b$$

where:

- **a** = building works estimate (i.e. total estimated cost of building works)
- **b** = percentage for main contractor's preliminaries
- **c** = main contractor's preliminaries estimate (i.e. total estimated cost of main contractor's preliminaries)

Alternatively, the estimated cost of all or part of the main contractor's preliminaries can be assessed as a lump sum.

The main contractor's preliminaries estimate should be added to the building works estimate.

Allowance for subcontractor's preliminaries should be made in the unit rates applied to measured quantities.

Where the main contractor has been appointed early (e.g. as part of a two-stage tendering process), the actual agreed level of main contractor's preliminaries should be included in the cost plan. Any compensating adjustments should be made to the applicable cost targets.

It is recommended that the allowance for main contractor's preliminaries be treated as a separate cost target.

### 3.15 Main contractor's overheads and profit

When preparing a cost estimate for main contractor's overheads and profit, overheads and profit can be either combined as a single cost centre or treated as two separate cost centres (i.e. main contractor's overheads and main contractor's profit). Main contractor's overheads and profit should be based on a percentage addition. The estimated cost of any main contractor's overheads and profit should be calculated by applying the selected percentage addition for overheads

and profit to the combined total cost of the building works estimate and the main contractor's preliminaries estimate.

Where main contractor's overheads and profit are combined as a single cost centre, the equation for calculating the total estimated cost of main contractor's overheads and profit is:

$$d = (a + b) \times c$$

where:

- **a** = building works estimate (i.e. total estimated cost of building works)
- **b** = main contractor's preliminaries estimate (i.e. total estimated cost of main contractor's preliminaries)
- **c** = percentage for main contractor's overheads and profit
- **d** = main contractor's overheads and profit estimate (i.e. total estimated cost of main contractor's overheads and profit)

The percentage addition applied for combined main contractor's overheads and profit should be derived from a considered assessment of main contractor's overheads and profit found on previous building projects.

The main contractor's overheads and profit estimate should be added to the combined total of the building works estimate and the main contractor's preliminaries estimate. This gives the works cost estimate. The equation for calculating the works cost estimate is therefore:

$$d = a + b + c$$

where:

- **a** = building works estimate
- **b** = main contractor's preliminaries estimate
- **c** = main contractor's overheads and profit estimate
- **d** = works cost estimate

Where main contractor's overheads and profit are treated as two separate cost centres, the equations for calculating the total estimated cost of main contractor's overheads and profit are as follows:

Main contractor's overheads:

$$d = (a + b) \times c$$

where:

- **a** = building works estimate (i.e. total estimated cost of building works)
- **b** = main contractor's preliminaries estimate (i.e. total estimated cost of main contractor's preliminaries)
- **c** = percentage for main contractor's overheads
- **d** = main contractor's overheads estimate (i.e. total estimated cost of main contractor's overheads)

Main contractor's profit:

$$e = (a + b) \times c$$

where:

- **a** = building works estimate (i.e. total estimated cost of building works)
- **b** = main contractor's preliminaries estimate (i.e. total estimated cost of main contractor's preliminaries)
- **c** = percentage for main contractor's profit
- **e** = main contractor's profit estimate (i.e. total estimated cost of main contractor's profit)

The percentage additions to be applied for main contractor's overheads and main contractor's profit should be derived from a considered assessment of main contractor's overheads and profit found on previous building projects.

The main contractor's overheads and main contractor's profit estimates are added to the combined total of the building works estimate and the main contractor's preliminaries estimate. This gives the works cost estimate. The equation for calculating the works cost estimate is therefore:

$$e = a + b + c + d$$

where:

- **a** = building works estimate
- **b** = main contractor's preliminaries estimate
- **c** = main contractor's overheads estimate
- **d** = main contractor's profit estimate
- **e** = works cost estimate

Where the main contractor has been appointed early (e.g. as part of a two-stage tendering process), the actual agreed level of overheads and profit should be included in the cost plan. Any compensating adjustments should be made to the applicable cost targets.

It is recommended that the allowance for main contractor's overheads and profit are treated as a separate cost target.

### 3.16 Project and design team fees

Project and design team fees are the fees associated with the project and design team and other specialist consultants required for the building project (i.e. consultants' fees). Project and design team fees also include main contractor's pre-construction fees.

A list of typical project and design team fees is included in Part 4 (group element 11). The tables are intended for use by the quantity surveyor/cost manager in the cost estimating and cost checking process. The lists are not meant to be definitive or exhaustive.

Separate allowances should be made for:

- consultants' fees

- main contractor's pre-construction fees (if applicable) and
- main contractor's design fees (if applicable).

Project and design team fees should be included in cost plans unless specifically excluded at the request of the client.

### 3.16.1 Consultants' fees

Estimates of consultants' fees should be based on a percentage addition. This should take account of the type of services required and the duration of project.

The estimated cost of consultants' fees should be calculated by applying the selected percentage addition for consultants' fees to the works cost estimate (i.e. the combined total of the building works estimate, main contractor's preliminaries and main contractor's overheads and profit).

The equation for calculating project and design team fees is therefore:

$$c = a \times b$$

where:

- **a** = works cost estimate
- **b** = percentage for consultants' fees
- **c** = consultants' fees estimate (i.e. total estimated cost of consultants' fees)

The percentage addition applied for project and design team fees should be derived from a considered assessment of project and design team fees on other similar previous building projects.

Where actual project and design team fees are known (e.g. the architect's fees), the actual fee should be included in the cost plan. Any compensating adjustments should be made to the applicable cost targets.

Care should be taken to ensure that the scope of services agreed between the client and consultant is sufficient to complete the building project when estimating the cost of resources. Any requirement for additional services needs to be identified and allowed for in the cost plan (e.g. the cost of carrying out detailed reinforcement design would not normally be included in the scope of services (or fee agreement) for the structural engineer, unless specifically requested by the client). Thus, cost checks on project and design team fees should include checks on the sufficiency of the scope of services.

Where a design and build contract strategy has been selected, the responsibility of design will be transferred to the main contractor. Therefore, the design team members who are to be novated to the main contractor, and the timing of the novation, need to be identified. This will enable the project and design team fees applicable to those design team members to be assessed and redistributed from the cost target for consultants' fees to the cost target for main contractor's design fees as appropriate (see section 3.16.3).

### 3.16.2 Main contractor's pre-construction fee

Where the client has decided, in consultation with the project team, to employ a main contractor (or specialist contractors) to provide pre-construction advice and/or other services, an allowance for the fee for providing such services should be determined and included in the cost plan. The estimated cost of a main contractor's pre-construction fees may be calculated by using a percentage addition or derived lump sum.

Where the estimated cost of the main contractor's pre-construction fee is based on a percentage, the estimated cost should be calculated by applying the selected percentage addition for the main contractor's pre-construction fee to the works cost estimate (i.e. the combined total of the building works estimate, main contractor's preliminaries and main contractor's overheads and profit).

The percentage addition, or lump sum, to be applied for the main contractor's pre-construction fee (or specialist contractor's fees) should be derived from a considered assessment of fees charged on other similar previous building projects. This should take account of the type of services required and the duration of the pre-construction period. The equation for calculating the main contractor's pre-construction fees is therefore:

$$c = a \times b$$

where:

- **a** = works cost estimate
- **b** = percentage for main contractor's pre-construction fees
- **c** = main contractor's pre-construction fees estimate (i.e. total estimated cost of main contractor's pre-construction fees)

Care needs to be taken when estimating the cost of pre-construction fees, to ensure that enough allowance has been made for the main contractor's overheads and profit on the pre-construction fee.

### 3.16.3 Main contractor's design fees

Where design liability is transferred to the main contractor for the entire building project (i.e. where a design and build or other main contractor led design contract strategy is to be used), and all or some of the consultants in the design team are to be novated, the balance of the consultants' fees due after novation has occurred should be transferred from the cost target for consultants' fees to the cost target for main contractor's design fees.

The allowance for main contractor's design fees should be derived from a considered assessment of main contractor's design fees found on previous building projects.

The equation for calculating the total project and design team fees estimate is therefore:

$$a = F1 + F2 + F3$$

where:

- **F1** = consultants' fees estimate
- **F2** = main contractor's pre-construction fees estimate
- **F3** = main contractor's design fees estimate

- **a** = project and design team fee estimate

The project and design team fee estimate should be added to the works cost estimate.

The rules for dealing with contractor-designed work, where design liability for only specific elements and/or components of building project is to be transferred to the contractor, can be found in section 3.11.

### 3.17 Other project costs

Other project costs are for costs that are not necessarily directly associated with the cost of the building works, but form part of the total cost of the building project to the client (e.g. insurances, planning fees, fees in connection with party wall awards, decanting and relocation costs, marketing costs and contributions associated with planning permissions).

Other project costs should be included in cost plans unless specifically excluded at the request of the client. Other project costs should be added as a lump sum allowance.

The nature of other development/project costs and the extent of the lump sum allowance included in the cost plan should be ascertained in conjunction with the client.

The total estimated cost of other development/project costs is added to the combined total of the works cost estimate and the project and design team fees estimate.

A tabulated list of typical other development/project costs is included in Part 4 (group element 12). The examples provided are not a definitive or exhaustive list.

It is recommended that the allowance for other development/project costs is treated as a separate cost target.

The combined total of the works cost estimate, the project and design team fees estimate, and the other development/project costs estimate produces, and is known as, the base cost estimate.

### 3.18 Risk allowances

Risk allowances reflect the client's risk exposure. Risk allowances are based on the results of a formal risk analysis and should be included in each formal cost plan. In setting the amount of the risk allowances, the possible consequences of the client's residual risk should be considered. The only satisfactory way to ensure that risk allowances provide for the risks to the project is to determine the size of the allowances from the results of risk analysis. Risk allowances are not to be standard percentages, but a considered assessment of the risk, accounting for the completeness of the design and other uncertainties such as the amount of site investigation completed to date.

The need to undertake a formal risk analysis to identify the client's risk exposure and to make considered risk allowances for risks is explained in section 2.15.

Risk registers and risk estimates should be reassessed at regular intervals throughout the various RIBA Stages and OGC Gateways to ensure that estimates, formal cost plans and cash flows realistically reflect the potential impact of any residual risks.

Successive assessments should indicate decreasing risk due to reducing uncertainty as the project becomes more defined and decisions are made as the project progresses. However, it should be noted that risk does not necessarily always decrease, as other factors may come into play.

It is recommended that risk allowances be treated as three separate cost targets, which are used to 'top up' other overspending cost targets as the project progresses. As an element overruns its cost target, a transfer is made from the appropriate risk allowance to allow for the increase. Similarly, if a cost target is likely to underrun, the surplus is transferred into the appropriate risk allowance. The recommended cost targets are:

- design development risks
- construction risks
- employer change risks and
- employer other risks.

See section 2.15 for definitions of the above categories of risk allowance.

### 3.18.1 Main contractor's design development risk

Where design liability is to be transferred to the main contractor (i.e. where a design and build or other main contractor led design contract strategy is to be used), it is recommended that an allowance for main contractor's design development risk be included in the risk allowance for design development risk.

Main contractor's design development risk is a risk allowance that the main contractor may incorporate in its tender price as the risk of accepting the novation of all, or some, of the client's design team members (e.g. the architect, the structural engineer and the building services engineer).

Where any aspects of risk allowances for design development risks, construction risks and employer risks should be based on a percentage addition, the allowances should be calculated by multiplying the base cost estimate by the selected percentage additions. The equations for calculating the risk allowances for design development risk, construction risk and employer risk are therefore:

- for design development risks:  $R1 = a \times p1$
- for construction risks:  $R2 = a \times p2$
- for employer change risks:  $R3 = a \times p3$
- for employer other risks:  $R4 = a \times p4$

where:

- **a** = base cost estimate
- **p1** = percentage risk allowance for design development risks
- **p2** = percentage risk allowance for construction risks

- **p3** = percentage risk allowance for employer change risks
- **p4** = percentage risk allowance for employer other risks
- **R1** = risk allowance estimates for design development risks (i.e. total estimated cost of risk allowance for design development risks)
- **R2** = risk allowance estimate for construction risks (i.e. total estimated cost of risk allowance for construction risks)
- **R3** = risk allowance estimate for employer change risks (i.e. total estimated cost of risk allowance for employer change risks)
- **R4** = risk allowance estimate for employer other risks (i.e. total estimated cost of risk allowance for employer other risks)

The equation for calculating the total risk allowance estimate is therefore:

$$RA = R1 + R2 + R3 + R4$$

The risk allowance estimate is added to the combined total of the base cost estimate, project and design team fee estimate, and the other development/project costs estimate. This gives the proposed cost limit (excluding inflation).

The equation for calculating the cost limit (excluding inflation) is therefore:

$$CL = a + b$$

where:

- **a** = base cost estimate
- **b** = risk allowances estimate
- **CL** = cost limit (excluding inflation)

Lists of typical design development, construction and employer risks are included in Part 4 (group element 13: Risks). The lists are intended for use by the quantity surveyor/cost manager in the cost estimating and cost checking process. The lists are not meant to be definitive or exhaustive.

### 3.19 Inflation

Elemental cost plans should be prepared using rates and prices current at the time the cost plan is prepared. However, it is also necessary to consider possible future effects of inflation on these rates and prices over a time period (i.e. from the estimate base date to construction completion). Inflation can be either an upward or downward movement in the average level of prices (i.e. inflation or deflation), or stable (i.e. price stability – the boundary between inflation and deflation). The rules divide this time period into two categories:

- inflation to date of tender (tender inflation) and
- inflation during the construction period (construction inflation).

For the purpose of cost planning, the period used to ascertain the effects of inflation are as follows:

- **Tender inflation:** the period from the estimate base date to the date of tender return.

- **Construction inflation:** the period from the date of tender return to the mid-point of the construction period.

It is recommended that the allowances for inflation be treated as two separate cost targets (tender inflation and construction inflation).

The amount of tender inflation is ascertained by applying a single percentage rate for tender inflation to the cost limit (excluding inflation). The addition of tender inflation gives the projected cost limit (excluding construction inflation) for the building project. The equation for calculating the amount of tender inflation is therefore:

$$t = CL \times p$$

where:

- **CL** = cost limit (excluding inflation)
- **p** = percentage for tender inflation
- **t** = tender inflation estimate

The percentage for tender inflation (p) can be computed using published indices (i.e. TPIs, building cost indices or RPIs). Alternatively, the percentage addition can be derived from in-house sources of indices.

The tender inflation estimate is added to the cost limit (excluding inflation). This gives the proposed cost limit (excluding construction inflation). The equation for calculating the cost limit (excluding construction inflation) is therefore:

$$CL2 = CL1 + t$$

where:

- **CL1** = cost limit (excluding inflation)
- **CL2** = cost limit (excluding construction inflation)
- **t** = tender inflation estimate

The amount of construction inflation is ascertained by applying a single percentage rate for construction inflation to the cost limit (excluding construction inflation). The addition of construction inflation gives the projected cost limit (including inflation) for the building project.

The equation for calculating the amount of construction inflation is therefore:

$$c = CL \times p$$

where:

- **CL** = cost limit (excluding construction inflation)
- **p** = percentage for construction inflation
- **c** = construction inflation estimate

The percentage for construction inflation (p) can be computed using published indices (i.e. TPIs, building cost indices or RPIs). Alternatively, the percentage addition can be derived from in-house sources of indices.

**Notes:** This is a simplistic approach to estimating an allowance for construction inflation. Where a building project is procured using separate work packages, it will be necessary to ascertain a separate allowance for construction inflation for each work package, based on the procurement programme for each work package. This is because each work package will be procured at different times throughout the construction period. The method of calculating construction inflation for each work package is the same as described, but with discrete percentages applied to each work package. As part of the cost control process, the original allowances for inflation will need to be redistributed to each work package from the original cost centre.

Care should be taken to ensure that the rates used to calculate an order of cost estimate that were derived from cost analyses or benchmark analyses have been adjusted to reflect prices current at the time the order of cost estimate is prepared (i.e. adjusted to remove allowances included for construction inflation). Refer to section 2.9.

The construction inflation estimate is added to the cost limit (excluding construction inflation). This gives the proposed cost limit (including inflation). The equation for calculating the cost limit (including inflation) is therefore:

$$CL2 = CL1 + c$$

where:

- CL1 = cost limit (excluding construction inflation)
- CL2 = cost limit (including inflation)
- c = construction inflation estimate

It is recommended that potential cost increases caused by tendering conditions and the effects of changes in the market are also considered. This includes price increases associated with certain materials or products or the impact of major projects sapping resources or other countries buying major quantities of raw materials. However, it is recommended that such potential cost increases caused by tendering conditions and changes in the market are dealt with under risk allowances.

## 3.20 VAT assessment

VAT in relation to buildings is a complex area. Furthermore, in the UK capital allowances are given against the net capital cost to the taxpayer. As VAT is part of that capital cost, clients will incur differing overall capital expenditure for the same building component depending on whether they can or cannot fully recover, or recover a portion of, the VAT. In view of these complexities, it is recommended that VAT is excluded from cost plans.

It is recommended that specialist advice is sought on VAT matters to ensure that the correct rates are applied to the various aspects of a building project.

## 3.21 Other considerations

### 3.21.1 Capital allowances for taxation purposes

Capital allowances provide tax relief for certain items of capital expenditure on buildings. This is a valuable form of tax relief that, in most cases, is either under-claimed or not claimed due to the lack of understanding or application of the legislation governing the availability of relief.

Specialist advice should be sought to maximise the availability and quantum of capital allowances.

### 3.21.2 Land remediation allowances

Land remediation tax relief provides considerable tax relief for expenditure in remediating contaminated land. Expenditure must be incurred on the prevention, remediation or mitigation of the effects of the pollutant or on the restoration of the land to its former state. The expenditure must be directly linked to the remediation and, as such, general site clearance will not apply.

Specialist advice should be sought to maximise the availability and quantum of the tax relief.

### 3.21.3 Taxation allowances, taxation relief, levies and grants

Taxation allowances, taxation relief, levies and grants can provide valuable financial aid to a client on certain types of building project. However, specialist advice should be sought to maximise the availability and quantum of capital allowances, land remediation relief and grants. For that reason, it is recommended that allowances in connection with capital allowances, land remediation relief and grants be excluded from cost plans.

## 3.22 Reporting of elemental cost plans

Costs should be expressed as 'cost/m<sup>2</sup> of GIFA'.

Where appropriate and/or required by a client, costs may be expressed as a cost/ft<sup>2</sup> of GIFA or a cost per functional unit (or functional unit cost) as an alternative to, or in addition to, the cost/m<sup>2</sup> of GIFA. The functional unit may be a client defined unit. It is essential, therefore, that the functional unit is clearly identified when costs are expressed in this way.

Items included in and excluded from the estimated cost should be clearly communicated to the client when reporting cost plans.

Typical items to include in cost plan reports are:

- executive summary
- project title
- project description
- status of cost plan
- a statement of cost (including cost limit)
- details of the drawings, specifications and other information on which the cost plan was based
- a statement of the floor areas
- storey heights
- cost plan summary – elemental breakdown
- basis of cost estimates (i.e. assumptions)
- inclusions and exclusions (i.e. a statement of what is included in and excluded from the order of cost estimate)

- estimate base date (i.e. to which inflation has been applied)
- reasons for changes to previous cost targets (explaining the transfers and adjustments that have taken place against the previous cost plan)
- estimated costs of and a request for decisions on any alternative proposals
- value engineering options
- conclusions
- recommendations
- complete cost plan (e.g. as an addendum to the cost report) and
- cash flow forecast, where appropriate.

# 4 Tabulated rules of measurement for elemental cost planning

## 4.1 Introduction

This section explains the use of the tabulated rules and describes how to codify elemental plans. Advice is also given on how to reallocate costs from elements and sub-elements to work packages where building works are to be procured by work packages.

The rules of measurement for elemental cost planning can also be used as a basis for measuring quantities for the application to whole life cycle costing.

## 4.2 Use

Tables are provided for each of the following group elements:

**Facilitating works and building works:** the tables for group elements 0 to 8 comprise the rules of measurement for facilitating works (group element 0) and building works (group elements 1 to 8).

Each table is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the second heading.
- c The first column lists the sub-elements and contains the definition rules applicable to each sub-element.
- d The second and third columns list the components and the unit of measurement for components, respectively.
- e The fourth column contains the rules for measuring components.
- f The final two columns describe the items included and excluded from each sub-element and component. Where exclusions are stated, cross-references to the appropriate element or sub-element are given.

The tabulated measurement rules are based on four principal levels. Levels 1 to 3 in the rules are headings under which actual work items (i.e. group element, element and sub-element) are allocated. Level 4 is the rules of measurement for components.

- a **Level 1: group element:** the primary classifications used for grouping elements (i.e. headings).
- b **Level 2: element:** key part of a group element.
- c **Level 3: sub-element:** part of an element. One or more sub-element will constitute an element.
- d **Level 4: component:** a building work item that forms part of a sub-element. One or more components will be measured to ascertain the cost of an element or sub-element.

These levels provide the basis of a codified framework for elemental cost planning, which can be used as a frame of reference for cost checking both cost targets and the overall cost limit as more design information becomes available. They provide both a WBS (elements) and a CBS (cost targets) for a building project.

**Main contractor's preliminaries:** the table for group element 9 comprises lists of typical items included in main contractor's preliminaries. The table is intended to be used by the quantity surveyor/cost manager to assist in the cost estimating and cost checking process. The lists are not meant to be definitive or exhaustive but are merely a guide. The table is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the second heading.
- c The sub-element is given in the third heading.
- d The first column lists the components.
- e The second column describes the items included in each element and sub-element.
- f The third column identifies the appropriate unit of measurement for included items.
- g The fourth column describes the excluded items. Where exclusions are stated, cross-references to the appropriate group element, element or sub-element are given.

**Main contractor's overheads and profit:** the table for group element 10 is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the first column.
- c The second and third columns describe the items included in and excluded from each element respectively. Where exclusions are stated, cross-references to the appropriate element are given.

**Project and design team fees:** the table for group element 11 comprises lists of typical project and design team fees. The table is intended to be used by the quantity surveyor/cost manager to assist in the cost estimating and cost checking process. The lists are not meant to be definitive or exhaustive but are merely a guide. The table is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the second heading.

- c The first column (component) comprises a list of typical project and design team fee headings.
- d The second column describes the items included in each element and sub-element.
- e The third column identifies the appropriate unit of measurement for included items.
- f The fourth column describes the excluded items. Where exclusions are stated, cross-references to the appropriate element are given.

**Other project costs:** the table for group element 12 comprises a tabulated list of typical other development/project costs. The list is not meant to be definitive or exhaustive but merely a guide. The table is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the second heading.
- c The first column (component) comprises a list of typical other development/project cost headings.
- d The second column describes the items included in each element and sub-element.
- e The third column identifies the appropriate unit of measurement for included items.
- f The fourth column describes the excluded items. Where exclusions are stated, cross-references to the appropriate element are given.

**Risks:** the table for group element 13 comprises lists of typical risks. The lists are not meant to be definitive or exhaustive but are merely a guide. The table is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the second heading.
- c The lists set out examples of risk.

**Inflation:** the table for group element 14 is structured as follows.

- a The group element is given in the first heading.
- b The element is given in the first column.
- c The second column describes the items included in each element.
- d The third column gives the unit of measurement.
- e The fourth column gives the items excluded from each element. Where exclusions are stated, cross-references to the appropriate element are given.

## 4.3 Work not covered by the rules of measurement for elemental cost planning

Rules of measurement adopted for components not covered by NRM 1 should be stated in the cost plan. Such rules should, as far as possible, conform to those rules given here for similar components.

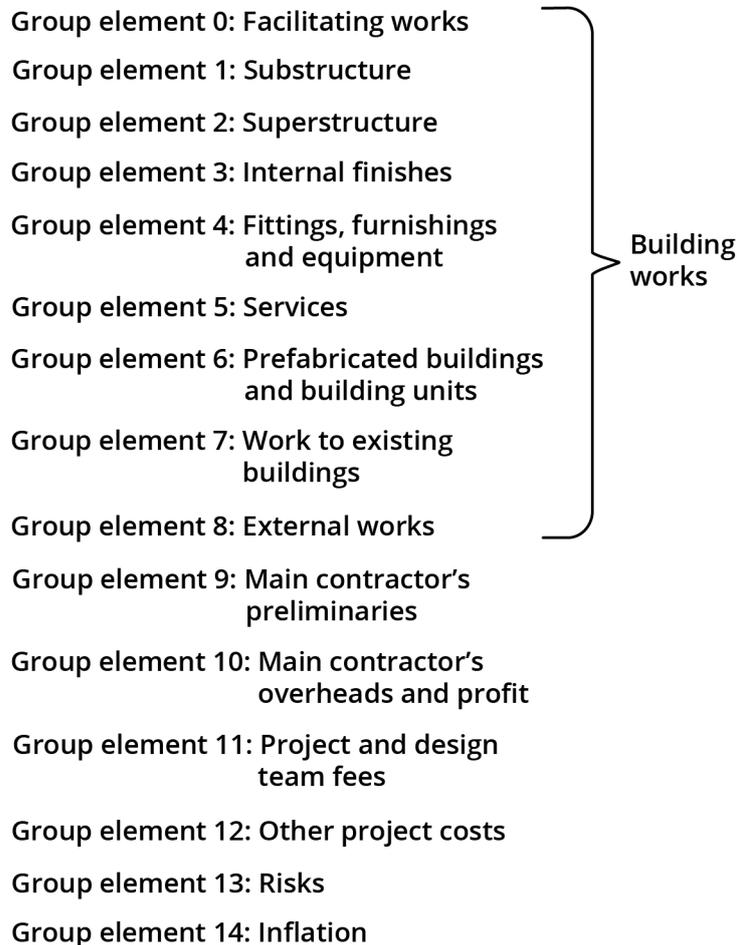
## 4.4 Method for codifying elemental cost plans

The logic and arrangement of levels for elemental cost plans are shown in appendix B of these rules.

Codes for levels 1 to 3 are provided by the measurement rules, while codes for level 4 (components) are user-defined. This is because of the number of variable components that could be generated for any one sub-element. It is recommended, therefore, that each component measured be numbered sequentially within the sub-element. This will allow a unique level 4 code to be established for each component.

For example:

- Level 1: superstructure: group element number (2)
- Level 2: frame: element number (1)
- Level 3: concrete frames: sub-element number (4)



## 4.5 Method for codifying elemental cost plans for work packages

Where the building project is to be procured by work packages, the works allocated to elements and sub-elements can be reallocated to the relevant work package. This can be achieved by simply introducing one or more numeric suffixes to each item in the cost plan (see Table 4.1).

Alternatively, one or more characters can be used as a suffix to identify a work package.

If elements need to be broken down further, additional levels of code may be introduced to meet user requirements.

In both cases, reference could be made to a high-level cost classification system such as that used in ICMS, where cost categories are used.

Work package	Suffix
Main contractor's preliminaries	/001
Substructure and groundworks	/002
Piling	/003
Concrete works (including precast components)	/004
Structural steelwork	/005
Carpentry	/006
Masonry (brickwork and blockwork)	/007
Roof systems and rainwater goods	/008
Joinery (including internal doors, toilet cubicles and vanity units)	/009
Windows and external doors	/010
Curtain walling	/011
Dry linings and partitions	/012
Tiling	/013
Decorating/painting	/014
Floor coverings	/015
Suspended ceilings	/016
Mechanical and electrical service installations (including sanitary appliances)	/017
Lifts	/018
Loose fittings, furnishings and equipment	/019
External drainage	/020
External works – soft landscape works	/021
External works – hard landscape works	/022
Main contractor's overheads and profit	/023

**Table 4.1: Example of work package codification framework**

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# Group element 0: Facilitating works

Group element 0 comprises the following elements:

- 0.1 Toxic/hazardous/contaminated material treatment
- 0.2 Major demolition works
- 0.3 Temporary support for adjacent structures
- 0.4 Specialist groundworks
- 0.5 Temporary diversion works
- 0.6 Extraordinary site investigation works

**Note:** works associated with general site preparation and groundworks; minor demolition works; and permanent roads, paths and pavings are included in group element 8. The provision of temporary roads and services is included in group element 9.

## Element 0.1: Toxic/hazardous/contaminated material treatment

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.1.1</b> Toxic or hazardous material removal.  <b>Definition:</b> removal, employing special safety measures, of toxic or hazardous material prior to demolition or refurbishment works.	<b>1</b> Toxic or hazardous material removal: details to be stated.	item	<b>C1</b> Cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.	<b>1</b> Removal of toxic or hazardous parts of building fabric (e.g. asbestos-containing materials).  <b>2</b> Removal of toxic or hazardous insulating materials or components from existing service installations, including storage tanks and vessels.  <b>3</b> Removal of toxic or hazardous chemicals from existing service installations, including storage tanks and vessels.  <b>4</b> Safe disposal.  <b>Note:</b> where no asbestos survey records exist, an allowance should be made within the construction risk allowance.  <b>5</b> Sundry items.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Contaminated ground material removal or treatment (included in sub-element 0.1.2).  <b>2</b> Asbestos survey fees, etc. (included in group element 11).
	<b>2</b> Toxic or hazardous chemical removal: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.1.2</b> Contaminated land.  <b>Definition:</b> removal and/or treatment of contaminated ground material.	<b>1</b> Contaminated ground material removal: details to be stated.	m <sup>2</sup> /m <sup>3</sup>	<b>C1</b> The area measured is the area of contaminated land.  <b>C2</b> Where the volume of excavation and disposal of contaminated ground material is measured, the volume measured is the surface area of the contaminated material multiplied by the average depth of the contaminated material.	<b>1</b> Contaminated ground material removal using dig and dump strategy, including safe disposal of excavated material to licensed tip (non-hazardous and hazardous material), tipping charges and landfill tax.  <b>2</b> Contaminated ground material treatment using in situ methods, such as: <ul style="list-style-type: none"> <li>• dilution</li> <li>• clean cover</li> <li>• on-site encapsulation</li> <li>• bioremediation</li> <li>• soil washing</li> <li>• soil flushing</li> <li>• thermal treatment</li> <li>• vacuum extraction</li> <li>• stabilisation.</li> </ul> <b>3</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Undertaking environmental audits and intrusive ground investigations/surveys (included in group element 11).  <b>2</b> Preparing remediation strategy/plan (included in group element 11).  <b>3</b> Supervision to ensure compliance with remediation strategy/plan (included in group element 11).  <b>4</b> Reinstatement works required by alleviation strategy (included in group element 1 or group element 8 as appropriate).
	<b>2</b> Contaminated ground material treatment: details to be stated.	m <sup>2</sup>	<b>C3</b> Quantities given for disposal of contaminated ground material are the bulk before excavating, and no allowance is made for subsequent variations to bulk or for extra space to accommodate earthwork support.  <b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.1.3</b> Eradication of plant growth.  <b>Definition:</b> eradication of Japanese knotweed, giant hogweed or other invasive plant species.	<b>1</b> Eradication by dig and dump strategy: details to be stated.	m <sup>2</sup> /m <sup>3</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Eradication by dig and dump strategy (including inserting a root barrier membrane system, etc.), including excavation and safe disposal of excavated material to licensed tip, tipping charges, landfill tax and backfilling voids with inert material.  <b>2</b> Eradication by chemical treatment.  <b>3</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Site investigation surveys for Japanese knotweed, giant hogweed or other invasive plant species (included in element 11.1).  <b>2</b> Supervision of removal of Japanese knotweed, giant hogweed or other invasive plant species by specialist consultant (included in element 11.1).  <b>Note:</b> removal undertaken by a works contractor but is to be carried out under strict supervision of a specialist consultant.
	<b>2</b> Eradication by chemical treatment: details to be stated.	nr/m <sup>2</sup>	<b>C2</b> The area measured is the area designated as infected by the plant growth.  <b>C3</b> Where the volume of excavation and disposal of contaminated ground material is measured, the volume measured is the surface area of the contaminated material multiplied by the average depth of the contaminated material.  <b>C4</b> Quantities given for disposal of contaminated ground material are the bulk before excavating and no allowance is made for subsequent variations to bulk or for extra space to accommodate earthwork support.  <b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.		

## Element 0.2: Major demolition works

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.2.1</b> Demolition works.  <b>Definition:</b> taking down to ground level and removing complete buildings/ structures or parts of buildings/structures, including services, fittings and finishes	<b>1</b> Demolition of entire buildings: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The linear length of components is measured on the centre line of the component.  <b>C3</b> The area measured is the GEFA.  <b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.	<b>1</b> Demolition of entire buildings and structures, including removing service installations (i.e. significant buildings and structures).  <b>2</b> Demolition of major parts of existing buildings and structures (including removing service installations) ready to receive new construction.  <b>3</b> Credits for materials arising from demolition works.  <b>4</b> Disposal of materials arising from demolition, including materials classified as inert, non-hazardous and hazardous (including WAC (waste acceptance criteria) test charges).  <b>5</b> Disconnecting existing mains services, including water, gas, electricity, drainage, district heating, telecommunication systems, data systems, etc.).  <b>6</b> Statutory undertaker's fees and charges for disconnecting mains services.	<b>1</b> Soft strip works carried out separately from demolition works.  <b>2</b> Removing parts of existing buildings (included in group element 7).  <b>3</b> Alterations to existing buildings (included in group element 7).  <b>4</b> Stripping out services in conjunction with alteration works to existing buildings (included in sub-element 7.1.1).  <b>5</b> Decontaminating existing service systems prior to demolition, e.g. boilers and fuel storage tanks and vessels (included in sub-element 0.1.1).
	<b>2</b> Demolition of major parts of existing buildings: details to be stated.				
	<b>3</b> Temporary propping to existing basement retaining walls: details, including type of material, whether single or double props, and type of anchor blocks/ foundations, to be stated.	nr			
	<b>4</b> Extra over temporary propping for providing wallings: details, including type of material, to be stated.	m			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>5</b> Periodic technical inspections of temporary propping: details to be stated.</p> <p><b>6</b> Returning to site to reposition temporary props: details, including type of material, whether single or double props, and type of anchor blocks/foundations (if new required), to be stated.</p> <p><b>7</b> Removal of temporary props: details to be stated.</p>	nr		<p><b>7</b> Temporary supports to retain existing basement retaining walls, etc., including the design, installation, maintenance, repositioning (to facilitate construction works) and removal of props and wailings, and grubbing up and disposal of anchor blocks/foundations where not part of the permanent works.</p> <p><b>8</b> Periodic temporary inspections.</p> <p><b>9</b> Sundry items.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>6</b> Temporary or semi-permanent support to structures or facades (included in element 7.4).</p> <p><b>7</b> Minor demolitions carried out as part of the site clearance (included in sub-element 8.1.1).</p>
	<p><b>8</b> Removal of wailings: details to be stated.</p>	m			
	<p><b>9</b> Grubbing up of anchor blocks/foundations for temporary props and infilling voids: details, including type of filling material and size of void, to be stated.</p>	nr			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.2.2</b> Soft strip works.  <b>Definition:</b> stripping out building components, services, fittings and finishes from a building as preparatory works to demolition or refurbishment.	<b>1</b> Preparatory to demolition: extent of works to be stated.	item/ m <sup>2</sup>	<b>C1</b> The area measured is the GIFA.	<b>1</b> Soft strip works carried out separately from demolition works.  <b>2</b> Removal of existing non-structural walls and partitions.  <b>3</b> Removal of existing internal doors, screens, balustrades, handrails, etc.  <b>4</b> Removal of finishes.  <b>5</b> Removal of furnishings, fixtures and fittings.  <b>6</b> Isolating, draining down and disconnecting existing mains services, including water, gas, electricity, drainage, district heating, telecommunication systems, data systems, etc.  <b>7</b> Removal of building engineering services, including lift installations.  <b>8</b> Credits for materials arising from demolition works.  <b>9</b> Disposal of materials arising from soft strip works.  <b>10</b> Statutory undertaker's fees and sundry items.  <b>11</b> Charges for disconnecting mains services.  <b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Removal of toxic or hazardous parts of building fabric (e.g. asbestos-containing materials), including materials and chemicals (included in sub-element 0.1.1).
	<b>2</b> Preparatory to refurbishment: extent of works to be stated.				

## Element 0.3: Temporary support for adjacent structures

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.3.1</b> Temporary support for adjacent structures.  <b>Definition:</b> temporary or semi-permanent support for unstable structures (i.e. structures not to be demolished) adjacent to the building under construction.	1 Support structures: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work arising out of party wall awards/agreements is to be described and identified separately.	<b>1</b> Temporary or semi-permanent supports for structures adjacent to the site on which the building is being built, including party walls.  <b>2</b> Location surveys.  <b>3</b> Commencement and completion condition surveys.  <b>4</b> Dead, raking, flying or box shoring; strutting (including bracing; sole plates and wall plates; needles, including holes; brackets, blockings and wedges; dog irons and similar metalwork).  <b>5</b> Foundations for shoring.  <b>6</b> Cutting holes in existing structures for needles, etc.  <b>7</b> Design, erection, maintenance, repositioning and removal of support structures.  <b>8</b> Periodic temporary inspections.  <b>9</b> Sundry items.  <b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Facade retention works where existing facade is to be integrated into new building (included in element 7.4).  <b>2</b> Temporary supports for basement retaining walls (included in sub-element 0.2.1).  <b>3</b> Temporary screens required for alteration works (included in sub-element 7.1.1).  <b>4</b> Supports for small openings cut into existing walls or after removal of internal walls, etc. (included in sub-element 7.1.1).
	2 Taking down and repositioning support structures: details to be stated.				
	3 Periodic technical inspections of temporary support structures: details to be stated.				
	4 Removing support structures: details to be stated.				

## Element 0.4: Specialist groundworks

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>0.4.1</b> Site dewatering and pumping.</p> <p><b>Definition:</b> temporarily lowering the groundwater level over the whole of the site to facilitate construction.</p>	<p><b>1</b> Site dewatering: details to be stated.</p>	<p>item/ m<sup>2</sup></p>	<p><b>C1</b> Where components are to be itemised, the key attributes comprising the component are to be identified, described and enumerated within the description of the component.</p> <p><b>C2</b> The area measured is the area affected by the dewatering system employed.</p> <p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Forming well points, including well pointing equipment and well point installation.</p> <p><b>2</b> Filling (gravel or other filling).</p> <p><b>3</b> Drain tubes and ring mains (installing and removing).</p> <p><b>4</b> Sumps.</p> <p><b>5</b> Pumps and pumping, including standby pumps.</p> <p><b>6</b> Off-site disposal of water.</p> <p><b>7</b> Running costs.</p> <p><b>8</b> Attendance, including out of hours.</p> <p><b>9</b> Sundry items associated with site dewatering.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Permanent land drainage (included in sub-element 8.6.4).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>0.4.2</b> Soil stabilisation measures.</p> <p><b>Definition:</b> stabilisation or improvement in bearing capacity or slip resistance of existing ground, to facilitate construction by injecting or otherwise introducing stabilising materials, power vibrating, soil nailing or using ground anchors.</p>	<p><b>1</b> Soil stabilisation measures: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area affected by the soil stabilisation measure.</p> <p><b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Soil stabilisation measures, including:</p> <ul style="list-style-type: none"> <li>• cement or chemical grouting</li> <li>• electrochemical stabilisation</li> <li>• sand stowing</li> <li>• forming regular pattern of holes, compacting surrounding soil, and filling with aggregates or hard fill, all by means of power vibrators</li> <li>• soil nailing</li> <li>• use of ground anchors</li> <li>• pressure grouting</li> <li>• compacting</li> <li>• freezing of groundwater and subsoil</li> <li>• stabilising soil in situ by incorporating cement with a rotovator.</li> </ul> <p><b>2</b> Sundry items.</p> <p><b>3</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Consolidating and compacting formation level to receive construction (included in sub-elements 1.1.1, 1.1.3, 1.1.4 or 1.1.5, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>0.4.3</b> Ground gas venting measures.</p> <p><b>Definition:</b> systems to prevent accumulation of radon or landfill gases.</p>	<p><b>1</b> Ground gas venting: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area affected by the gas venting measure.</p> <p><b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Ground gas venting measures, including:</p> <ul style="list-style-type: none"> <li>• gas-proof membranes</li> <li>• perforated collection pipes</li> <li>• proprietary gas dispersal fin layers</li> <li>• radon sumps</li> <li>• vent pipes, including vertical risers to vent at a high level.</li> </ul> <p><b>2</b> Sundry items associated with ground gas venting measures.</p> <p><b>3</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Gas-proof membranes also used as a damp-proof membrane (included in sub-element 1.1.3).</p> <p><b>2</b> Radon sumps underneath building slabs (included in sub-element 1.1.3).</p> <p><b>3</b> Granular venting layers (included in sub-element 1.1.3).</p>

## Element 0.5: Temporary diversion works

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.5.1</b> Temporary diversion works.  <b>Definition:</b> temporary diversion of existing drainage systems, existing service installations and systems, rivers, streams, etc.	<b>1</b> Temporary diversion of drains: details to be stated.	item	<b>C1</b> Works are to be itemised and described.  <b>C2</b> Where insufficient information is available, such works are to be included in group element 13, as appropriate.	<b>1</b> All works in connection with temporary diversion of drains.  <b>2</b> All works in connection with temporary diversion of services (e.g. water, electricity, gas and communications).  <b>3</b> All works in connection with temporary diversion of rivers, streams, etc.  <b>4</b> Statutory undertaker's fees and charges in connection with diversion works.  <b>5</b> Sundry items.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	<b>2</b> Temporary diversion of services: details to be stated.				
	<b>3</b> Temporary diversion of waterways: details to be stated.				

## Element 0.6: Extraordinary site investigation works

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>0.6.1</b> Archaeological investigation.  <b>Definition:</b> site-based archaeological investigation works.	<b>1</b> Excavation works: details to be stated.	item	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Physical archaeological investigation works (i.e. site-based excavation works in search of artefacts, etc.) carried out by the main contractor under the guidance and instruction of an archaeologist (e.g. breaking out concrete and initial excavation to expose ground for archaeologist).  <b>2</b> Provision of temporary screens, etc.  <b>3</b> Attendance on archaeologists.	<b>1</b> Desktop studies (included in group element 11).  <b>2</b> Archaeologist's fees and charges in connection with fieldwork, reporting and carrying out physical archaeological investigation works (included in group element 12, as appropriate).
	<b>2</b> Temporary screens, etc.: details to be stated.	nr	<b>C2</b> Where components are to be measured per week, the number of weeks is to be stated. The cost per week is to be calculated by multiplying the number of operatives by the number of days per week that they are in attendance.		
	<b>3</b> Attendance on archaeologists.	per week	<b>C3</b> Where insufficient information is available, such works are to be included in group element 13, as appropriate.		
<b>0.6.2</b> Reptile/wildlife harm mitigation measures.  <b>Definition:</b> relocation of reptiles/wildlife and provision of fences/barriers to cordon off the working area.	<b>1</b> Physical reptile/wildlife harm mitigation measures: details to be stated.	item	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Trapping and relocation of reptiles/wildlife, etc. carried out by the main contractor.  <b>2</b> Provision of temporary fences, barriers, etc. to cordon off working area.  <b>3</b> Attendance on specialists.	<b>1</b> Desktop studies (included in group element 11).  <b>2</b> Ecologist's fees and charges in connection with ascertaining and carrying out reptile/wildlife harm mitigation measures (included in group elements 11 or 12, as appropriate).
	<b>2</b> Temporary fences, barriers, etc.: details to be stated.	nr/m	<b>C2</b> The linear length of components is measured on the centre line of the component.		
	<b>3</b> Attendance.	per week			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Where components are to be measured per week, the number of weeks is to be stated. The cost per week is to be calculated by multiplying the number of operatives by the number of days per week that they are in attendance.</p> <p><b>C4</b> Where insufficient information is available, such works are to be included in group element 13, as appropriate.</p>		
<b>0.6.3</b> Other extraordinary site investigation works.	<b>1</b> Physical site investigation works: details to be stated.	item	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<p><b>1</b> Physical works in connection with extraordinary site investigation works carried out by the main contractor.</p> <p><b>2</b> Provision of temporary screens, fences, barriers, etc. to cordon off working area.</p> <p><b>3</b> Attendance on specialists.</p>	<p><b>1</b> Desktop studies (included in group element 11).</p> <p><b>2</b> Specialist consultants' fees and charges in connection with ascertaining and carrying out extraordinary site investigation works (included in group element 11 or group element 12).</p>
	<b>2</b> Temporary screens, fences, barriers, etc.: details to be stated.	nr/m	<b>C2</b> The linear length of components is measured on the centre line of the component.		
	<b>3</b> Attendance.	per week	<p><b>C3</b> Where components are to be measured per week, the number of weeks is to be stated. The cost per week is to be calculated by multiplying the number of operatives by the number of days per week that they are in attendance.</p> <p><b>C4</b> Where insufficient information is available, such works are to be included in group element 13, as appropriate.</p>		

# Group element 1: Substructure

Group element 1 comprises the following elements:

## 1.1 Substructure

Note: where testing and commissioning of drainage installations is required to be measured under sub-element 1.1.3, the terms should include the following works:

- 1 Testing includes:
  - (1) air tests
  - (2) water tests
  - (3) dyes required for testing.
- 2 Temporary operation of drainage to employer's requirements.
- 3 Setting all drainage installations to work after completion of commissioning.

## Element 1.1 Substructure

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>1.1.1</b> Standard foundations.  <b>Definition:</b> standard foundations up to and including the damp-proof course.	<b>1</b> Strip foundations: details, including depth of foundation, to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The linear length of components is measured on the centre line of the component.	<b>1</b> Wall and column foundations.  <b>2</b> Foundation walls to underside of damp-proof course (to both perimeter and internal load bearing walls).  <b>3</b> Isolated pad foundations.	<b>1</b> Raft foundations, etc. (included in sub-element 1.1.3).  <b>2</b> Foundations to temporary accommodation (included in group element 10).
	<b>2</b> Isolated pad foundations: details, including size and reinforcement rate (kg/m <sup>3</sup> ) of pile cap, to be stated.	nr	<b>C3</b> The volume of contaminated material measured for disposal is the surface area of the contaminated material multiplied by the average depth of the contaminated material.	<b>4</b> Trench and pit excavations, including earthwork support (including insertion and extraction of steel sheet piling if used).  <b>5</b> Excavating below groundwater level.	<b>3</b> Forming new contours to the site (included in sub-element 8.1.2).  <b>4</b> Cultivating and final grading of soil for seeding, turfing or planting (included in element 8.3, as appropriate).
	<b>3</b> Extra for disposal of contaminated excavated material: details to be stated.	m <sup>3</sup>	<b>C4</b> Quantity given for disposal is the bulk before excavating, and no allowance is made for subsequent variations to bulk or for extra space to accommodate earthwork support.	<b>6</b> Breaking out surface materials (e.g. hardstandings, pavements, etc.).  <b>Note:</b> where no information relating to the ground conditions is available, an allowance is to be made within the construction risk allowance for the extra cost of removing unforeseen obstructions and dealing with unknown ground conditions.	<b>5</b> Pile caps and ground beams (included in sub-element 1.1.2).  <b>6</b> Base slab/bed construction, including damp-proof membranes (included in sub-element 1.1.3).  <b>7</b> Basement excavation (included in sub-element 1.1.4).  <b>8</b> Piles (included in sub-element 1.1.2).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C6</b> Curved work is to be described and identified separately.</p> <p><b>C7</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>7</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).</p> <p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p> <p><b>8</b> Disposal of surface water and groundwater, where dewatering techniques not employed.</p> <p><b>9</b> Consolidating and compacting formation level to receive foundations.</p> <p><b>10</b> Consolidating and compacting formation level to receive foundations.</p> <p><b>11</b> Blinding.</p>	<p><b>9</b> Basement retaining walls (included in element 1.1.5).</p> <p><b>10</b> Columns (i.e. portion below base slab/bed – included in element 2.1, as appropriate).</p> <p><b>11</b> Drainage (included in sub-elements 1.1.3 or 8.6.1, as appropriate).</p> <p><b>12</b> Dewatering (included in sub-element 0.4.1).</p> <p><b>13</b> Soil stabilisation (included in sub-element 0.4.2).</p> <p><b>14</b> Removing contaminated ground material, where carried out as facilitating works (included in sub-element 0.1.2).</p> <p><b>15</b> Treatment of contaminated ground material, where carried out as facilitating works (included in sub-element 0.1.2).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>12</b> Specialist concrete grades, including waterproof concrete and additives.</p> <p><b>13</b> Brickwork and blockwork walling, including air/ventilation bricks, etc.</p> <p><b>14</b> Forming cavities, including wall ties.</p> <p><b>15</b> Filling cavities.</p> <p><b>16</b> Thermal insulation of cavities.</p> <p><b>17</b> Damp-proof courses.</p> <p><b>18</b> Service ducts, etc. through foundation walls.</p> <p><b>19</b> Sundry items.</p> <p><b>20</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>1.1.2 Specialist foundations.</b>  <b>Definition:</b> <ul style="list-style-type: none"> <li>load bearing foundation piles and caissons</li> <li>inserting additional foundation support under and around existing foundations.</li> </ul>	<b>1</b> Piling mats/ platforms: details, including thickness of mat/platform (mm), to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The linear length of components is measured on the centre line of the component.	<b>1</b> Piles, including: <ul style="list-style-type: none"> <li>precast concrete reinforced piles</li> <li>precast prestressed concrete piles</li> <li>precast reinforced segmental concrete piles</li> <li>bored cast-in-place concrete piles</li> <li>driven cast-in-place concrete piles</li> <li>steel bearing piles</li> <li>timber bearing piles</li> <li>mini piles.</li> </ul> <b>2</b> Permanent caissons.  <b>3</b> Vibro-compacted columns.  <b>4</b> Piling mats and platforms (installing, moving, modifying and removing on completion).  <b>5</b> Piling rigs/other plant, including bringing to and removing from site, maintenance, erection, dismantling and moving piling rigs to each pile position.	<b>1</b> Piles and caissons forming embedded retaining walls (included in sub-element 1.1.5).  <b>2</b> Dewatering (included in sub-element 0.4.1).  <b>3</b> Soil stabilisation (included in sub-element 0.4.2).
	<b>2</b> Piling plant: details to be stated.	item	<b>C3</b> The area measured for piling mats/platforms is the surface area of the piling mat/platform.		
	<b>3</b> Moving piling rig to pile position.	nr	<b>C4</b> The volume of excavated material for disposal arising from the piling is the cross-sectional area of the pile multiplied by the depth of the pile.		
	<b>4</b> Piles: details, including type, diameter (mm) and depth (m) of piles, to be stated.		<b>C5</b> Quantity given for disposal is the bulk before excavating and no allowance is made for subsequent variations to bulk.		
	<b>5</b> Extra for pile casings or linings: details, including material, length (m), diameter (mm) and if permanent or temporary, to be stated.		<b>C6</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>6</b> Caissons: details, including type, overall external dimensions (m/mm) or external diameter (m/mm) and depth (m/mm) of caisson, to be stated.	nr	<b>C7</b> Curved work is to be described and identified separately.  <b>C8</b> Work to existing buildings is to be described and identified separately.  <b>C9</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>Note:</b> where information about ground strata is unknown, an allowance is to be made within the construction risk allowance for breaking through obstructions.  <b>6</b> Disposal of excavated material arising from piling, including tipping charges and landfill tax.  <b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.  <b>7</b> Disposal of surface water and groundwater, where dewatering techniques not employed.  <b>8</b> Cutting off excess lengths of piles.  <b>9</b> Cutting out concrete to tops of piles and preparing pile heads and reinforcement for capping.  <b>10</b> Grouting.	
	<b>7</b> Disposal of excavated material arising from piling.	m <sup>3</sup>			
	<b>8</b> Extra for breaking through obstructions.	nr/m <sup>3</sup>			
	<b>9</b> Cutting off tops of concrete piles and preparing pile heads.	nr			
	<b>10</b> Pile tests: details, including type of test, pile type, diameter of pile (mm) and number of piles to be stated.	item			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>11</b> Vibro-compacted columns: details, including size (mm) and length (m) of column, to be stated.	nr		<b>11</b> Pile tests (e.g. load tests and integrity tests).	
	<b>12</b> Pile caps: details, including size and reinforcement rate (kg/m <sup>3</sup> ) of pile cap, to be stated.	nr		<b>12</b> Pile caps.	
	<b>13</b> Ground beams: details, including size and reinforcement rate (kg/m <sup>3</sup> ) of pile cap, to be stated.	m		<b>13</b> Ground beams.	
				<b>14</b> Trench and pit excavations for pile caps and ground beams, including earthwork support (including insertion and extraction of steel sheet piling if used).	
				<b>15</b> Disposal of excavated material, including tipping charges and landfill tax. (Refer to note above about disposal of contaminated material).	
				<b>16</b> Disposal of surface water and groundwater, where dewatering techniques not employed.	
				<b>17</b> Consolidating and compacting formation level to receive pile caps and ground beams.	
				<b>18</b> Blinding.	
				<b>19</b> Protection boarding for underside of pile caps and ground beams (e.g. to provide heave protection).	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>20</b> Concrete, reinforcement, formwork (temporary and permanent) and excavating and backfilling of working space required to facilitate placement of formwork.</p> <p><b>21</b> Specialist concrete grades, including waterproof concrete and additives.</p> <p><b>22</b> Sundry items.</p> <p><b>23</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	14 Underpinning: details to be stated.	m	<p><b>C1</b> The length of underpinning measured is the extreme length.</p> <p><b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C3</b> Curved work is to be described and identified separately.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Underpinning to external walls adjoining the new building.</p> <p><b>2</b> Underpinning to walls within existing buildings, which are to be rehabilitated (i.e. internal walls).</p> <p><b>3</b> Preliminary trenches and underpinning pits, excavation and earthwork support.</p> <p><b>4</b> Temporary supports.</p> <p><b>5</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).</p> <p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p> <p><b>6</b> Cutting away existing projecting foundations, etc.</p>	<p><b>1</b> Underpinning to external site boundary walls, etc. which are not an integral part of the new building or rehabilitated building (included in sub-element 8.8.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>7</b> Preparing existing work to receive pinning up of new work.</p> <p><b>8</b> Concrete, including reinforcement, formwork and additional excavation and backfilling of working space required to facilitate placement of formwork.</p> <p><b>9</b> Masonry (brickwork, blockwork, etc.).</p> <p><b>10</b> Waterproof tanking.</p> <p><b>11</b> Sundry items.</p> <p><b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>1.1.3</b> Lowest floor construction.  <b>Definition:</b> the entire lowest floor assembly below the underside of screed or lowest floor finish.	<b>1</b> Lowest floor construction: details to be stated.  <b>Note:</b> reinforcement rate (kg/m <sup>3</sup> or kg/m <sup>2</sup> as appropriate) for concrete slabs and beds to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area of the floor construction measured to the internal face of the external perimeter walls.  <b>C2</b> The area of the floor construction should be measured in accordance with the rules of measurement for ascertaining the GIFA.	<b>1</b> Lowest floor assemblies, such as: <ul style="list-style-type: none"> <li>• ground slabs/beds</li> <li>• basement slabs/beds</li> <li>• raft foundations</li> <li>• suspended floors serving as lowest floor-level systems, i.e. where void between ground slab/bed under and lowest floor slab (including suspended timber floor construction and precast/composite decking systems).</li> </ul> <b>2</b> Thickening to slabs/beds for load-bearing walls, machine bases, etc.  <b>3</b> Sumps, pits, chambers, etc. integral to the lowest floor construction.  <b>4</b> Inclined and stepped slabs/beds.  <b>5</b> Ramps in slabs.  <b>6</b> Retaining walls at changes in level.  <b>7</b> Lift pits, etc. below the lowest floor, including waterproofing.	<b>1</b> Bulk excavation to form basements (included in sub-element 1.1.4).  <b>2</b> Non-structural screeds (included in sub-element 3.2.1).  <b>3</b> Floating floors (included in sub-element 3.2.1).  <b>4</b> Applied floor finishes (included in sub-element 3.2.1).  <b>5</b> Finishes to swimming pool tanks, including tank linings (included in sub-element 3.2.1).  <b>6</b> Hardeners and sealers applied to slabs/beds after construction (included in sub-element 3.2.1).  <b>7</b> Podium slabs, transfer slabs and other suspended upper floor constructions forming part of the basement construction (included in element 2.2).  <b>8</b> Basement roofs, i.e. where not performing as a floor (included in element 2.3).
	<b>2</b> Extra over lowest floor construction for forming ramps, etc.: details to be stated.		<b>C3</b> Where more than one type of floor construction is employed, the area measured for each floor construction is the area covered by that floor construction.		
	<b>3</b> Extra over lowest floor construction for forming of lift pits, etc.: details, including the number and size (m) of lift pits, to be stated.	nr	<b>C4</b> The length of retaining walls measured at changes in level is their extreme length, over all obstructions. The height measured is the distance from the top of the slab to the underside of the attached slab.  <b>C5</b> The area measured for forming swimming pool tanks, etc. is the area of the swimming pool (or other similar facility) on plan, measured to the internal face of the swimming pool walls.		
	<b>4</b> Extra over lowest floor construction for forming swimming pool tanks, etc.: details, including the size (m), to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>5</b> Retaining walls at changes in level: details, including thickness (mm), height (m) and reinforcement rate (kg/m <sup>3</sup> ), to be stated.	m	<b>C6</b> The area measured for forming lift pits, etc. is the area of the lift pit on plan, measured to the internal face of the lift pit.	<b>8</b> Swimming pool tanks, including boom pits, etc. and waterproofing.  <b>9</b> Surface area excavations (i.e. to remove topsoil and to reduce levels), including earthwork support and surface treatments.  <b>10</b> Pit excavations, including earthwork support.  <b>11</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).  <b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.  <b>12</b> Disposal of surface water and groundwater, where dewatering techniques not employed.	<b>9</b> Machine bases constructed on top of slabs and beds (included in element 5.14).  <b>10</b> Drainage beyond the first manhole external to the enclosing walls of the building (included in sub-element 8.6.1).  <b>11</b> Ground gas venting to the entire site (included in sub-element 0.4.3, as appropriate).
	<b>6</b> Designed joints: details, including height (mm), to be stated.		<b>C7</b> The length of linear components measured is their extreme length, over all obstructions.		
	<b>7</b> Drainage below ground: details, including average depth of trench (m), type and nominal size of pipe (mm), and materials for beds and haunchings/ surrounds, to be stated.		<b>C8</b> The length of below-ground drainage pipelines measured is their extreme length, over all fittings, branches, etc.  <b>C9</b> Where components are to be enumerated, the number of components is to be stated.  <b>C10</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.  <b>C11</b> Curved work is to be described and identified separately.  <b>C12</b> Work to existing buildings is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>8</b> Gullies, floor outlets, etc.: details to be stated.</p> <p><b>9</b> Internal manholes, catch-pits, petrol interceptors, etc.: details to be stated.</p>	nr	<p><b>C13</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the drainage installation. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>13</b> Consolidating and compacting formation level to receive floor construction.</p> <p><b>14</b> Concrete, reinforcement, formwork (temporary and permanent) and working space for formwork.</p>	
	<b>10</b> Testing of drainage installations.	%			
	<b>11</b> Commissioning of drainage installations.		<p><b>C14</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>15</b> Specialist concrete grades, such as waterproof concrete.</p> <p><b>16</b> Filling to make up levels.</p> <p><b>17</b> Blinding beds.</p> <p><b>18</b> Protection boarding for underside of floor/base slabs (e.g. to provide heave protection).</p> <p><b>19</b> Damp-proof membranes, including gas-proof membranes serving as a damp-proof membrane.</p> <p><b>20</b> Service ducts, etc. below the lowest floor construction.</p> <p><b>21</b> Fixing devices cast into concrete (i.e. dowels, anchor bolts, anchor boxes, anchor fixing slots, etc.).</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>22</b> Design joints, including at intersection of base slab/bed and external perimeter wall, to provide bays, etc.</p> <p><b>23</b> Worked finishes (i.e. in situ surface treatments), including the application of surface hardeners and power floated finishes.</p> <p><b>24</b> Structural screeds, including reinforcement.</p> <p><b>25</b> Suspended timber floors, including floorboards, joists, joist struts, plates, etc. and supporting masonry/concrete walls underneath (i.e. load-bearing sleeper walls).</p> <p><b>26</b> Precast/composite decking systems, including concrete components, in situ concrete, site-fixed formwork and reinforcement, filler units, fixing slips, metal clips and other fixings, joints (including grouting joints), worked finishes and performance tests.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>27</b> Drainage below or within lowest floor assembly, including pipework, pipework ancillaries (e.g. gullies, gratings, rodding and access points) and fittings to pipework (to first manhole beyond the external enclosing walls).</p> <p><b>28</b> Internal manholes, etc., including channel benching, step irons, access covers and other accessories.</p> <p><b>29</b> Floor outlets.</p> <p><b>30</b> Prefabricated floor channels and gratings in ground floor construction.</p> <p><b>31</b> Trenches for pipework, including excavation, earthwork support, backfilling and disposal of surplus material.</p> <p><b>32</b> Granular beds and surrounds, concrete beds, cradles, haunching and surrounds, and foamed concrete backfill.</p> <p><b>33</b> Venting below building (e.g. radon sumps underneath slab/bed).</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>34</b> Special filling material beneath base slab/bed.</p> <p><b>35</b> Sundry items.</p> <p><b>36</b> Testing and commissioning of drainage installations.</p> <p><b>37</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>1.1.4</b> Basement excavation.  <b>Definition:</b> bulk excavation required for construction of floors below ground level.	<b>1</b> Basement excavation: details, including average depth of excavation, to be stated.	m <sup>3</sup>	<b>C1</b> The volume measured for basement excavation and disposal of excavated material is the area of the basement measured to the external face of the external perimeter walls multiplied by the average depth of excavation.  <b>C2</b> The depth of basement excavation should be measured from either the average existing ground level to the formation level or the adjusted ground level (i.e. where a new ground level has been established following preparatory groundworks) to the formation level, whichever is applicable.	<b>1</b> Bulk excavation to form basements, etc.  <b>2</b> Temporary or permanent support to the bulk excavation (e.g. earthwork support, caissons, steel sheet piling, etc.), including insertion and extraction of temporary steel sheet piling and caissons.  <b>3</b> Additional excavation required to facilitate construction of basement retaining walls (e.g. where open excavation method is employed), including excavating, backfilling (e.g. with selected excavated material or granular material) and disposal of surplus excavated material.	<b>1</b> Excavation and earthworks for forming new site contours and adjusting existing site levels (included in sub-element 8.1.2).  <b>2</b> Excavation and disposal in connection with trench and pit excavations associated with pile caps, ground beams, retaining walls, ground slabs/beds, raft foundations and drainage below the level from which the basement base slab is to be constructed (included in sub-elements 1.1.1, 1.1.2 or 1.1.3, as appropriate).  <b>3</b> Construction of basement retaining walls (included in sub-element 1.1.5).
	<b>2</b> Disposal of excavated material: details to be stated.				
	<b>3</b> Extra for disposal of contaminated excavated material: details to be stated.				
	<b>4</b> Earthwork support: details to be stated.	m <sup>2</sup>	<b>C3</b> The volume of contaminated material measured for disposal is the surface area of the contaminated material multiplied by the average depth of the contaminated material.	<b>4</b> Excavating below groundwater level.  <b>5</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).	<b>4</b> Excavation and disposal in connection with the construction of diaphragm walling (included in sub-element 1.1.5).  <b>5</b> Construction of base slab/bed (included in sub-element 1.1.3).
	<b>5</b> Additional excavation: details to be stated.	m <sup>3</sup>	<b>C4</b> Quantity given for disposal is the bulk before excavating, and no allowance is made for subsequent variations to bulk or for extra space to accommodate earthwork support.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> The area of earthwork support and working space measured is the full depth to all faces of excavation.</p> <p><b>C6</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p> <p><b>C7</b> Work within existing buildings is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>Note:</b> where no information relating to the ground conditions is available, an allowance is to be made within the construction risk allowance for the extra cost of removing unforeseen obstructions and dealing with unknown ground conditions.</p> <p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p> <p><b>6</b> Disposal of surface water and groundwater, where dewatering techniques not employed.</p> <p><b>7</b> Consolidating and compacting formation level to receive base slab/bed construction.</p> <p><b>8</b> Sundry items.</p> <p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>6</b> Excavation and disposal in connection with formation of swimming pools, etc. below lowest floor level (included in sub-element 1.3.2).</p> <p><b>7</b> Consolidating and compacting formation level to receive floor construction (included in sub-element 1.1.3).</p> <p><b>8</b> Dewatering (included in sub-element 0.4.1).</p> <p><b>9</b> Soil stabilisation (included in sub-element 0.4.2).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>1.1.5</b> Basement retaining walls.</p> <p><b>Definition:</b></p> <ul style="list-style-type: none"> <li>external basement retaining walls in contact with earthwork, up to and including the damp-proof course</li> <li>external basement retaining walls consisting of shoulder-to-shoulder piles or other vertical construction, which are subsequently partially excavated on one side to form retaining walls that obtain their stability from the embedded lower portion.</li> </ul>	<p><b>1</b> Basement retaining wall: details to be stated.</p> <p><b>Note:</b> reinforcement rate (kg/m<sup>3</sup>) and formwork finish for in situ concrete walls to be stated.</p>	m/m <sup>2</sup>	<p><b>C1</b> Where the area of the basement retaining wall is to be measured, the area measured is the surface area of the exposed face of the retaining wall.</p> <p><b>C2</b> The height of the basement retaining wall should be measured from the top of the base slab/bed or the top of the basement retaining wall base/toe to the level at which the basement retaining wall connects with the external wall above ground (i.e. the level at which the external wall changes from being a retaining wall to a non-retaining wall).</p> <p><b>C3</b> Where the length of the basement retaining wall is to be measured, the length of the basement wall should be measured on the centre line.</p> <p><b>C4</b> Where more than one type of retaining wall construction is employed, each type of retaining wall construction is to be stated separately.</p>	<p><b>1</b> Concrete retaining walls, including concrete, reinforcement, formwork and excavating and backfilling working space required to facilitate construction of retaining walls.</p> <p><b>2</b> Embedded retaining walls.</p> <p><b>3</b> Specialist concrete grades, such as waterproof concrete.</p> <p><b>4</b> Trench excavations for bases/toes to basement retaining walls that commence below the level from which the construction of the basement base slab is to commence.</p> <p><b>5</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).</p> <p><b>Note:</b> where no contamination/remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p>	<p><b>1</b> External basement walls not in contact with earthwork (i.e. non-retaining walls – included in sub-element 2.5.2).</p> <p><b>2</b> Bulk excavation to form basements (included in sub-element 1.1.4).</p> <p><b>3</b> Additional excavation required to facilitate construction of basement retaining walls (e.g. where open excavation method is employed – included in sub-element 1.1.4).</p> <p><b>4</b> Applied finishes to inner faces of external walls (included in element 3.1).</p> <p><b>5</b> Retaining walls not providing external walls to building (i.e. that form part of the external works – included in sub-element 8.4.3).</p> <p><b>6</b> Drainage beyond soil connection (included in sub-elements 1.1.3 or 8.6.1, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p> <p><b>C6</b> Curved work is to be described and identified separately.</p> <p><b>C7</b> Work within existing buildings is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>6</b> Fixings cast into/fixed to concrete retaining walls to retain masonry facing wall (e.g. brickwork, blockwork and stonework facing wall).</p> <p><b>7</b> Masonry walls (e.g. brickwork, blockwork and stonework) forming an integral part of the basement retaining wall construction, including where used for the purpose of concealment (external and internal skins) as well as reinforcement and design joints.</p> <p><b>8</b> Waterproof tanking to walls.</p> <p><b>9</b> Applied protection to external tanking (e.g. protection boards).</p> <p><b>10</b> Thermal insulation, damp-proof membranes, vapour barriers, etc.</p> <p><b>11</b> Groundwater pressure relief drains to basements and retaining walls connected to the drainage system (i.e. fin drains, filter drains and blanket drains) to soil connection.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>12</b> Sundry items associated with the construction of basement retaining walls.</p> <p><b>13</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
	<b>2</b> Piling mats/ platforms: details, including thickness of mat/platform (mm), to be stated.	m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The area measured for piling mats/platforms is the surface area of the piling mat/platform.</p> <p><b>C3</b> Secant piles, etc. are to be enumerated.</p> <p><b>C4</b> The linear length of guide walls and contiguous bored pile walls is measured on the centre line of the guide wall or contiguous bored pile wall, as applicable.</p>	<p><b>1</b> Pile walls (i.e. contiguous bored pile walls, hard/hard secant pile walls and hard/soft secant pile walls), including guide walls, trimming and cleaning faces, cutting out concrete to tops of piles, preparing pile heads and reinforcement for capping, and disposal of excavated material arising from piling.</p> <p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance should be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p>	<p><b>1</b> External basement walls not in contact with earthwork, i.e. non-retaining walls (included in sub-element 2.5.2).</p> <p><b>2</b> Bulk excavation to form basements (included in sub-element 1.1.4).</p> <p><b>3</b> Piled walls providing temporary support to excavation works (included in sub-element 1.1.4).</p> <p><b>4</b> Applied finishes to inner faces of external walls (included in element 3.1).</p>
	<b>3</b> Piling plant: details to be stated.	item			
	<b>4</b> Moving piling rig to pile position.	nr			
	<b>5</b> Guide walls: details to be stated.	m			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>6</b> Piles: details, including type, diameter (mm), depth (m), total length (m) and embedded length (m) of piles, to be stated.	nr	<b>C5</b> The area measured for steel sheet piling is the total surface area of specified sheet pile length. <b>C6</b> The area measured for diaphragm walls is the area of the diaphragm wall, measured on the centre line of the diaphragm wall.	<b>2</b> Steel sheet piling, including extensions and cutting off surplus lengths. <b>3</b> Diaphragm walls, including excavating and disposal of excavated material, support fluid to uphold faces of excavation, concrete, reinforcement, formwork, joints and waterproof joints, guide walls, and trimming and cleaning faces. (Refer to note above about disposal of contaminated material).	<b>5</b> Retaining walls not providing external walls to building, i.e. that form part of the external works (included in sub-element 8.4.3). <b>6</b> Drainage beyond soil connection (included in sub-elements 1.1.3 or 8.6.1, as appropriate).
	<b>7</b> Contiguous bored pile walls: details, including diameter (mm), depth (m), total length (m) and embedded length (m) of piles, to be stated.	m	<b>C7</b> The measured volume of excavated material for disposal arising from piling is the cross-sectional area of the pile multiplied by the depth of the pile. <b>C8</b> Quantity given for disposal is the bulk before excavating and no allowance is made for subsequent variations to bulk.	<b>4</b> Ground anchors. <b>5</b> Capping beams, including concrete, reinforcement and formwork.	
	<b>8</b> Disposal of excavated material arising from piling.	m <sup>3</sup>	<b>C9</b> The area measured for trimming and cleaning faces of walls is the surface area of the exposed piled or diaphragm wall.	<b>6</b> Piling mats and platforms (installing, moving and removing on completion).	
	<b>9</b> Cutting off tops of concrete piles.	nr/m	<b>C10</b> The linear length of capping beams is measured on the centre line of the capping beam.	<b>7</b> Pile rigs/other plant, including bringing to and removing from site, maintenance, erection, dismantling and moving piling rigs to each pile position.	
	<b>10</b> Steel sheet piling: details, including total area (m <sup>2</sup> ) and total driven area (m <sup>2</sup> ), to be stated.	m <sup>2</sup>			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>11</b> Cutting off surplus lengths of steel sheet piling.	nr	<p><b>C11</b> The area measured for each basement retaining wall component is the area of the component, measured on the centre line of the component.</p> <p><b>C12</b> The area measured for concrete applied by spray or gun is the surface area of the surface to which it is to be applied.</p> <p><b>C13</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p> <p><b>C14</b> Curved work is to be described and identified separately.</p> <p><b>C15</b> Work within existing buildings is to be described and identified separately.</p> <p><b>C16</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>8</b> Pile tests (e.g. load tests and integrity tests).</p> <p><b>9</b> Instrumentation and monitoring.</p> <p><b>10</b> Groundwater pressure relief drains for basements and retaining walls connected to the drainage system (i.e. fin drains, filter drains and blanket drains) to soil connection.</p> <p><b>11</b> Concrete walls forming an integral part of the embedded basement wall construction, including reinforcement and tying to piled wall formwork.</p> <p><b>12</b> Specialist concrete grades, such as waterproof concrete.</p> <p><b>13</b> Temporary works (e.g. props and wailings to support contiguous bored piled walls) and removal, including any necessary temporary anchors, foundations, etc.</p> <p><b>14</b> Fixings cast into/fixed to concrete retaining walls to retain masonry walls (e.g. brickwork, blockwork and stonework) facing wall.</p>	
	<b>12</b> Pile tests: details to be stated.	item			
	<b>13</b> Diaphragm walls: details, including depth of excavation (m), thickness of wall (mm) and reinforcement rate (kg/m <sup>3</sup> ), to be stated.	m <sup>2</sup>			
	<b>14</b> Ground anchors: details, including type, to be stated.	nr			
	<b>15</b> Trimming and cleaning faces of piled and diaphragm walls.	m <sup>2</sup>			
	<b>16</b> Temporary works: details to be stated.	item			
	<b>17</b> Removal of temporary works: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>18</b> Capping beams: details, including beam size (mm) and reinforcement rate (kg/m<sup>3</sup>), to be stated.</p>	m		<p><b>15</b> Masonry walls/facings (e.g. brickwork, blockwork and stonework) forming an integral part of the embedded basement retaining wall.</p>	
	<p><b>19</b> Basement retaining wall components: details to be stated.</p> <p><b>Note:</b> reinforcement rate (kg/m<sup>3</sup>) and formwork finish for in situ concrete walls to be stated.</p>	m <sup>2</sup>		<p><b>16</b> Waterproof tanking to walls.</p> <p><b>17</b> Applied protection to external tanking (e.g. protection boards).</p> <p><b>18</b> Thermal insulation, damp-proof membranes, vapour barriers, etc.</p>	
	<p><b>20</b> Concrete applied by spray or gun: details, including thickness (mm), to be stated.</p>			<p><b>19</b> Concrete applied by spray or gun, including reinforcement, formwork and design joints.</p> <p><b>20</b> Sundry items.</p> <p><b>21</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

# Group element 2: Superstructure

Group element 2 comprises the following elements:

- 2.1 Frame
- 2.2 Upper floors
- 2.3 Roof
- 2.4 Stairs and ramps
- 2.5 External walls
- 2.6 Windows and external doors
- 2.7 Internal walls and partitions
- 2.8 Internal doors

## Element 2.1: Frame

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.1.1</b> Steel frames.  <b>Definition:</b> structural steelwork in frames, including all fittings, fixings and components.	<b>1</b> Structural steel frame, including fittings and fixings: details, including size of column grid (m), to be stated.	t	<b>C1</b> The total mass of the steel frame is to be stated. The mass of framing includes all fittings and components.  <b>C2</b> The mass measured for fire protection and paint systems is the total mass of the structural steel frame.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Structural steel frame, including all components (e.g. columns, beams, composite columns and beams, lattice beams, braces, struts, etc.).  <b>2</b> Fittings and fixings.  <b>3</b> Roof trusses, where an integral part of the frame and cannot be separated from the frame.  <b>4</b> Floor and roof members or decks forming an integral part of the frame, which cannot be separated from the frame.  <b>5</b> Fabrication, trial erection and permanent erection on site (including holding down bolts, assemblies, grouting under base plates, etc.).  <b>6</b> Factory-applied coatings, including fire-protective coatings and paint systems.  <b>7</b> Sundry items.	<b>1</b> Space frames and decks, including structural support framework (included in sub-element 2.1.2).  <b>2</b> Specialist, proprietary and modular lightweight steel frame systems (included in sub-element 2.1.6).  <b>3</b> Roof trusses that can be separated from the frame (included in sub-element 2.3.1).  <b>4</b> Floor, roof and wall structures that can be separated from the frame (included in sub-element 2.3.1, or elements 2.5 or 2.7, as appropriate).  <b>5</b> Beams forming an integral part of a floor or roof, but which can be separated from the frame (included in element 2.2 or sub-element 2.3.1, as appropriate).  <b>6</b> Lintels (included in sub-elements 2.5.1 or 2.5.2, as appropriate).  <b>7</b> Casing steel members in concrete for protection (included in sub-element 2.1.3).
	<b>2</b> Fire protection for steel frame: details to be stated.				
	<b>3</b> Factory-applied paint systems: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>8</b> Site-applied decorative painting additional to factory-applied protection and paint systems (included in group element 3, as appropriate).</p>
<p><b>2.1.2</b> Space frames/decks.</p> <p><b>Definition:</b> space frames/decks, including structural support framework as well as all components.</p>	<p><b>1</b> Space frame/deck, including structural support framework, fittings and fixings: details to be stated.</p> <p><b>2</b> Fire protection for steel frame: details to be stated.</p> <p><b>3</b> Factory-applied paint systems: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area of the upper floors. The area is measured using GIFA.</p> <p><b>C2</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Space frames/decks, including fittings and fixings.</p> <p><b>2</b> Structural support framework.</p> <p><b>3</b> Fittings and fixings.</p> <p><b>4</b> Fabrication, trial erection and permanent erection on site (including holding down bolts, assemblies, grouting under base plates, etc.).</p> <p><b>5</b> Factory-applied coatings, including fire-protective coatings and paint systems.</p> <p><b>6</b> Sundry items.</p> <p><b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Casing steel members in concrete for protection (included in sub-element 2.1.3).</p> <p><b>2</b> Site-applied decorative painting additional to factory-applied protection and paint systems (included in group element 3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>2.1.3</b> Concrete casings for steel frames.</p> <p><b>Definition:</b> protective casings for columns and beams for structural or protective purposes, including fire protection.</p>	<p><b>1</b> Column casings: details, including number of columns (nr), column size and type of formwork finish, to be stated.</p> <p><b>2</b> Beam casings: details, including number of beams (nr), beam size and type of formwork finish, to be stated.</p>	m	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Column casings: the linear length measured is the distance between the top of the slab/bed, pile cap or ground beam (as appropriate) and the soffit of the beam attached to the next floor level (or to soffit of suspended slab if no beams).</p> <p><b>C3</b> Beam casings: the linear length is measured on the centre line of the beam.</p> <p><b>C4</b> No deduction is made for volume of steel.</p> <p><b>C5</b> Concrete additives: details to be stated.</p> <p><b>C6</b> Complex shapes: details to be stated.</p> <p><b>C7</b> Special formed finishes: details to be stated.</p> <p><b>C8</b> Work to existing buildings is to be described and identified separately.</p>	<p><b>1</b> Concrete.</p> <p><b>2</b> Specialist concrete grades and additives.</p> <p><b>3</b> Formwork.</p> <p><b>4</b> Special formed finishes to in situ concrete.</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C9</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		
<b>2.1.4</b> Concrete frames. <b>Definition:</b> concrete columns and beams.	<p><b>1</b> Columns: details, including number (nr) of columns, column size (mm), concrete grade, reinforcement rate (kg/m<sup>3</sup>) and type of formwork finish, to be stated.</p> <p><b>2</b> Beams: details, including number (nr) of beams, beam size (mm), reinforcement rate (kg/m<sup>3</sup>) and type of formwork finish, to be stated.</p>	m	<p><b>C1</b> Columns: the linear length measured is the distance between the top of the slab/bed, pile cap or ground beam (as appropriate) and the soffit of the beam attached to the next floor level (or to soffit of suspended slab if no beams).</p> <p><b>C2</b> Size of column grid to be stated.</p> <p><b>C3</b> Beams: the linear length is measured on the centre line of the beam.</p>	<p><b>1</b> Beams.</p> <p><b>2</b> Columns, blade columns, etc.</p> <p><b>3</b> Walls and core walls forming an integral part of the structural assembly.</p> <p><b>4</b> Concrete.</p> <p><b>5</b> Specialist concrete grades and additives.</p> <p><b>6</b> Reinforcement, including starter bars, punching shear reinforcement, etc.</p> <p><b>7</b> Reinforcement for precast, prestressed and post-tensioned concrete, including stressing cables, applying stressing, etc.</p>	<p><b>1</b> Upper floors (included in element 2.2).</p> <p><b>2</b> Roof slabs (included in sub-element 2.3.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>3</b> Walls: details, including thickness of wall (mm), concrete grade, reinforcement rate (kg/m <sup>3</sup> ) and type of formwork finish, to be stated.	m <sup>2</sup>	<p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>Where upper floors do not form an integral part of the structural frame, the beam size stated is the total width by the total depth.</li> <li>Where upper floors form an integral part of the structural frame, the beam size stated is the total width by the depth below the concrete floor (measured from the underside of the concrete floor to the bottom/underside of the beam). An appropriate allowance should also be made in the unit rate for beam reinforcement that is integrated within the concrete floor.</li> </ul> <p><b>C4</b> Walls: the area measured is the area of the wall, measured on the centre line of the wall. No deduction is made for door openings, windows, screens, etc.</p> <p><b>C5</b> No deduction is made for volume of steel.</p> <p><b>C6</b> Concrete grade/mix to be stated.</p>	<p><b>8</b> Formwork.</p> <p><b>9</b> Designed joints (e.g. to walls).</p> <p><b>10</b> Worked finishes (i.e. in situ surface treatments), including the application of surface hardeners.</p> <p><b>11</b> Special formed finishes to in situ concrete.</p> <p><b>12</b> Grouting up of frame components.</p> <p><b>13</b> Forming openings for doors, windows, screens, etc.</p> <p><b>14</b> Sundry items.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
	<b>4</b> Extra over walls for forming openings in walls for doors, windows, screens, etc.: details, including thickness of wall (mm), overall size of opening (m) and type of formwork finish, to be stated.	nr			
	<b>5</b> Designed joints: details to be stated.	m			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C7</b> Concrete additives: details to be stated.</p> <p><b>C8</b> Complex shapes: details to be stated.</p> <p><b>C9</b> Special formed finishes: details to be stated.</p> <p><b>C10</b> Curved work is to be described and identified separately.</p> <p><b>C11</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C12</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>		
<p><b>2.1.5</b> Timber frames.</p> <p><b>Definition:</b> timber frame systems, including all components.</p>	<p><b>1</b> Timber frames: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area of the upper floors. The area is measured using the GIFA.</p> <p><b>C2</b> Area measured to include area of roof, where roof structure (including roof trusses) is an integral part of the frame.</p>	<p><b>1</b> Complete timber frame systems, including all components and fixings.</p> <p><b>2</b> Panel systems, such as off-site - manufactured timber frames.</p> <p><b>3</b> Laminated timber structures, etc.</p>	<p><b>1</b> Prefabricated complete and semi-complete buildings and modular room units (included in element 6.1).</p> <p><b>2</b> Roof trusses that can be separated from the frame (included in sub-element 2.3.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Details of floor, roof (including trussed roofs) and wall members or decks that cannot be separated from the frame are to be stated.</p> <p><b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>4</b> Roof trusses, where an integral part of the frame and cannot be separated from the frame.</p> <p><b>5</b> Floor, roof and structural wall members, including wall linings and floor boarding, forming an integral part of the frame, which cannot be separated from the frame system.</p> <p><b>6</b> Specialist subcontractor/supplier design of timber frame.</p> <p><b>7</b> Trial erection and permanent erection on site of timber frame (when required).</p> <p><b>8</b> Treatments to timber.</p> <p><b>9</b> Site-applied fire-retardant paint.</p> <p><b>10</b> Sundry items.</p> <p><b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>3</b> Floor, roof and structural wall members, including wall linings and floor boarding, which can be separated from the frame (included in sub-elements 2.2.3 or 2.3.1, or elements 2.5 or 2.7, as appropriate).</p> <p><b>4</b> Finishes applied to external walls and internal walls, floors and ceilings (included in sub-elements 2.5.1 or 2.5.2, or group element 3, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>2.1.6</b> Specialist frames.</p> <p><b>Definition:</b> specialist structural frame systems, including all components.</p>	<p><b>1</b> Specialist frame: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area of the upper floors. The area is measured using the GIFA.</p> <p><b>C2</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Portal frames and similar individual structural units (steel, concrete, timber or other material).</p> <p><b>2</b> Specialist, proprietary and modular lightweight steel frame systems.</p> <p><b>3</b> Cellular construction such as tunnel (slip) form.</p> <p><b>4</b> Components, fittings and fixings.</p> <p><b>5</b> Roof trusses, where an integral part of the frame and cannot be separated from the frame.</p> <p><b>6</b> Floor and roof members or decks forming an integral part of the frame, which cannot be separated from the frame.</p> <p><b>7</b> Fabrication, trial erection and permanent erection on site (including holding down bolts, assemblies, grouting under base plates, etc.).</p>	<p><b>1</b> Structural steel frames (included in sub-element 2.1.1).</p> <p><b>2</b> Space frames and decks (included in sub-element 2.1.2).</p> <p><b>3</b> Concrete frames (included in sub-element 2.1.4).</p> <p><b>4</b> Timber frames (included in sub-element 2.1.5).</p> <p><b>5</b> Prefabricated buildings and structures (included in group element 6).</p> <p><b>6</b> Floor, roof and structural wall members, including wall linings and floor boarding that can be separated from the frame (included in sub-elements 2.2.3 or 2.3.1, or elements 2.5 or 2.7, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>8</b> Factory-applied coatings, including fire-protective coatings and paint systems.</p> <p><b>9</b> Sundry items.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 2.2: Upper floors

**Note:** where testing and commissioning of drainage installations is required to be measured under sub-element 2.2.3, the terms should include the following works:

- 1 Testing includes:
  - (1) plugging outlets and carrying out water tests
  - (2) water required for testing.
- 2 Commissioning includes:
  - (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
  - (2) temporary operation of drainage to employer's requirements
  - (3) setting all drainage installations to work after completion of commissioning.

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.2.1 Floors.</b>  <b>Definition:</b> <ul style="list-style-type: none"> <li>reinforced and post-tensioned concrete</li> <li>floor decks consisting of proprietary precast units, a combination of in situ concrete with filler units of other material</li> <li>structural timber floor construction, including floorboards</li> <li>structural screeds.</li> </ul>	<b>1</b> Suspended floor slabs for concrete floors: details, including thickness (mm), concrete strength (N/mm <sup>2</sup> ), reinforcement rate (kg/m <sup>3</sup> ) and type of formwork finish, to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the surface area of the floor slab. No deduction is to be made for beams that form an integral part of the floor slab. No deduction is to be made for voids within the floor slab that are less than 1.00m <sup>2</sup> in surface area.  <b>C2</b> Where more than one floor construction type is employed, the area measured for each floor construction type is measured.	<b>1</b> Concrete suspended floors, including: <ul style="list-style-type: none"> <li>upper floors</li> <li>podium slabs forming roofs to basements</li> <li>transfer structures</li> <li>balconies (internal and external) that are an integral part of the suspended floor construction</li> <li>mezzanine floors</li> <li>service floors, etc.</li> <li>galleries, tiered terraces, etc.</li> <li>walkways, internal bridges, etc.</li> <li>external corridors/bridges forming links between buildings, including supporting frames</li> <li>beams that form an integral part of the floor in framed buildings</li> <li>floor beams in unframed buildings</li> <li>roofs to internal buildings, where an integral part of the upper floor construction.</li> </ul>	<b>1</b> Basement roofs, i.e. where not acting as a podium slab or transfer slab (included in element 2.3).  <b>2</b> Non-structural screeds (included in sub-element 3.2.1).  <b>3</b> Structural screeds (included in component 2.2.1.7).  <b>4</b> Floating floors (included in sub-element 3.2.1).  <b>5</b> Applied floor finishes (included in sub-element 3.2.1).  <b>6</b> Hardeners and sealers applied to suspended floor slabs after construction (included in sub-element 3.2.1).  <b>7</b> Raised access floors (included in sub-element 3.2.2).  <b>8</b> Applied ceiling finishes (included in sub-element 3.3.1).  <b>9</b> False ceilings (included in sub-element 3.3.2).  <b>10</b> Suspended ceilings (included in sub-element 3.3.3).
	<b>2</b> Edge formwork: details of formwork finish to be stated.	m	<b>C3</b> Where more than one floor construction type is employed, the combined area of each floor construction type should equal the total area of the upper floors.		
	<b>3</b> Designed joints: details to be stated.		<b>C4</b> Areas for balconies, galleries, tiered terraces, service floors, walkways, internal bridges, external links and roofs to internal buildings should be shown separately.		
	<b>4</b> Surface treatments: details to be stated.	m <sup>2</sup>	<b>C5</b> Sloping surfaces to be measured flat on plan.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> The length of linear components measured is their extreme length. Curved work is to be described and identified separately.</p> <p><b>C7</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>2</b> Reinforced concrete floors, including solid, waffle and trough slabs. Including all concrete, reinforcement (including punching shear reinforcement) and formwork (to soffits, edges and openings).</p> <p><b>3</b> Post-tensioned concrete floors, including concrete, reinforcement (i.e. stressing cables, formwork, applying stressing and grouting up).</p> <p><b>4</b> Worked finishes (i.e. in situ surface treatments), including tamped finish, power float finish and the application of surface hardeners.</p> <p><b>5</b> Permanent formwork, including profiled sheet metal decking.</p> <p><b>6</b> Designed joints.</p> <p><b>7</b> Sundry items.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>11</b> Floor area of roofs to internal buildings that are not an integral part of the upper floor construction (included in element 2.3).</p> <p><b>12</b> Structural screeds applied to roof decking (included in sub-element 2.3.1).</p> <p><b>13</b> Balconies that are not an integral part of the upper floor construction (included in sub-element 2.2.2).</p> <p><b>14</b> Drainage to balconies that are an integral part of the upper floor construction (included in sub-element 2.2.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>5</b> Suspended floor slab for precast/composite decking systems: details, including type, thickness (mm), span (m) and loading (kN/m <sup>2</sup> ), to be stated.	m <sup>2</sup>	<p><b>C1</b> The area measured is the surface area of the floor slab. No deduction is to be made for voids within the floor slab that are less than 1.00m<sup>2</sup> in surface area.</p> <p><b>C2</b> Where more than one floor construction type is employed, the area measured for each floor construction type is measured separately.</p> <p><b>C3</b> Where more than one floor construction type is employed, the combined area of each floor construction type should equal the total area of the upper floors.</p> <p><b>C4</b> Areas for balconies, galleries, tiered terraces, walkways, internal bridges, external links and roofs to internal buildings should be shown separately.</p> <p><b>C5</b> Sloping surfaces to be measured flat on plan.</p> <p><b>C6</b> Work to existing buildings is to be described and identified separately.</p>	<p><b>1</b> Suspended floors, including:</p> <ul style="list-style-type: none"> <li>• upper floors</li> <li>• podium slabs forming roofs to basements</li> <li>• balconies (internal and external) that are an integral part of the suspended floor construction</li> <li>• mezzanine floors</li> <li>• service floors, etc.</li> <li>• galleries, tiered terraces, etc.</li> <li>• walkways, internal bridges, etc.</li> <li>• external corridors/bridges forming links between buildings, including supporting frames</li> <li>• roofs to internal buildings, where an integral part of the upper floor construction.</li> </ul> <p><b>2</b> Solid, hollow, tee or other section of precast and prestressed concrete plank and slab decks.</p>	<p><b>1</b> Precast/composite decking systems used in ground floor construction (included in sub-element 1.1.3).</p> <p><b>2</b> Precast decking forming an integral part of precast concrete frame assemblies (included in sub-element 2.1.6).</p> <p><b>3</b> Basement roofs, i.e. where not acting as a podium slab or transfer slab (included in element 2.3).</p> <p><b>4</b> Non-structural screeds (included in component 2.2.1.7).</p> <p><b>5</b> Structural screeds (included in component 2.2.1.7 or sub-element 2.3.1, as appropriate).</p> <p><b>6</b> Hardeners and sealers applied to suspended floor slabs after construction (included in sub-element 3.2.1).</p> <p><b>7</b> Floating floors (included in sub-element 3.2.1).</p> <p><b>8</b> Applied floor finishes (included in sub-element 3.2.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>3</b> Composite decks of precast and prestressed concrete beams with filler blocks of precast concrete, in situ concrete and other materials.</p> <p><b>4</b> Composite decks of in situ concrete on precast or prestressed concrete planks.</p> <p><b>5</b> Hollow tile decks of in situ concrete with filler blocks of clay, precast concrete or other material.</p> <p><b>6</b> Precast and prestressed concrete components.</p> <p><b>7</b> In situ concrete.</p> <p><b>8</b> Site-fixed formwork and reinforcement.</p> <p><b>9</b> Filler units.</p> <p><b>10</b> Fixing slips, metal clips and other fixings.</p> <p><b>11</b> Joints, including grouting joints.</p> <p><b>12</b> Worked finishes (i.e. in situ surface treatments), including the application of surface hardeners.</p>	<p><b>9</b> Raised access floors (included in sub-element 3.2.2).</p> <p><b>10</b> Applied ceiling finishes (included in sub-element 3.3.1).</p> <p><b>11</b> False ceilings (included in sub-element 3.3.2).</p> <p><b>12</b> Suspended ceilings (included in sub-element 3.3.3).</p> <p><b>13</b> Roofs to internal buildings that are not an integral part of the upper floor construction (included in sub-element 3.3.3).</p> <p><b>14</b> Balconies that are not an integral part of the upper floor construction (included in sub-element 2.2.2).</p> <p><b>15</b> Drainage to balconies that are an integral part of the upper floor construction (included in sub-element 2.2.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>13</b> Performance tests.</p> <p><b>14</b> Sundry items.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
	<b>6</b> Timber floors: details to be stated.	m <sup>2</sup>	<p><b>C1</b> The area measured is the surface area of the floor slab. No deduction is to be made for voids within the floor slab that are less than 1.00m<sup>2</sup> in surface area.</p> <p><b>C2</b> Where more than one floor construction type is employed, the area measured for each floor construction type is measured.</p> <p><b>C3</b> Where more than one floor construction type is employed, the combined area of each floor construction type should equal the total area of the upper floors.</p>	<p><b>1</b> Timber suspended floors, including:</p> <ul style="list-style-type: none"> <li>• upper floors</li> <li>• balconies (internal and external) that are an integral part of the suspended floor construction</li> <li>• mezzanine floors</li> <li>• service floors, etc.</li> <li>• galleries, tiered terraces, etc.</li> <li>• walkways, internal bridges, etc.</li> <li>• external corridors/bridges forming links between buildings, including supporting frames</li> <li>• roofs to internal buildings, where an integral part of the upper floor construction.</li> </ul>	<p><b>1</b> Suspended timber floors used in lowest floor construction (included in sub-element 1.1.3).</p> <p><b>2</b> Joists and other structural members forming an integral part of a timber frame structure (included in sub-element 2.1.5).</p> <p><b>3</b> Surface treatments to floor boarding (included in sub-element 3.2.1).</p> <p><b>4</b> Applied floor finishes (included in sub-element 3.2.1).</p> <p><b>5</b> Balustrades and handrails for internal balconies, walkways, atriums, etc. (included in sub-element 2.7.2).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Areas for balconies, galleries, tiered terraces, walkways, internal bridges, external links and roofs to internal buildings should be shown separately.</p> <p><b>C5</b> Sloping surfaces to be measured flat on plan.</p> <p><b>C6</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>2</b> Structural floor members, including joists, struts, trimmers, plates, etc.</p> <p><b>3</b> Carpenter's metalwork, including strutting, joist hangers, straps, bolts, etc.</p> <p><b>4</b> Floor surface where construction does not provide a platform (e.g. floor boarding for joisted floors).</p> <p><b>5</b> Thermal insulation.</p> <p><b>6</b> Sundry items.</p> <p><b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>6</b> Applied ceiling finishes and linings (included in sub-element 3.3.1).</p> <p><b>7</b> False ceilings and demountable suspended ceilings (included in sub-elements 3.3.2 or 3.3.3, as appropriate).</p> <p><b>8</b> Roofs to internal buildings that are not an integral part of the upper floor construction, (included in sub-element 3.3.2).</p> <p><b>9</b> Balconies that are not an integral part of the upper floor construction (included in sub-element 2.2.2).</p> <p><b>10</b> Drainage for balconies that are an integral part of the upper floor construction (included in sub-element 2.2.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>7</b> Structural screeds: details, including thickness (mm), reinforcement rate (kg/m<sup>3</sup>) and surface treatments, to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the surface area of the floor slab. No deduction is to be made for voids within the floor slab that are less than 1.00m<sup>2</sup> in surface area.</p> <p><b>C2</b> Where more than one thickness of screed is employed, the area for each screed is measured.</p> <p><b>C3</b> Where more than one screed is employed, the combined area of each screed type should equal the total area of the upper floors.</p> <p><b>C4</b> Areas of balconies, galleries, tiered terraces, walkways, internal bridges, external links and roofs to internal buildings should be shown separately.</p> <p><b>C5</b> Sloping surfaces to be measured flat on plan.</p> <p><b>C6</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Screed.</p> <p><b>2</b> Reinforcement.</p> <p><b>3</b> Worked finishes.</p> <p><b>4</b> Surface treatments (e.g. surface hardeners and non-slip inserts).</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Non-structural screeds (included in sub-element 3.2.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>2.2.2</b> Balconies.</p> <p><b>Definition:</b> internal and external balconies that are not an integral part of the upper floor construction.</p>	<p><b>1</b> Balconies: details, including floor area of balcony (m<sup>2</sup>), to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Purpose-made balconies that are not an integral part of the upper floor construction, comprising bolt-on frame, decking, soffit panels, integral drainage/drainage trays and balustrades/handrails.</p> <p><b>2</b> Protective coatings and paint systems.</p> <p><b>3</b> Surface treatments (e.g. surface hardeners and non-slip inserts).</p> <p><b>4</b> Fittings and fixings.</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Proprietary bolt-on balconies (e.g. 'Juliet' balconies; included in sub-element 2.5.5).</p> <p><b>2</b> Low-level and dwarf walls, balustrades, handrails and railings to external walkways that form an integral part of the building envelope, etc. (included in sub-element 2.5.5).</p> <p><b>3</b> Drainage for balconies that is not an integral part of the balcony unit (included in sub-element 2.2.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.2.3</b> Drainage for balconies.  <b>Definition:</b> piped internal or external disposal systems for taking rainwater from balconies to the first underground drain connection or gully.	1 Rainwater pipes: details to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	1 Rainwater downpipes, including bends, swan necks and rainwater shoes, etc.	1 Drainage for external walkways, etc. (included in sub-element 2.5.5).
	2 Floor outlets: details to be stated.	nr	<b>C2</b> The length of linear components measured is their extreme length, over all fittings, branches, etc.	2 Floor outlets.	2 Surface water drainage beyond the first underground drain connection or gully (included in element 8.6).
	3 Testing of installations.	%	<b>C3</b> Work to existing buildings is to be described and identified separately.	3 Testing and commissioning of aboveground surface water drainage systems.	
	4 Commissioning of installations.		<b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	4 Sundry items.  5 Testing and commissioning.  6 Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	

## Element 2.3: Roof

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.3.1</b> Roof structure.  <b>Definition:</b> all components of the roof structure.	<b>1</b> Roof structure – pitched roofs: details, including design loads (kN/m <sup>2</sup> ), spans (m) and angle of pitch (°), to be stated.	m <sup>2</sup>	<b>C1</b> The area measured for pitched roofs is the area of the roof on plan, to the extremities of the eaves.  <b>C2</b> The area measured for dormers is the area of the dormer on plan, to the extremities of the eaves and valleys.	<b>1</b> Roof decks and slabs.  <b>2</b> Trusses, purlins, rafters, binders, hangers, hip and valley rafters, ridge boards, wall plates, firrings, ceiling joists, etc.  <b>3</b> Dormer trusses.  <b>4</b> Prefabricated dormers.  <b>5</b> Specialist subcontractor/supplier design of roof trusses.  <b>6</b> Roof boarding.  <b>7</b> Beams that form an integral part of the roof in a framed building.  <b>8</b> Carpenter's metalwork, including connectors, bracings, straps, hangers, strutting, joist hangers, bolts, etc.  <b>9</b> Eaves and verge structure.  <b>10</b> Gable ends and internal walls above wall plate level forming part of the roof construction.	<b>1</b> External and internal roofs.  <b>2</b> Dormer coverings and windows to dormers (included in sub-elements 2.3.2 and 2.6.1, as appropriate).  <b>3</b> Basement roofs acting as a podium slab or transfer slab (included in element 2.2, as appropriate).  <b>4</b> Parapet wall, including copings and cappings (included in element 2.5).  <b>5</b> Roof platforms integral to framing system, such as off-site manufactured timber frames or panel systems (included in sub-element 2.1.5).  <b>6</b> Gable ends formed as part of the external wall construction (included in element 2.5).  <b>7</b> Internal walls in roof formed as part of the internal wall construction (included in element 2.7).
	<b>2</b> Extra over roof structure – pitched roofs for forming dormer.				
	<b>3</b> Prefabricated dormer: details to be stated.	nr	<b>C3</b> Flat roofs (without parapet walls): the area measured is the area of the roof on plan, to the extremities of the eaves.		
	<b>4</b> Roof structure – flat roofs: details, including design loads (kN/m <sup>2</sup> ) and spans (m), to be stated.	m <sup>2</sup>	<b>C4</b> Flat roofs (with parapet walls): the area measured is the area within the parapet walls measured to the internal face of the parapet walls to the roof.  <b>Note:</b> roof housings (e.g. lift motor and plant rooms). These should be broken down into the appropriate constituent components and measured in accordance with the measurement rules for the applicable components.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>11</b> Concrete, reinforcement, formwork (temporary and permanent) and worked finishes.</p> <p><b>12</b> Precast/composite decking systems, including concrete components, in situ concrete, site-fixed formwork and reinforcement, filler units, fixing slips, metal clips and other fixings, joints (including grouting joints), worked finishes and performance tests.</p> <p><b>13</b> Basement roofs (i.e. where not acting as a podium slab or transfer slab).</p> <p><b>14</b> Roofs to internal buildings.</p> <p><b>15</b> Beams in unframed buildings.</p> <p><b>16</b> Structural screeds to roofs, including reinforcement and worked finishes.</p> <p><b>17</b> Permanent formwork.</p> <p><b>18</b> Thermal insulation laid in roof space (e.g. laid between or over ceiling joists).</p>	<p><b>8</b> Chimneys (included in elements 2.5 or 2.7, as appropriate).</p> <p><b>9</b> Canopies to external areas (included in sub-element 8.8.2).</p> <p><b>10</b> Canopies to external doors (included in sub-element 2.6.2).</p> <p><b>11</b> Horizontal solar/rainscreen systems providing protection to external walls (included in sub-element 2.5.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>19</b> Sundry items.</p> <p><b>20</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<b>2.3.2</b> Roof coverings. Definition: protective cladding, coverings and coatings for roofs.	<b>1</b> Roof coverings, non-structural screeds, thermal insulation and surface treatments: details to be stated.	m <sup>2</sup>	<p><b>C1</b> The area to be measured for roof coverings, etc. is the surface area of the roof covering to the extremities of the eaves or to the internal face of the parapet wall, whichever is applicable, excluding the area of rooflights, skylights and openings. No deduction is made for voids less than 1.00m<sup>2</sup> in surface area.</p> <p><b>C2</b> The area to be measured for dormer coverings is the surface area of the dormer roof coverings to the extremities of the eaves. No deduction is made for voids less than 1.00m<sup>2</sup> in surface area.</p>	<p><b>1</b> External and internal roofs.</p> <p><b>2</b> Roof cladding/coverings (e.g. tiling, slating, sheet coverings and thatching), including battening, underlay, vapour-control layers, hip, valley, eaves and verge treatment, flashings, edge trims and other components required for the applicable cladding/covering system.</p> <p><b>3</b> Mastic asphalt roofing, liquid applied roof coatings and built-up felt roof coverings, including underlay, vapour-control layers, flashings, edge trims, skirtings, upstands and other boundary work, and other components required for the applicable roof covering system.</p>	<p><b>1</b> Dormer construction and windows to dormers (included in sub-elements 2.3.1 and 2.6.1, as appropriate).</p> <p><b>2</b> Vertical cladding for walls where of the same construction as the roof (included in element 2.5).</p> <p><b>3</b> Structural screeds to roofs (included in sub-element 2.3.1).</p> <p><b>4</b> Finishes to ceilings under roof structure (included in sub-element 3.3.1).</p> <p><b>5</b> False ceilings and suspended ceilings under roof structure (included in sub-elements 3.3.2 or 3.3.3, as appropriate).</p>
	<b>2</b> Extra over roof coverings for coverings to dormer, including cladding to dormer cheeks.				
	<b>3</b> Eaves, verge treatment for pitched roofs: details to be stated.	m			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>4</b> Edge treatment for flat roofs: details to be stated.</p> <p><b>5</b> Flashings: details to be stated.</p>	m	<p><b>C3</b> Where more than one type of roof covering system is employed, the area measured for each system is the area covered by the system.</p> <p><b>C4</b> The length of linear components measured is their extreme length.</p> <p><b>C5</b> Curved work is to be described and identified separately.</p> <p><b>C6</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>4</b> Photovoltaic devices (e.g. tiles, slates and profiled sheets) where an integral part of a roof covering system.</p> <p><b>5</b> Roof ventilation tiles.</p> <p><b>6</b> Non-structural screeds to roofs, including reinforcement and worked finishes.</p> <p><b>7</b> Thermal insulation to roofs, including insulation overlays for inverted roofs.</p> <p><b>8</b> Surface treatments for roof coverings (e.g. solar reflective painting, chippings, etc.).</p> <p><b>9</b> Paving tiles, paving slabs, etc. to form service walkways, roof terraces, etc. on roof surfaces.</p> <p><b>10</b> Green roofs and roof gardens, including protection layer, drainage layer, filter membranes and growing medium.</p> <p><b>11</b> Planting for green roofs/ roof gardens.</p> <p><b>12</b> Sundry items.</p> <p><b>13</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>6</b> Solar water collectors, heating panels, etc. (included in sub-element 5.8.5).</p> <p><b>7</b> Photovoltaic tiles, panels, etc. where not an integral part of the roof covering system (included in sub-element 5.8.5).</p> <p><b>8</b> Roof and smoke vents (included in sub-element 2.3.5).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>2.3.3</b> Specialist roof systems.</p> <p><b>Definition:</b> glazed and other specialist roofing systems.</p>	<p><b>1</b> Specialist roof systems: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area of the glazed roof on plan.</p> <p><b>C2</b> Curved work is to be described and identified separately.</p> <p><b>C3</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Patent glazing.</p> <p><b>2</b> Glazed roofing systems.</p> <p><b>3</b> Perspex roofing systems.</p> <p><b>4</b> Roof components, including flashings, cover strips, integral drainage channels, perimeter treatments, etc.</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Rooflights and other glazed openings (included in sub-element 2.3.5).</p>
<p><b>2.3.4</b> Roof drainage.</p> <p><b>Definition:</b> piped internal or external disposal systems for taking rainwater from roofs, etc. to the first underground drain connection or gully.</p>	<p><b>1</b> Gutters: details to be stated.</p> <p><b>2</b> Rainwater pipes: details to be stated.</p> <p><b>3</b> Testing of installations.</p> <p><b>4</b> Commissioning of installations.</p>	<p>m</p> <p>%</p>	<p><b>C1</b> The length of linear components measured is their extreme length, over all fittings, branches, etc.</p> <p><b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Gutters (other than those forming an integral part of a cladding or curtain walling system), including fittings, gutter outlets, balloons and gratings to outlets, etc.</p> <p><b>2</b> Rainwater downpipes, including bends, swan necks and rainwater shoes.</p>	<p><b>1</b> Gutters forming an integral part of a roof structure (included in sub-element 2.3.1).</p> <p><b>2</b> Gutters forming an integral part of a cladding or curtain walling system (included in element 2.5, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Curved work is to be described and identified separately.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>3</b> Syphonic roof drainage pipework systems.</p> <p><b>4</b> Rainwater heads, including gratings.</p> <p><b>5</b> Painting and anti-corrosion treatments to gutters and rainwater downpipes.</p> <p><b>6</b> Testing and commissioning of aboveground surface water drainage systems.</p> <p><b>7</b> Sundry items.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>3</b> Gutters and rainwater pipes to balconies and canopies (included in sub-elements 2.2.3, 2.6.1 or 2.6.2, as appropriate).</p> <p><b>4</b> Rainwater harvesting systems (included in sub-element 5.4.2).</p> <p><b>5</b> Surface water drainage beyond the first underground drainage connection or gully (included in sub-element 8.6.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>2.3.5</b> Rooflights, skylights and openings.</p> <p><b>Definition:</b> rooflights, skylights and openings to roof, including access hatches.</p>	<p><b>1</b> Rooflights, skylights and openings: type and size to be stated.</p>	nr/m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The area measured is the area of rooflights, skylights and openings.</p> <p><b>C3</b> Curved work is to be described and identified separately.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Rooflights, skylights, etc.</p> <p><b>2</b> Opening gear, frames, kerbs and glazing.</p> <p><b>3</b> Sun pipes/tubes.</p> <p><b>4</b> Pavement lights.</p> <p><b>5</b> Roof hatches.</p> <p><b>6</b> Access hatches to roof spaces.</p> <p><b>7</b> Smoke vents.</p> <p><b>8</b> Roof vents and roof cowls.</p> <p><b>9</b> Sundry items.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Dormer roofs and windows (included in sub-elements 2.3.1, 2.3.2 and 2.6.1, as appropriate).</p> <p><b>2</b> Access hatches to false ceilings or demountable suspended ceilings (included in sub-elements 3.3.2 or 3.3.3, as appropriate).</p> <p><b>3</b> Flashings to rooflights, skylights and openings (included in sub-element 2.3.2).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>2.3.6</b> Roof features.</p> <p><b>Definition:</b> roof features not forming part of the main roof structure.</p>	<p><b>1</b> Roof features: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Turrets.</p> <p><b>2</b> Wind vanes.</p> <p><b>3</b> Spires.</p> <p><b>4</b> False chimneys.</p> <p><b>5</b> Enclosures designed solely to conceal plant, rooflines, etc. (complete structure, including wall louvers).</p> <p><b>6</b> Fall arrest systems.</p> <p><b>7</b> Access systems for cleaning roof.</p> <p><b>8</b> Roof edge protection (permanent).</p> <p><b>9</b> Balustrades, handrails, etc. for roof edges and walkways.</p> <p><b>10</b> Service walkways within roof voids.</p> <p><b>11</b> Sundry items.</p> <p><b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Finials (included in sub-element 5.11.3).</p> <p><b>2</b> Building Maintenance Units (BMUs) (included in sub-element 2.5.6).</p> <p><b>3</b> Facade access systems (included in sub-element 2.5.6).</p> <p><b>4</b> Rooftop wind turbines and wind energy systems (included in sub-element 5.8.5).</p> <p><b>5</b> Photovoltaic tiles, panels, etc. (included in sub-element 5.8.5).</p> <p><b>6</b> Solar water collectors, heating panels, etc. (included in sub-element 5.8.5).</p>

## Element 2.4: Stairs and ramps

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.4.1</b> Stair/ramp structures.  <b>Definition:</b> construction of staircases, ramps and landings.	<b>1</b> Stair structures: details, including vertical rise (mm) of staircase, to be stated.	nr	<b>C1</b> Number of storey flights (i.e. the number of staircases or ramps multiplied by the number of floors served, excluding the lowest floor served in each case).	<b>1</b> Staircases, including spiral staircases, etc.  <b>2</b> Access ramps.  <b>3</b> Landings between floor levels.  <b>4</b> Fire escape staircases.  <b>5</b> In situ and precast concrete, including concrete, reinforcement, formwork, worked finishes and grouting of precast units.  <b>6</b> Staircases fabricated from steel, timber or other material, including off-site applied coatings and paint systems.  <b>7</b> Sundry items.  <b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Landings at floor levels (included in element 2.2, as appropriate).  <b>2</b> Ramps that are an integral part of the floor construction levels (included in sub-element 1.1.3 or element 2.2, as appropriate).  <b>3</b> Walls forming stairwells (included in elements 1.5, 2.5 or 2.7, as appropriate).  <b>4</b> Access and escape ladders, chutes, slides, etc. (included in sub-element 2.4.4).
	<b>2</b> Ramp structures: details, including vertical rise (mm) of ramp, to be stated.		<b>C2</b> The vertical rise of stairs or ramps is the distance measured from top of structural floor level to top of structural floor level.  <b>C3</b> Curved work is to be described and identified separately.  <b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.4.2</b> Stair/ramp finishes.  <b>Definition:</b> finishes to stairs, ramps and landings.	<b>1</b> Stair finishes: details, including vertical rise (mm) of staircase, to be stated.	nr	<b>C1</b> Number of storey flights (i.e. the number of staircases or ramps multiplied by the number of floors served, excluding the lowest floor served in each case).  <b>C2</b> The vertical rise of stairs or ramps is the distance measured from top of structural floor level to top of structural floor level.  <b>C3</b> Curved work is to be described and identified separately.  <b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Finishes to treads and risers. <b>2</b> Finishes to landings between floor levels. <b>3</b> Finishes to ramp surfaces. <b>4</b> Finishes to strings. <b>5</b> Finishes to the soffits of staircases. <b>6</b> Sundry items. <b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Finishes to landings at floor levels (included in element 3.2). <b>2</b> Finishes to stairwells (included in group element 3, as appropriate).
	<b>2</b> Ramp finishes: details, including vertical rise (mm) of ramp, to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.4.3</b> Stair/ramp balustrades and handrails.  <b>Definition:</b> balustrades and handrails for stairs, ramps and landings.	<b>1</b> Wall handrails: details, including vertical rise (mm) of staircase or ramp, to be stated.	nr	<b>C1</b> Number of storey flights (i.e. the number of staircases or ramps multiplied by the number of floors served, excluding the lowest floor served in each case).	<b>1</b> Balustrades and handrails to stairs.  <b>2</b> Balustrades and handrails to landings between floor levels.  <b>3</b> Balustrades and handrails to landings.  <b>4</b> Applied coatings and paint systems.  <b>5</b> Sundry items.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Balustrades and handrails for internal platforms, walkways, etc. (included in sub-element 2.7.2).
	<b>2</b> Combined balustrades and handrails: details, including vertical rise (mm) of staircase or ramp, to be stated.		<b>C2</b> The vertical rise of stairs or ramps is the distance measured from top of structural floor level to top of structural floor level.  <b>C3</b> Curved work is to be described and identified separately.  <b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.4.4</b> Ladders/chutes/slides.  <b>Definition:</b> access and escape ladders, etc.	1 Ladders: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Fire escape ladders. <b>2</b> Fire escape chutes/slides. <b>3</b> Access ladders. <b>4</b> Loft ladders, including hatch doors where an integral part of the loft ladder. <b>5</b> Applied coatings and paint systems. <b>6</b> Sundry items. <b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	2 Chutes				
	3 Slides				

## Element 2.5: External walls

**Note:** where testing and commissioning is required to be measured under sub-elements 2.5.5 and 2.5.6, the terms should include the following works:

- 1 Testing includes:
  - (1) testing equipment and consumables
  - (2) calibration
  - (3) site installation tests, including water tests for drainage installations
  - (4) static testing, including testing records
  - (5) performance testing, including performance test records
  - (6) fuels and water required for testing.
- 2 Commissioning includes:
  - (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
  - (2) temporary operation of equipment to employer's requirements
  - (3) fuels and water required for commissioning.
- 3 Setting all drainage installations, and mechanical and electrical services and installations, to work after completion of commissioning (initial operation).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.5.1</b> External enclosing walls above ground level.  <b>Definition:</b> external enclosing walls above ground floor level, including parapet, gable and curtain walls, and chimneys.	<b>1</b> External walls: details to be stated.  <b>Note:</b> reinforcement rate (kg/m <sup>3</sup> ) and formwork finish for in situ concrete walls to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area of the external wall, measured on the centre line of the external wall, with no deductions for windows or external doors.  <b>Note:</b> faceted cladding or similar external wall constructions are to be measured flat on elevation, with no allowance for forming facets.	<b>1</b> External enclosing walls (i.e. both internal and external skins).  <b>2</b> Underside of returns in external walls.  <b>3</b> Parapet walls for roofs, including copings and cappings, formed as part of the external walls.	<b>1</b> Columns and beams that form an integral part of the structural frame (included in element 2.1, as appropriate).  <b>2</b> Concrete walls, core walls, etc. where an integral part of the structural frame (included in sub-element 2.1.4).
	<b>2</b> Extra over external walls for plinths, cornices, ornamental bands, etc.: details to be stated.	m	The unit rate applied is to allow for the nature of the walling system.  <b>C2</b> Where more than one type of external wall system is employed, the area measured for each external wall system is measured separately.	<b>4</b> Gable walls formed as part of the wall construction.  <b>5</b> Chimneys forming part of external walls.	<b>3</b> Walls provided by framing system, such as off-site manufactured timber frames or tunnel form (included in element 2.1).
	<b>3</b> Extra over external walls for quoins: details to be stated.			<b>6</b> Columns and beams in unframed structures.	<b>4</b> Roof structures and cladding (included in element 2.3).
	<b>4</b> Extra over external walls for forming openings for windows: details, including overall size of opening (mm), to be stated.	nr	<b>C3</b> Where more than one external wall system is employed, the combined area of each external wall system should equal the total area of all external wall systems.  <b>C4</b> The area measured for external wall finishes is the surface area of the external wall component to which the finish is to be applied.	<b>7</b> Curtain walling (designed and fixed as an integrated assembly, complete with opening lights, doors, ventilators, etc.).  <b>8</b> Structural glazing assemblies, etc. (i.e. glazing that forms an integral part of a cladding system).  <b>9</b> Profiled sheet cladding systems, including cladding rails, etc.	<b>5</b> Gable ends, internal walls and chimneys above plate level formed as part of the roof construction (included in element 2.3).  <b>6</b> Windows and doors (included in element 2.6).  <b>7</b> Applied finishes to inner faces of external walls, including dry lining systems (included in sub-element 3.1.1).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>5</b> Extra over external walls for forming openings for external doors: details, including overall size of opening (mm), to be stated.</p> <p><b>6</b> Extra over cladding or curtain walling system for integral photovoltaic panels: details, including overall size of opening (mm), to be stated.</p> <p><b>7</b> Extra over cladding or curtain walling system for integral opening vents and panels: details, including purpose of opening and overall size of opening (mm), to be stated.</p>	nr	<p><b>C5</b> Other cost-significant subcomponents, such as decorative masonry or brickwork bands/panels, or cover strips and window boards that form an integral part of internal skins/backing walls to curtain walling systems, cladding systems, etc. are to be measured by area (m<sup>2</sup>), linear measurement (m) or enumerated (nr) and identified separately.</p> <p><b>C6</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C7</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C8</b> Curved work is to be described and identified separately.</p> <p><b>C9</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C10</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>10</b> Photovoltaic glazing or cladding panels where an integral part of a curtain walling system, or structural glazing assemblies or profiled sheet cladding systems.</p> <p><b>11</b> Opening vents and panels to curtain walling system, or structural glazing assemblies or profiled sheet cladding systems.</p> <p><b>12</b> Integral blinds to windows curtain walling system or structural glazing assemblies.</p> <p><b>13</b> Safety barriers, handrails or combined balusters and handrails to faceted glazing or cladding systems.</p> <p><b>14</b> Rigid sheet cladding systems, including support framework.</p> <p><b>15</b> Projecting fins to cladding systems, including any applied artwork.</p> <p><b>16</b> Panelled walling systems, including panels to a frame structure.</p>	<p><b>8</b> False ceilings and demountable suspended ceilings forming external soffits (included in sub-element 2.5.4).</p> <p><b>9</b> Applied finishes to external soffits (included in sub-element 2.5.4).</p> <p><b>10</b> Retaining walls for basements (included in sub-element 1.1.5, as appropriate).</p> <p><b>11</b> Walls for roof enclosures designed solely to conceal plant, tank rooms, etc. (included in sub-element 2.3.6).</p> <p><b>12</b> Walls and railings for external walkways and balconies built as part of the upper floor construction (included in sub-element 2.5.5).</p> <p><b>13</b> Blinds and blind boxes that are not an integral part of the window system (included in sub-element 4.1.1).</p> <p><b>14</b> Railings for parapet walls (included in sub-element 2.5.5).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>8</b> Projecting fins for cladding or curtain walling system: details, including overall size of panel (mm), to be stated.	nr		<b>17</b> Internal skins/backing walls to curtain walling systems, cladding systems, walling systems, etc. including window boards, cover strips, etc.	<b>15</b> Work in retaining facades for existing buildings (included in sub-element 7.4.1).
	<b>9</b> Extra over projecting fins for applied artwork: details to be stated.	item		<b>18</b> Concrete walls, including reinforcement and formwork.	<b>16</b> Common user access scaffolding (included in group element 9).
	<b>10</b> Safety barriers, handrails or combined balusters and handrails for faceted glazing or cladding systems: details to be stated.	nr/m		<b>19</b> Masonry walls (i.e. brickwork, blockwork and stonework), including forming cavities, wall ties, thermal insulation, etc.	
	<b>11</b> Finishes applied to external walls: details to be stated.	m <sup>2</sup>		<b>20</b> Plinths, cornices, ornamental bands and quoins that are formed from a different material from general wall. <b>21</b> Lightweight steel frame systems, including cladding and insulation. <b>22</b> Thermal insulation, membranes, etc. <b>23</b> Timber and plastic cladding systems (e.g. weatherboarding). <b>24</b> Insulating render systems.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>25</b> Finishes applied to external wall (e.g. paint systems, coating systems, ceramic/stone cladding, tiling and other materials).</p> <p><b>26</b> Finishes to underside of returns in external walls.</p> <p><b>27</b> Planted 'green' walls, including protection layer, drainage layer, filter membranes and growing medium.</p> <p><b>28</b> Forming openings in external walls for external windows and external doors, including lintels/ beams; head courses; damp-proof courses; cavity trays; closing cavities; and all other work to soffits, sills and reveals of openings.</p> <p><b>29</b> Sundry items.</p> <p><b>30</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.5.2</b> External enclosing walls below ground level.  <b>Definition:</b> external enclosing walls below ground floor level that are not formed by retaining walls.	<b>1</b> External walls: details to be stated.  <b>Note:</b> reinforcement rate (kg/m <sup>3</sup> ) and formwork finish for in situ concrete walls to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area of the external wall, measured on the centre line of the external wall, with no deductions for windows or external doors.  <b>C2</b> Where more than one type of external wall system is employed, the area measured for each external wall system is measured separately.	<b>1</b> External basement walls below ground floor level not in contact with earthwork or part of an embedded retaining wall construction (i.e. not retaining walls).  <b>2</b> External enclosing walls (i.e. both internal and external skins).  <b>3</b> Underside of returns in external walls.	<b>1</b> Basement excavation (included in sub-element 1.1.4).  <b>2</b> Temporary or permanent support for the excavation, e.g. caissons, sheet piling, continuous piling, etc. (included in sub-element 1.1.2).  <b>3</b> Basement wall construction, where wall in contact with earthwork (included in sub-element 1.1.4).
	<b>2</b> Extra over external walls for plinths, cornices, ornamental bands, etc.: details to be stated.	m	<b>C3</b> Where more than one external wall system is employed, the combined area of each external wall system should equal the total area of all external wall systems.	<b>4</b> Parapet walls for roofs, including copings and cappings, formed as part of the external walls.  <b>5</b> Gable walls formed as part of the wall construction.	<b>4</b> Embedded basement retaining wall construction (included in sub-element 1.1.5).  <b>5</b> Columns and beams that form an integral part of the structural frame (included in element 2.1, as appropriate).
	<b>3</b> Extra over external walls for quoins: details to be stated.		<b>C4</b> The area measured for external wall finishes is the surface area of the external wall component to which the finish is to be applied.	<b>6</b> Chimneys forming part of external walls.  <b>7</b> Columns and beams in unframed structures.	<b>6</b> Concrete walls, core walls, etc. where an integral part of the structural frame (included in sub-element 2.1.4).
	<b>4</b> Extra over external walls for forming openings for windows: details, including overall size of opening (mm), to be stated.	nr		<b>8</b> Curtain walling (designed and fixed as an integrated assembly, complete with opening lights, doors, ventilators, etc.).	<b>7</b> Walls provided by framing system such as off-site manufactured timber frames or tunnel form (included in element 2.1).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>5</b> Extra over external walls for forming openings for external doors: details, including overall size of opening (mm), to be stated.	nr	<b>C5</b> Other cost-significant subcomponents, such as cover strips and window boards, that form an integral part of internal skins/backing walls to curtain walling systems, cladding systems, etc. are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) and identified separately.	<b>9</b> Structural glazing assemblies, etc. (i.e. glazing that forms an integral part of a cladding system). <b>10</b> Profiled sheet cladding systems, including cladding rails, etc. <b>11</b> Photovoltaic glazing or cladding panels where an integral part of a curtain walling system, or structural glazing assemblies or profiled sheet cladding systems.	<b>8</b> Applied finishes to inner faces of external walls, including dry lining systems (included in sub-element 3.1.1).
	<b>6</b> Finishes to external walls: details to be stated.	m <sup>2</sup>	<b>C6</b> The length of linear components measured is their extreme length, over all obstructions. <b>C7</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item. <b>C8</b> Curved work is to be described and identified separately. <b>C9</b> Work to existing buildings is to be described and identified separately. <b>C10</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>12</b> Rigid sheet cladding systems, including support framework. <b>13</b> Panelled walling systems, including panels to a frame structure. <b>14</b> Internal skins/backing walls to curtain walling systems, cladding systems, walling systems, etc. including window boards, cover strips, etc. <b>15</b> Concrete walls, including reinforcement and formwork.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>16</b> Masonry walls (i.e. brickwork, blockwork and stonework), including forming cavities, wall ties, thermal insulation, etc.</p> <p><b>17</b> Plinths, cornices, ornamental bands and quoins that are formed from a different material from general wall.</p> <p><b>18</b> Lightweight steel frame systems, including cladding and insulation.</p> <p><b>19</b> Thermal insulation, membranes, etc.</p> <p><b>20</b> Timber and plastic cladding systems (e.g. weatherboarding).</p> <p><b>21</b> Insulating render systems.</p> <p><b>22</b> Finishes applied to external wall (e.g. paint systems, coating systems, ceramic/stone cladding, tiling and other materials).</p> <p><b>23</b> Finishes to underside of returns in external walls.</p> <p><b>24</b> Planted 'green' walls, including protection layer, drainage layer, filter membranes and growing medium.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>25</b> Forming openings in external walls for external windows and external doors, including lintels/ beams; head courses; damp-proof courses; cavity trays; closing cavities; and all other work to soffits, sills and reveals of openings.</p> <p><b>26</b> Sundry items.</p> <p><b>27</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.5.3</b> Solar/rain screening.  <b>Definition:</b> cladding systems etc. attached to the exterior of the building to protect the external walls.	<b>1</b> Vertical solar/rain screening: details, including projection (mm), to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area of the overcladding system.  <b>C2</b> Where more than one type of overcladding system is employed, the area for each overcladding system is measured.	<b>1</b> Vertical and horizontal exterior overcladding systems, including support systems.  <b>2</b> Brise soleil, etc. including support systems.  <b>3</b> Sundry items.  <b>4</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> External shutters, integral to blinds for windows, canopies, etc. providing protection to windows and doors (included in element 2.6).
	<b>2</b> Horizontal solar/rain screening: details to be stated.	m	<b>C3</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C4</b> Curved work is to be described and identified separately.  <b>C5</b> Work to existing buildings is to be described and identified separately.  <b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.5.4</b> External soffits.  <b>Definition:</b> external false ceilings and demountable suspended ceilings that form an integral part of the building envelope.	1 External soffits: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured for each type of external soffit is the surface area of the soffit to which the finish is to be applied.	<b>1</b> In situ/board ceilings, including soffit linings and battens, fixed direct to underside of upper floor construction.  <b>2</b> Demountable suspended ceiling systems, including suspension system.  <b>3</b> Insulation fixed direct to underside of upper floor construction or laid on soffit construction.  <b>4</b> In situ coatings applied to false ceilings (e.g. plaster skim coats, render, roughcast and specialist coatings).  <b>5</b> Painting and decorating for false ceilings.  <b>6</b> Cornices, covings, etc.  <b>7</b> Shadow gaps, etc. including painting.  <b>8</b> Access hatches, etc. in external soffit construction.  <b>9</b> Sundry items.	<b>1</b> False ceilings for internal ceilings (included in sub-element 3.3.2).  <b>2</b> Applied finishes to internal false ceilings (included in sub-element 3.3.1).  <b>3</b> Demountable suspended ceilings for internal ceilings (included in sub-element 3.3.3).
	2 Cornices, covings, etc.: details to be stated.	m	<b>C2</b> The area measured for each type of finish applied to external soffits is the surface area of the soffit to which the finish is to be applied.		
	3 Shadow gaps, etc.: details to be stated.	nr	<b>C3</b> The length of linear components measured is their extreme length, over all obstructions.		
	4 Access hatches, etc.: details to be stated.	nr	<b>C4</b> Other cost-significant components to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.		
	5 Finishes applied to external soffits: details to be stated.	m <sup>2</sup>	<b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C6</b> Curved work is to be described and identified separately.  <b>C7</b> Work to existing buildings is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
<b>2.5.5</b> Subsidiary walls, balustrades and proprietary balconies.  <b>Definition:</b> subsidiary components that form an integral part of the building envelope.	<b>1</b> Walls: details to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> Where more than one type of component is employed, each component is measured.  <b>C4</b> Other cost-significant components to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.	<b>1</b> Low-level or dwarf walls, balustrades, handrails and railings for external walkways and balconies built off the upper floor construction, which form an integral part of the building envelope (e.g. to provide walkway between external enclosing wall and edge of upper floor construction), including walls forming planters.  <b>2</b> Walls forming planters, including protection layer, drainage layer, filter membranes and growing medium.  <b>3</b> Wall handrails.	<b>1</b> Surface water drainage beyond the first underground drain connection or gully (included in sub-element 8.6.1).  <b>2</b> Internal and external balconies that are an integral part of the upper floor construction (included in element 2.2, as appropriate).
	<b>2</b> Walls forming planters: details to be stated.				
	<b>3</b> Combined balustrades and handrails: details to be stated.				
	<b>4</b> Wall-mounted handrails: details to be stated.				
	<b>5</b> Parapet railings: details to be stated.				
<b>6</b> Proprietary bolt-on balconies: details to be stated.	nr	<b>C5</b> Curved work is to be described and identified separately.	<b>4</b> Combined balustrades and handrails.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>7</b> Rainwater pipes: details to be stated.	m	<p><b>C6</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C7</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the rainwater drainage installation. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>5</b> Railings and barriers for tops of parapet walls.</p> <p><b>6</b> Proprietary bolt-on balconies (e.g. 'Juliet' balconies).</p> <p><b>7</b> Surface water drainage from external walkways, etc. attached to building to first underground drain connection or gully, including floor outlets.</p> <p><b>8</b> All work, materials, components, etc. required to construct subsidiary components.</p> <p><b>9</b> Testing and commissioning of aboveground surface water drainage systems.</p> <p><b>10</b> Sundry items.</p> <p><b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
	<b>8</b> Floor outlets: details to be stated.	nr			
	<b>9</b> Testing of rainwater drainage installation.	%			
	<b>10</b> Commissioning of rainwater drainage installation.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.5.6</b> Facade access/cleaning systems.  <b>Definition:</b> systems for accessing and cleaning facades.	1 Facade cleaning systems: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Window and facade cleaning trolley/cradles (including twin track, manual and automatic systems).  <b>2</b> Combined facade and roof cleaning systems.  <b>3</b> Building maintenance units.  <b>4</b> Other facade access systems.  <b>5</b> Builder's work in connection with facade access/cleaning systems.  <b>6</b> Testing and commissioning of facade access/cleaning systems.  <b>7</b> Sundry items.  <b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Separate access systems for cleaning roof (included in sub-element 2.3.6).  <b>2</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).  <b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

## Element 2.6: Windows and external doors

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.6.1</b> External windows.  <b>Definition:</b> windows and openings in external walls for ventilation and light.	<b>1</b> Windows: details, including overall size of opening (mm), to be stated.	m <sup>2</sup>	<b>C1</b> Where the area of the component is to be measured, the area measured is the area of the component measured over frames.  <b>C2</b> Where more than one type of component is employed, each component is measured.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.	<b>1</b> Windows, including opening lights, fixed lights, frames, linings, window boards, cover trims, ironmongery and glazing.  <b>2</b> Windows to dormers.  <b>3</b> Louvered windows and panels.  <b>4</b> External shop fronts, including temporary shop fronts.  <b>5</b> Roller shutters, sliding shutters, grilles, etc. providing security or protection to windows and shop fronts.  <b>6</b> Fly screens and storm windows.  <b>7</b> Integral blinds for windows.  <b>8</b> Solar/rainscreen overcladding systems for windows.  <b>9</b> Photovoltaic glazing where an integral part of window system.  <b>10</b> Canopies, etc. providing protection to windows and shop fronts, including any associated surface water drainage.	<b>1</b> Forming openings for external windows, shop fronts, roller shutters, etc. (included in sub-elements 2.5.1 or 2.5.2, as appropriate).  <b>2</b> Construction of and coverings for dormer windows (included in sub-elements 2.3.1 and 2.3.2).  <b>3</b> Glazing that forms an integral part of a cladding system, e.g. structural glazing and curtain walling (included in element 2.5, as appropriate).  <b>4</b> Integral blinds for curtain walling systems or structural glazing assemblies (included in sub-element 2.5.1).  <b>5</b> Blinds and blind boxes that are not an integral part of the window system (included in sub-element 4.1.1).  <b>6</b> Roller shutters, sliding shutters, grilles, etc. where performing the function of an external door (included in sub-element 2.6.2).
	<b>2</b> Louvers: details, including overall size of opening (mm), to be stated.				
	<b>3</b> Shop fronts: details, including overall size of opening (mm), to be stated.				
	<b>4</b> Roller shutters, sliding shutters, grilles, etc. for window openings: details, including overall size of opening (mm), to be stated.	nr	<b>C4</b> Curved work is to be described and identified separately.  <b>C5</b> Work to existing buildings is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>11</b> Protective film applied to windows.</p> <p><b>12</b> External blinds, shutters, etc.</p> <p><b>13</b> Window boards, trims, etc. including those that are not an integral part of the window unit.</p> <p><b>14</b> Painting and decorating.</p> <p><b>15</b> Sundry items.</p> <p><b>16</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>7</b> Solar/rainscreen cladding to external walls (included in sub-element 2.5.3).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.6.2</b> External doors.  <b>Definition:</b> doors and openings in external enclosing walls.	<b>1</b> External doors: details, including type, number of door leaves (nr), size of each door leaf (mm) and overall size of opening (mm), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Where the area of a component is to be measured, the area measured is the area of the component measured over frames.	<b>1</b> Entrance doors, door frames, door linings and door sets, including both proprietary and purpose-made solid, glazed and partially glazed doors, louver doors, etc.  <b>2</b> Entrance screens and doors, including frames.  <b>3</b> Revolving doors.  <b>4</b> Patio doors.  <b>5</b> Garage doors.  <b>6</b> Rolling and sliding shutters, including integral access doors.  <b>7</b> External shop front doors.  <b>8</b> Manual and automatic doors.  <b>9</b> Canopies, etc. providing protection to external doors, including any associated surface water drainage.  <b>10</b> Grilles (fixed and folding), etc. providing security or protection to doors.	<b>1</b> Forming openings for external doors, shop front doors, roller shutters, etc. (included in sub-elements 2.5.1 or 2.5.2, as appropriate).  <b>2</b> Enclosed porches, which are to be broken down into the appropriate constituent sub-elements and measured in accordance with the appropriate measurement rules.  <b>3</b> Canopies to external areas (included in sub-element 8.8.2).  <b>4</b> Blinds and blind boxes that are not an integral part of the glazing (included in sub-element 4.1.1).
	<b>2</b> Revolving doors: details, including overall size of opening (mm), to be stated.		<b>C3</b> The length of linear components measured is their extreme length.		
	<b>3</b> Shop front doors: details, including type, number of door leaves (nr), size of each door leaf (mm) and overall size of opening (mm), to be stated.		<b>C4</b> Where more than one type of component is employed, each component is measured.  <b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.		
	<b>4</b> Roller shutters, sliding shutters, etc. for external door openings: details, including overall size of opening (mm), to be stated.		<b>C6</b> Curved work is to be described and identified separately.  <b>C7</b> Work to existing buildings is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>5</b> Garage doors: details, including overall size of opening (mm), to be stated.</p> <p><b>6</b> Canopies: details to be stated.</p> <p><b>7</b> Grilles: details, including overall size of opening (mm), to be stated.</p> <p><b>8</b> Architraves: details to be stated.</p>	nr	<p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>11</b> Fanlights, sidelights and side panels integral to external door.</p> <p><b>12</b> Architraves.</p> <p><b>13</b> Ironmongery, including door closers, panic locks, etc.</p> <p><b>14</b> Glazed vision panels.</p> <p><b>15</b> Painting and decorating.</p> <p><b>16</b> Fly screens and storm doors.</p> <p><b>17</b> Integral blinds to doors.</p> <p><b>18</b> Solar/rainscreen overcladding to doors.</p> <p><b>19</b> Canopies, etc. providing protection to doors.</p> <p><b>20</b> Sundry items.</p> <p><b>21</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
		m			

## Element 2.7: Internal walls and partitions

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.7.1</b> Walls and partitions.  <b>Definition:</b> internal walls and fixed partitions.	<b>1</b> Internal walls: details, including thickness (mm), to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area of internal walls and partitions, measured on the centre line of the internal wall or partition. No deduction is made for door openings, screens, etc.  <b>C2</b> Where more than one type of component is employed, each component is measured.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.	<b>1</b> Internal walls, including full-height and low-level walls.  <b>2</b> Fixed partitions, including demountable partition systems.  <b>3</b> Internal shop fronts, etc. including temporary shop fronts.  <b>4</b> Columns and beams that are not an integral part of a frame structure.  <b>5</b> Internal walls in roof formed as part of the wall construction.  <b>6</b> Walls forming chimneys, stairwells and lift shafts.  <b>7</b> Walls forming cubicles.  <b>8</b> Walls forming planters, including protection layer, drainage layer, filter membranes and growing medium.  <b>9</b> Borrowed lights, glazed screens, etc. that are an integral part of internal walls and partitions.	<b>1</b> Internal skin of external walls (included in element 2.5).  <b>2</b> Columns and beams that form an integral part of the structural frame (included in element 2.1, as appropriate).  <b>3</b> Concrete walls, core walls, etc. where an integral part of the structural frame (included in sub-element 2.1.4).  <b>4</b> Walls provided by framing system such as off-site manufactured timber frames or tunnel form (included in element 2.1).  <b>5</b> Applied wall finishes to internal walls, including dry lining systems (included in sub-element 3.1.1).  <b>6</b> Cubicles, i.e. proprietary pre-finished panel systems, etc. (included in sub-element 2.7.4).  <b>7</b> Special features built into internal walls and partitions, e.g. fish tanks (included in sub-element 4.1.5).
	<b>2</b> Extra over internal walls for forming openings in walls for internal doors, etc.: details, including overall size of opening (mm), to be stated.	nr			
	<b>3</b> Fixed partitions: details, including thickness (mm), to be stated.	m <sup>2</sup>			
	<b>4</b> Extra over fixed partitions for forming openings in partitions for internal doors, etc.: details, including overall size of opening (mm), to be stated.	nr	<b>C4</b> Curved work is to be described and identified separately.  <b>C5</b> Work to existing buildings is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>10</b> Concrete walls, including reinforcement and formwork, that are not an integral part of the structural frame.</p> <p><b>11</b> Masonry walls (i.e. brickwork, blockwork and stonework), including floor and head support systems.</p> <p><b>12</b> Timber stud partitions, including cavity insulation, board linings and filling lining joints.</p> <p><b>13</b> Metal stud partitioning systems, including cavity insulation, board linings and filling lining joints.</p> <p><b>14</b> Glazed partitioning.</p> <p><b>15</b> Thermal insulation and membranes.</p> <p><b>16</b> Cappings to low-level internal walls, including timber, stone, tiles and other materials.</p> <p><b>17</b> Blinds, where an integral part of a proprietary partitioning system.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>18</b> Forming openings for internal doors, etc. in internal walls, including work to soffits and reveals of openings.</p> <p><b>19</b> Forming openings for internal doors, etc. in internal fixed partitions, including work to soffits and reveals of openings.</p> <p><b>20</b> Sundry items.</p> <p><b>21</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>2.7.2</b> Balustrades and handrails.</p> <p><b>Definition:</b> internal balustrades, handrails and other fixed non-storey height divisions.</p>	<p><b>1</b> Combined balustrades and handrails: details to be stated.</p>	m	<p><b>C1</b> The length of linear components measured is their extreme length.</p> <p><b>C2</b> Where more than one type of component is employed, each component is measured.</p> <p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Balustrades and handrails to interior atriums, access walkways, galleries, etc. including off-site and on-site applied coatings and paint systems.</p> <p><b>2</b> Sundry items.</p>	<p><b>1</b> Handrails fixed to walls (included in group element 4).</p> <p><b>2</b> Balustrades and handrails for stairs and staircases (included in sub-element 2.4.3).</p> <p><b>3</b> Safety barriers, handrails or combined balusters and handrails for faceted glazing or cladding systems (included in sub-element 2.5.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Curved work is to be described and identified separately.</p> <p><b>C5</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>3</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>2.7.3</b> Movable room dividers.</p> <p><b>Definition:</b> movable partitions intended to divide rooms into smaller spaces.</p>	<p><b>1</b> Movable room dividers and partitions: details, including height (m), to be stated.</p>	m	<p><b>C1</b> The length of linear components is their extreme length.</p> <p><b>C2</b> Where more than one type of component is employed, each component is measured.</p> <p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Movable room dividers and partitions, both proprietary and purpose-made, including frames, linings, ironmongery, architraves, cover trims, etc.</p> <p><b>2</b> Off-site and on-site applied coatings and paint systems.</p> <p><b>3</b> Sundry items.</p>	<p><b>1</b> Sliding/folding doors forming an integral part of an internal wall or fixed partitions (included in element 2.8).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Curved work is to be described and identified separately.</p> <p><b>C5</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>4</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>2.7.4</b> Cubicles.</p> <p><b>Definition:</b> proprietary pre-finished panels assembled to form cubicles, complete with doors.</p>	<p><b>1</b> Cubicles: details to be stated.</p> <p><b>2</b> Fixed partitions: details, including thickness, to be stated.</p>	nr/m/ m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length.</p> <p><b>C3</b> The area measured is the area of movable room dividers and partitions.</p> <p><b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately.</p>	<p><b>1</b> Proprietary pre-finished panel cubicles (e.g. toilet and changing facilities), etc. including doors, trims, cover strips, ironmongery and fittings forming an integral part of the cubicle.</p> <p><b>2</b> Sundry items.</p> <p><b>3</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Internal walls and partitions performing as cubicles (included in sub-element 2.7.1 and element 2.8, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Curved work is to be described and identified separately.</p> <p><b>C6</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>		

## Element 2.8: Internal doors

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>2.8.1</b> Internal doors.  <b>Definition:</b> doors, hatches, shutters and grilles, and other openings in internal walls and partitions.	<b>1</b> Internal doors: details, including type, number of door leaves (nr), size of each door leaf (mm) and overall size of opening (mm), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Where more than one type of component is employed, each component is measured.  <b>C3</b> Cost-significant subcomponents are to be described and measured linearly (m) or enumerated (nr) separately, as appropriate.  <b>C4</b> The length of linear components is their extreme length.  <b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.  <b>C6</b> Work to existing buildings is to be described and identified separately.	<b>1</b> Doors, including standard doors, purpose-made doors, full-height doors and fire-resistant doors.  <b>2</b> Frames, linings, architraves, stops, etc.  <b>3</b> Door sets.  <b>4</b> Fanlights, over panels and sidelights, etc. integral to the door set.  <b>5</b> Glazed vision panels, etc.  <b>6</b> Sliding and folding doors in fixed partitions.  <b>7</b> Hatches, including doors, frames, linings, architraves, stops, etc.  <b>8</b> Internal roller shutters, sliding shutters, grilles, etc. including frames, linings, architraves, stops, etc.  <b>9</b> Ironmongery.	<b>1</b> Forming openings for doors in internal walls and partitions (included in sub-element 2.7.1).  <b>2</b> Sliding and folding partitions (included in sub-element 2.7.3).
	<b>2</b> Fire-resistant doors: details, including type, number of door leaves (nr), fire rating (hours), size of each door leaf (mm) and overall size of opening (mm), to be stated.				
	<b>4</b> Composite door and sidelights/over-panel units: details, including type, number of door leaves (nr), size of each door leaf (mm) and overall size of opening (mm), to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>5</b> Roller shutters, sliding shutters, grilles, etc.: details, including overall size of opening (mm), to be stated.	nr	<b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>10</b> Painting and decorating for internal doors. <b>11</b> Sundry items. <b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	<b>6</b> Architraves: details to be stated.	m			

# Group element 3: Internal finishes

Group element 3 comprises the following elements:

[3.1 Wall finishes](#)

[3.2 Floor finishes](#)

[3.3 Ceiling finishes](#)

## Element 3.1: Wall finishes

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>3.1.1</b> Wall finishes.  <b>Definition:</b> applied finishes to internal wall surfaces, including specialist wall finishes for sports facilities, public amenities, etc.	<b>1</b> Finishes to walls and columns: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> In situ coatings applied to walls (e.g. plaster, render and roughcast).	<b>1</b> Fire protective coatings and paint systems for structural steel frames (included in sub-element 2.1.1).
	<b>2</b> Picture rails, dado rails, etc.: details to be stated.	m	<b>C2</b> The area measured for each type of wall finish is the surface area of the wall to which the finish is to be applied. No deduction is made for voids (e.g. for door openings, screens, etc.).	<b>2</b> Sprayed monolithic coatings to columns and walls (i.e. to provide fire protection, thermal insulation, condensation control and acoustic control).	<b>2</b> Self-finished surfaces (e.g. fair-faced blockwork walls, facing bricks, pre-finished partitions, etc., included in elements 2.5, 2.7 or 3.1, as appropriate).
	<b>3</b> Proprietary impact and bumper guards, protection strips, corner protectors, etc.: details to be stated.	nr/m	<b>C3</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C4</b> Painting and decorating of walls to individual rooms within residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C5</b> Other cost-significant components are to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.	<b>3</b> Plasterboard or other sheet linings, including fixing systems, joint reinforcing scrim, plaster skim coats, etc.  <b>4</b> Ceramic wall tiling.  <b>5</b> Decorative sheet coverings, including lining paper, decorative paper, vinyl and plastic wall covering and textile wall covering.  <b>6</b> Painting and decorating.  <b>7</b> Picture rails, dado rails, etc.  <b>8</b> Proprietary impact and bumper guards, protection strips, corner protectors, etc.	<b>3</b> Finishes applied to external face of external walls (included in element 2.5, where appropriate).  <b>4</b> Structural screeds (included in sub-element 1.1.3 or element 2.2, as appropriate).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C7</b> Curved work is to be described and identified separately.</p> <p><b>C8</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C9</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>9</b> Insulation that provides a wall finish.</p> <p><b>10</b> Finishes applied to columns.</p> <p><b>11</b> Wall finishes to staircase areas/stairwells.</p> <p><b>12</b> Specialist wall finishes.</p> <p><b>13</b> Sundry items.</p> <p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 3.2: Floor finishes

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>3.2.1</b> Finishes to floors.  <b>Definition:</b> finishes applied to floor surfaces, including specialist floors for sports facilities, public amenities, etc.	<b>1</b> Finishes to floors: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> Non-structural screeds, including under-screed damp-proof membranes.  <b>2</b> Latex screeds (i.e. levelling screeds).	<b>1</b> Fire protective coatings and paint systems for structural steel frames (included in sub-element 2.1.1).  <b>2</b> Structural screeds (included in sub-element 1.1.3 or element 2.2, as appropriate).  <b>3</b> Finishes to stair treads and risers (included in sub-element 2.4.2).  <b>4</b> Finishes to floor surfaces integral to the floor construction, e.g. timber board flooring and timber strip/board fine flooring (included in sub-element 1.1.3 or element 2.2, as appropriate).  <b>5</b> Floor coverings and skirtings that form an integral part of a proprietary raised access floor system (included in sub-element 3.2.2).
	<b>2</b> Specialist flooring systems: details to be stated.				
	<b>3</b> Skirtings, etc.: details to be stated.	m	<b>C3</b> The area measured for each type of floor finish is the surface area of the floor to which the finish is to be applied.	<b>3</b> Chemical surface hardeners and sealers applied to screeds.  <b>4</b> Floating floors.  <b>5</b> Resin-bonded resilient layers.	
	<b>4</b> Mat wells and mats: details to be stated.	nr			
	<b>5</b> Finishes to swimming pool tanks, including tank linings: details to be stated.	m <sup>2</sup>			
	<b>6</b> Line markings: details to be stated.	m	<b>C5</b> Other cost-significant components are to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.  <b>C6</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.	<b>8</b> Wood block flooring, composition block flooring, parquet flooring, etc.  <b>9</b> Proprietary thin tiled and strip flooring, block wood flooring, etc.  <b>10</b> Floor painting and sealing.  <b>11</b> Edge-fixed carpeting, including underlay, rods, grippers, edgings, and cover and threshold strips.	
	<b>7</b> Numerals and symbols: details to be stated.	nr			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C7</b> Curved work is to be described and identified separately.</p> <p><b>C8</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C9</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>12</b> Fixed flexible and semi-flexible tile and sheet coverings (e.g. carpet, vinyl, rubber, PVC, thermoplastic, cork, linoleum and antistatic flooring).</p> <p><b>13</b> Timber sprung floors for sports halls, squash courts, etc.</p> <p><b>14</b> Specialist floor covering systems.</p> <p><b>15</b> Finishes to swimming pool tanks, including tank linings.</p> <p><b>16</b> Floor finishes for internal and external balconies.</p> <p><b>17</b> Skirtings.</p> <p><b>18</b> Mat wells and mats.</p> <p><b>19</b> Line markings, numerals, letters, symbols, etc. (e.g. surface markings to denote car park spaces in basement car park).</p> <p><b>20</b> Sundry items.</p> <p><b>21</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>3.2.2</b> Raised access floors.  <b>Definition:</b> platform floors or dry construction raised above the structural floor to create space for the distribution of services.	<b>1</b> Raised access floor systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured for each type of raised access floor system is the surface area of the floor to which the finish is to be applied.	<b>1</b> Proprietary raised access floor systems, including adjustable pedestals/supports, floor panels, ventilation and access panels, cavity fire barriers, air plenum barriers, outlet boxes and trunking, skirtings/edge trims that form part of the proprietary system, risers and nosings at changes of level, adhesives, bearing pads and shims.  <b>2</b> Floor coverings/finishes (i.e. where factory bonded or mechanically fixed on site).  <b>3</b> Sundry items.  <b>4</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Floating floors (included in sub-element 3.2.1).  <b>2</b> Floor coverings, skirtings, etc. that are not an integral part of the raised access floor system (included in sub-element 3.2.1).
	<b>2</b> Skirtings, etc.: details to be stated.	m	<b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> Other cost-significant components are to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.  <b>C4</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C5</b> Curved work is to be described and identified separately.  <b>C6</b> Work to existing buildings is to be described and identified separately.  <b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		

## Element 3.3: Ceiling finishes

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>3.3.1</b> Finishes to ceilings.  <b>Definition:</b> applied finishes to ceiling surfaces, including specialist ceiling finishes to sports facilities, public amenities, etc.	<b>1</b> Finishes to ceilings: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured for each type of ceiling finish is the surface area of the ceiling/soffit to which the finish is to be applied.	<b>1</b> Linings to ceilings (e.g. dry lined plasterboard ceilings, pre-finished sheets, timber boarding, etc.).  <b>2</b> Linings to sides and soffits of beams, bulkheads, etc.  <b>3</b> In situ coatings applied to ceilings (e.g. plaster skim coat, render, roughcast and specialist coatings).  <b>4</b> Sprayed monolithic coatings to beams and ceilings (i.e. to provide fire protection, thermal insulation, condensation control and acoustic control).  <b>5</b> Painting and decorating of ceilings.  <b>6</b> Cornices, covings, etc.  <b>7</b> Specialist ceiling finishes.  <b>8</b> Sundry items.	<b>1</b> False ceilings (included in sub-element 3.3.2).  <b>2</b> Applied finishes to false ceilings (included in sub-element 3.3.2).  <b>3</b> Demountable suspended ceilings (included in sub-element 3.3.3).  <b>4</b> Finishes to soffits of staircases, including soffits of landings between floors (included in sub-element 2.4.2).  <b>5</b> Fire protective coatings and paint systems for structural steel frames (included in sub-element 2.1.1).  <b>6</b> Finishes applied to external soffits (included in sub-element 2.5.4).
	<b>2</b> Cornices, covings, etc.: details to be stated.	m	<b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> Painting and decorating of ceilings in individual rooms within residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Other cost-significant components are to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C6</b> Curved work is to be described and identified separately.</p> <p><b>C7</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>3.3.2</b> False ceilings.</p> <p><b>Definition:</b> false ceilings comprising soffit linings on battens, etc. fixed directly to underside of slabs and not demountable, including specialist false ceilings for sports facilities, public amenities, etc.</p>	<p><b>1</b> False ceilings: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured for each type of false ceiling is the surface area of the ceiling/soffit to which the finish is to be applied.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p>	<p><b>1</b> In situ/board ceilings, including soffit linings, battens, support framework or suspension system, fixed directly to underside of upper floor construction.</p> <p><b>2</b> Insulation fixed directly to underside of upper floor construction or laid on false ceiling.</p>	<p><b>1</b> Demountable suspended ceilings (included in sub-element 3.3.3).</p> <p><b>2</b> Finishes to soffits of staircases, including soffits of landings between floors (included in sub-element 2.4.2).</p>
	<p><b>2</b> Cornices, covings, etc.: details to be stated.</p>	m			
	<p><b>3</b> Access hatches, etc.: details to be stated.</p>	nr			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Painting and decorating of walls in individual rooms within residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.</p> <p><b>C4</b> Other cost-significant components are to be described and measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately, as appropriate.</p> <p><b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C6</b> Curved work is to be described and identified separately.</p> <p><b>C7</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>3</b> In situ coatings applied to false ceilings (e.g. plaster skim coats, render, roughcast and specialist coatings).</p> <p><b>4</b> Painting and decorating of false ceilings.</p> <p><b>5</b> Cornices, covings, etc.</p> <p><b>6</b> Shadow gaps, etc., including painting.</p> <p><b>7</b> Access hatches, etc. in false ceilings.</p> <p><b>8</b> Sundry items.</p> <p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>3</b> Fire protective coatings and paint systems to structural steel frames (included in sub-element 2.1.1).</p> <p><b>4</b> False ceilings to external soffits (included in sub-element 2.5.4).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>3.3.3</b> Demountable suspended ceilings.  <b>Definition:</b> false ceilings of dry construction comprising a membrane of tiles, panels and trays supported by exposed or concealed suspended grids, including specialist false ceilings for sports facilities, public amenities, etc.	1 Demountable suspended ceilings: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured for each type of demountable suspended ceiling is the surface area of the ceiling/soffit to which the finish is to be applied.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> Other cost-significant components are to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.  <b>C4</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C5</b> Curved work is to be described and identified separately.  <b>C6</b> Work to existing buildings is to be described and identified separately.  <b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Proprietary suspended ceiling systems, including suspension systems.  <b>2</b> Integrated ceiling systems, including suspension systems.  <b>3</b> Acoustic suspended ceiling systems, including suspension systems.  <b>4</b> Specialist suspended ceiling systems, including suspension systems.  <b>5</b> Insulation fixed direct to underside of upper floor construction or laid on suspended ceiling system.  <b>6</b> Shadow gaps, etc., including painting.  <b>7</b> Access hatches in suspended ceilings, etc.  <b>8</b> Sundry items.  <b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> False ceilings (included in sub-element 3.3.2).  <b>2</b> Finishes to soffits of staircases, including soffits of landings between floors (included in sub-element 2.4.2).  <b>3</b> Fire protective coatings and paint systems to structural steel frames (included in sub-element 2.1.1).  <b>4</b> Demountable suspended ceilings to external soffits (included in sub-element 2.5.4).
	2 Shadow gaps, etc.: details to be stated.	m			
	3 Access hatches, etc.: details to be stated.	nr			

# Group element 4: Fittings, furnishings and equipment

Group element 4 comprises the following elements:

## 4.1 Fittings, furnishings and equipment

## Element 4.1: Fittings, furnishings and equipment

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>4.1.1</b> General fittings, furnishings and equipment.  <b>Definition:</b> fittings, furnishings and equipment fixed to the building fabric or provided loose within the building.	1 Fittings: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Counters, desks, benches and worktops.  <b>2</b> Mirrors that are not an integral part of wall finishes, furnishings, fittings and equipment.  <b>3</b> Curtains, curtain track, rails, pelmets, etc.  <b>4</b> Blinds and blind boxes that are not an integral part of the window system.  <b>5</b> Fireplace surrounds and hearths.  <b>6</b> Wall hangings.  <b>7</b> Loose carpets.  <b>8</b> Storage racks, shelves, shelving support systems, etc.  <b>9</b> Tables and chairs.  <b>10</b> Fitted seating and upholstery.  <b>11</b> Bedroom furniture, including beds, divans, wardrobes, dressers, vanity units, cupboards, cabinets, drawer units, etc.  <b>12</b> Bathroom furniture, including vanity units, cupboards, etc.  <b>13</b> Lockers, hat and coat rails, etc.	<b>1</b> Special-purpose fittings, furnishings and equipment (included in sub-element 4.1.3).  <b>2</b> Domestic kitchen fittings and equipment (included in sub-element 4.1.2).  <b>3</b> Mirrors that are an integral part of wall finishes such as wall tiling (included in sub-element 3.1.1).  <b>4</b> External blinds, shutters, etc. (included in sub-element 2.6.1).  <b>5</b> Integral blinds for windows and internal partitions (included in sub-elements 2.6.1 or 2.7.1).  <b>6</b> Automated curtains and blinds (included in sub-element 5.13.4).  <b>7</b> Ironmongery for windows and doors (included in sub-element 2.6.1 or element 2.8, as appropriate).  <b>8</b> Ironmongery to cubicles (included in sub-element 2.7.4).
	2 Furnishings: details to be stated.				
	3 Equipment: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>14</b> Handheld firefighting equipment, including fire extinguishers, fire blankets, etc. and backboards, fixings, etc.</p> <p><b>15</b> Bins, wheelie bins, continental bins, etc.</p> <p><b>16</b> Safes, including those built into the structure.</p> <p><b>17</b> Vacuum cleaners, cleaning equipment.</p> <p><b>18</b> Televisions, sound systems and computers.</p> <p><b>19</b> Vending machines.</p> <p><b>20</b> Telephone booths and enclosures (internal).</p> <p><b>21</b> Other general-purpose fittings and furnishings.</p> <p><b>23</b> Sundry items.</p> <p><b>24</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>9</b> Sanitary appliances and fittings (included in element 5.1, as appropriate).</p> <p><b>10</b> Mat wells and mats (included in sub-element 3.2.1).</p> <p><b>11</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>4.1.2</b> Domestic kitchen fittings and equipment.  <b>Definition:</b> domestic kitchen units and equipment of all kinds.	<b>1</b> Kitchen units: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	Domestic kitchen units and equipment of all kinds, including: <ol style="list-style-type: none"> <li><b>1</b> Kitchen units, including base units, drawer units, worktops, cupboards, etc.</li> <li><b>2</b> Sinks, taps, waste fittings and waste disposal units where supplied as part of the kitchen fitting installation.</li> <li><b>3</b> Ovens, cookers, hobs, grills, microwaves, etc.</li> <li><b>4</b> Refrigerators, freezers, etc.</li> <li><b>5</b> Dishwashers.</li> <li><b>6</b> Clothes washing machines, clothes dryers, ironing cabinets, etc.</li> <li><b>7</b> Waste bins, towel rails, storage racks and other accessories.</li> <li><b>8</b> Kitchen equipment suites comprising any combination of the previous items.</li> <li><b>9</b> Other kitchen fittings and equipment.</li> </ol>	<ol style="list-style-type: none"> <li><b>1</b> Catering equipment (included in element 5.2).</li> <li><b>2</b> Sinks not supplied as part of the kitchen fitting installation (included in element 5.2).</li> <li><b>3</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).</li> </ol>
	<b>2</b> Kitchen appliances: details to be stated.				
	<b>3</b> Waste bins, towel rails, storage racks and other accessories: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>10</b> Delivery, unpacking, sorting, checking all components, assembling and fixing in position (including all bolts and other fixing devices).</p> <p><b>11</b> Sundry items.</p> <p><b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
4.1.3 Special-purpose fittings, furnishings and equipment.	1 Fittings: details to be stated.	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C3</b> Work to existing buildings is to be described and identified separately.</p>	<p><b>1</b> Furnishings, fittings and equipment designed specifically for a particular type of building, such as:</p> <ul style="list-style-type: none"> <li>hospital, dentist, other medical, welfare and animal welfare buildings</li> <li>entertainment buildings, community centres and clubs, including bars</li> <li>sports buildings, swimming pools, marinas and stadia</li> </ul>	
	2 Furnishings: details to be stated.				
	3 Equipment: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>Definition:</b> furnishings, fittings and non-mechanical or non-electrical equipment fixed to the building fabric or provided loose within the building. These are 'special' in the sense that they are designed for the particular purpose(s) of the building and are likely to be obtained from a specialist supplier or specialist contractor.</p>			<p><b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<ul style="list-style-type: none"> <li>• religious and funerary buildings, including seating</li> <li>• educational buildings, including workbenches, blackboards and gymnasium equipment</li> <li>• scientific research buildings, including laboratory workbenches</li> <li>• special residential buildings, hotels and elderly care homes</li> <li>• rail, road, water and air transport buildings and terminals</li> <li>• agricultural, fishing and forestry buildings</li> <li>• communications, power supply, mineral supply and water supply buildings</li> <li>• laundry buildings</li> <li>• factories, and industrial buildings for food, drink, chemicals, engineering, textiles, etc.</li> </ul>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<ul style="list-style-type: none"> <li>• shops, showrooms, stores, shopping centres and warehouses</li> <li>• defence, police, prison and fire service buildings</li> <li>• restaurants, snack bars and public houses</li> <li>• libraries, record offices, museums, galleries and zoos.</li> </ul> <p><b>2</b> Other special-purpose fittings, furnishings and equipment.</p> <p><b>3</b> Delivery, unpacking, sorting, checking all components, assembling and fixing in position (including all bolts and other fixing devices).</p> <p><b>4</b> Sundry items.</p> <p><b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>4.1.4</b> Signs/notices.</p> <p><b>Definition:</b> directories, notice boards, letters, signs, plaques, symbols and emblems of all kinds for identification and directional purposes within or attached to the building.</p>	<p><b>1</b> Signs/notices: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C3</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Directional signboards.</p> <p><b>2</b> Notice boards, white boards, etc.</p> <p><b>3</b> Sign writing.</p> <p><b>4</b> Shop front lettering, emblems and symbols.</p> <p><b>5</b> Door or floor numbering or lettering.</p> <p><b>6</b> Nameplates, plaques and identification symbols.</p> <p><b>7</b> Lettering, emblems and other identification/directional symbols carved into stone.</p> <p><b>8</b> Delivery, unpacking, sorting, checking all components, assembling and fixing in position (including all bolts and other fixing devices).</p> <p><b>9</b> Sundry items.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Illuminated display signs, lettering, emblems and symbols for information purposes, advertising, etc. (included in sub-element 5.8.4).</p> <p><b>2</b> Identification labelling and colour coding of service installations and systems (included in element 5.14).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>4.1.5</b> Works of art.  <b>Definition:</b> objects d'art and other ornamental and decorative features within or attached to the building.	<b>1</b> Objects d'art and other ornamental features: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Objects d'art and other ornamental features.  <b>2</b> Decorative features, including panels.  <b>3</b> Fish tanks, including fish tanks set into internal walls and partitions.  <b>4</b> Delivery, unpacking, sorting, checking all components, assembling and fixing in position (including all bolts and other fixing devices).  <b>5</b> Sundry items.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Water features, including fountains and waterfalls (included in sub-element 5.13.5).
	<b>2</b> Decorative features and panels: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>4.1.6</b> Non-mechanical and non-electrical equipment.  <b>Definition:</b> non-mechanical and non-electrical equipment for use within or to enter the building.	1 Equipment: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately	<b>1</b> Removable disabled access equipment.  <b>2</b> Removable ladders, etc.  <b>3</b> Other non-mechanical and non-electrical equipment.  <b>4</b> Delivery, unpacking, sorting, checking all components, assembling and fixing in position (including all bolts and other fixing devices).  <b>5</b> Sundry items.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Fixed access and escape ladders, loft ladders, etc. (included in sub-element 2.4.4).
	2 Removable ladders, etc.: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>4.1.7</b> Internal planting.  <b>Definition:</b> natural and artificial planting in internal environments, including containers.	<b>1</b> Plant and shrub beds: details to be stated.	nr/m/ m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	Natural and artificial planting in internal environments, including: <ul style="list-style-type: none"> <li><b>1</b> Internal prefabricated plant and tree containers, including drainage layers, separation layers, capillary matting and wicks, compost, hydro-culture supporting medium and nutrients.</li> <li><b>2</b> Planting container-grown plants.</li> <li><b>3</b> Planting shrubs.</li> <li><b>4</b> Planting trees.</li> <li><b>5</b> Plant containers that are an integral part of the building fabric, including drainage layers, separation layers, capillary matting and wicks, compost, hydro-culture supporting medium and nutrients.</li> <li><b>6</b> Planting containers, etc. to roof gardens, including the planting itself.</li> </ul>	<ul style="list-style-type: none"> <li><b>1</b> Plant containers that are an integral part of the building fabric – construction only (included in sub-element 1.1.5, or elements 2.5 or 2.7, as appropriate).</li> <li><b>2</b> Green roofs and roof gardens, including protection layer, drainage layer, filter membranes and growing medium (included in sub-element 2.3.2).</li> <li><b>3</b> Planting in green roofs/ roof gardens (included in sub-element 2.3.2).</li> </ul>
	<b>2</b> Plant containers: details to be stated.	nr	<b>C2</b> The area measured is the surface area of planting.		
	<b>3</b> Trees: details to be stated.		<b>C3</b> Where measured linearly, the length measured is the extreme length, over all obstructions.		
	<b>4</b> Tree planters: details to be stated.		<b>C4</b> Other cost-significant components to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.  <b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C6</b> Work to existing buildings is to be described and identified separately.  <b>C7</b> Contractor-designed work is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>7</b> Watering, feeding and maintenance during the defects liability period (or period for rectifying defects, or the maintenance period, as appropriate).</p> <p><b>8</b> Replacement planting.</p> <p><b>9</b> Artificial plants, preserved plants, etc. including fixing medium and covering medium for artificial plants.</p> <p><b>10</b> Sundry items.</p> <p><b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>4.1.8</b> Bird and vermin control.  <b>Definition:</b> installations and equipment to repel, trap or otherwise control birds or vermin that may be a nuisance or danger to health.	1 Wires, nets, traps, etc.: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the surface area to which the coating is to be applied.  <b>C3</b> Other cost-significant components are to be described and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately, as appropriate.  <b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Wires, nets, traps, etc.  <b>2</b> Electronic and sonic systems.  <b>3</b> Sundry items.  <b>4</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	2 Electronic and sonic systems: details to be stated				

# Group element 5: Services

Group element 5 comprises the following elements:

- 5.1 Sanitary installations
- 5.2 Services equipment
- 5.3 Disposal installations
- 5.4 Water installations
- 5.5 Heat source
- 5.6 Space heating and air conditioning systems
- 5.7 Ventilation systems
- 5.8 Electrical installations
- 5.9 Fuel installations
- 5.10 Lift and conveyor installations
- 5.11 Fire and lightning protection
- 5.12 Communication, security and control systems
- 5.13 Specialist installations
- 5.14 Builder's work in connection with services

**Note:** where testing and commissioning is required to be measured under elements 5.1 to 5.13, the terms should include the following works:

- 1 Testing includes:
  - (1) testing equipment and consumables
  - (2) calibration
  - (3) site installation tests
  - (4) static testing, including testing records
  - (5) performance testing, including performance test records
  - (6) fuels required for testing.
- 2 Commissioning includes:
  - (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
  - (2) temporary operation of equipment to employer's requirements
  - (3) fuels required for commissioning.
- 3 Setting all mechanical and electrical services and installations to work after completion of commissioning (initial operation).

## Element 5.1: Sanitary installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.1.1</b> Sanitary appliances.  <b>Definition:</b> appliances for health, hygiene and personal washing, together with their accessories.	1 Sanitary appliances: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	1 WC pans and cisterns, WC suites, slop hoppers, urinals and cisterns.	1 Sanitary installations procured as part of prefabricated building, building unit or pod (included in element 6.1, as appropriate).
	2 Testing of installations.	%	<b>C2</b> Work to existing buildings is to be described and identified separately.	2 Sinks, including sinks not supplied as part of the kitchen fitting installation, and catering sinks not supplied as part of the catering equipment installation.	2 Sanitary fittings (included in sub-element 5.1.2).
	3 Commissioning of installations.		<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	3 Wash basins, hand rinse basins and wash fountains.  4 Bidets.  5 Baths, including bath panels and trims.  6 Shower trays.  7 Shower units, including shower heads and hoses.  8 Shower booster pumps.  9 Shower valves.  10 Drinking fountains.	3 Sinks included with domestic kitchen fittings (included in sub-element 4.1.2).  4 Sinks included with catering equipment (included in sub-element 5.2.1).  5 Waste pipes, fittings and traps (included in sub-element 5.3.1).  6 Cold water and hot water distribution (included in sub-elements 5.4.2 or 5.4.3).  7 Instantaneous water heaters, including shower heaters, and storage water heaters (included in sub-element 5.4.4).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>11</b> Taps, including mixer taps, and waste outlet fittings for the appliances.</p> <p><b>12</b> Water-saving devices.</p> <p><b>13</b> Automated controls and sensors.</p> <p><b>14</b> Final connections to sanitary appliances, including stop cocks and stop taps, and final pipeline connections from stop cocks and stop taps to taps.</p> <p><b>15</b> Sundry items.</p> <p><b>16</b> Testing and commissioning.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>8</b> Heated towel rails, where an integral part of a heating system (included in sub-element 5.6.1).</p> <p><b>9</b> Bathroom furniture, including vanity units, cupboards, etc. (included in sub-element 4.1.1).</p> <p><b>10</b> Builder's work in connection with services (included in element 5.14).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>5.1.2</b> Sanitary ancillaries.</p> <p><b>Definition:</b> bathroom, toilet and shower fittings.</p>	<p><b>1</b> Fittings: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Shower cubicles, including shower curtains and rails.</p> <p><b>2</b> Bath/shower curtain rails, screens, etc.</p> <p><b>3</b> Grab/support rails.</p> <p><b>4</b> Towel rails and holders not connected to a heating or hot water supply installation.</p> <p><b>5</b> Hand dryers, including final connection to services.</p> <p><b>6</b> Paper towel dispensers, toilet paper holders, waste bins, soap dispensers and holders.</p> <p><b>7</b> Sanitary incinerators (i.e. sanitary towel disposal).</p> <p><b>8</b> Sanitary macerators.</p> <p><b>9</b> Other sanitary fittings.</p> <p><b>10</b> Sundry items.</p> <p><b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 5.2: Services equipment

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.2.1</b> Services equipment.  <b>Definition:</b> catering equipment designed for use in provision of food and drink on a communal or commercial scale.	<b>1</b> Services equipment: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Catering equipment designed for use in provision of food and drink on a communal or commercial scale.  <b>2</b> Sinks supplied as an integral part of catering equipment.  <b>3</b> Food storage equipment.  <b>4</b> Other free standing or fixed mechanical and electrical equipment for: <ul style="list-style-type: none"> <li>• hospital, dentist, medical, welfare and animal welfare buildings</li> <li>• entertainment buildings, community centres and clubs</li> <li>• sports buildings, swimming pools, marinas and stadia</li> <li>• religious and funerary buildings</li> <li>• educational buildings</li> <li>• scientific research buildings</li> <li>• special residential buildings, hotels and elderly care homes</li> </ul>	<b>1</b> Domestic kitchen equipment (included in sub-element 4.1.2).  <b>2</b> Sinks, taps, waste fittings and waste disposal units where supplied as part of the kitchen fitting installation (included in sub-element 4.1.2).  <b>3</b> Services equipment procured as part of prefabricated building, building unit or pod (included in element 6.1, as appropriate).  <b>4</b> Sanitary incinerators and sanitary macerators (included in sub-element 5.1.2).  <b>5</b> Installation of refuse chutes, incineration plant, etc. (included in sub-element 5.3.3).  <b>6</b> Cold rooms, including packaged cold rooms, and packaged and walk-in freezers (included in sub-element 5.13.2).  <b>7</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%	<b>C2</b> Work to existing buildings is to be described and identified separately.		
	<b>3</b> Commissioning of installations.		<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<ul style="list-style-type: none"> <li>• rail, road, water and air transport buildings and terminals</li> <li>• agricultural, fishing and forestry buildings</li> <li>• communications, power supply, mineral supply and water supply buildings</li> <li>• laundry buildings (including: ironing machines, steam presses, tumble driers, washer extractors and washing machines)</li> <li>• factories, and industrial buildings for food, drink, chemicals, engineering, textiles, etc.</li> <li>• shops, showrooms, stores, shopping centres and warehouses</li> <li>• defence, police, prison and fire service buildings</li> <li>• restaurants, snack bars and public houses</li> <li>• libraries, record offices, museums, galleries and zoos.</li> </ul>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>5</b> Sundry items.</p> <p><b>6</b> Testing and commissioning.</p> <p><b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 5.3: Disposal installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.3.1</b> Foul drainage above ground.  <b>Definition:</b> piped foul water drainage systems from sanitary appliances, sinks and kitchen appliances to the first underground drain connection.	1 Drainage for sanitary appliances: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Waste pipes and fittings. <b>2</b> Discharge stacks and waste pipes. <b>3</b> Ventilating stacks and pipes, including air admittance valves (AAVs). <b>4</b> Traps, access points, rodding eyes, collars, etc. <b>5</b> Prefabricated pipeline assemblies. <b>6</b> Prefabricated floor channels, gratings and drains in upper floor construction. <b>7</b> Sump pumps and packaged pumps. <b>8</b> Sundry items. <b>9</b> Testing and commissioning. <b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Drainage for balconies (included in sub-element 2.2.3). <b>2</b> Rainwater disposal systems from roofs (included in sub-element 2.3.4). <b>3</b> Drainage to external walkways attached to buildings (included in sub-element 2.5.5). <b>4</b> Drainage from surface of ground floor assembly to first manhole beyond the enclosing walls of the building (included in sub-element 8.6.1). <b>5</b> Floor outlets and prefabricated floor channels and gratings in ground floor construction (included in sub-element 8.6.1). <b>6</b> Construction of pits for sump pumps and packaged pumps (included in sub-element 1.1.3). <b>7</b> Internal manholes, etc. (included in sub-element 1.1.3). <b>8</b> Drainage from first manhole beyond the enclosing walls of the building (included in sub-element 8.6.1).
	2 Drainage for service equipment: details to be stated.		<b>C2</b> Work to existing buildings is to be described and identified separately.		
	3 Testing of installations.	%	<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		
	4 Commissioning of installations.		<b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
					<p><b>9</b> Rainwater harvesting systems, including collection pipelines (included in sub-elements 5.4.2 or 8.7.1, as appropriate).</p> <p><b>10</b> Grey water systems, including collection pipelines (included in sub-elements 5.4.2 or 8.7.1, as appropriate).</p> <p><b>11</b> Builder's work in connection with services (included in element 5.14).</p>
<p><b>5.3.2</b> Chemical, toxic and industrial liquid waste drainage.</p> <p><b>Definition:</b> separate piped waste disposal systems, where the waste needs special treatment or separate storage before disposal from appliance or equipment, to the external face of the external wall of the building.</p>	<p><b>1</b> Drainage for appliance or equipment: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p>	<p><b>1</b> Pipelines and fittings, including glass drainage.</p> <p><b>2</b> Traps, access points, rodding eyes, collars, etc.</p> <p><b>3</b> Gullies.</p> <p><b>4</b> Connections tanks, etc.</p> <p><b>5</b> Storage tanks and vessels.</p> <p><b>6</b> Settlement tanks.</p> <p><b>7</b> Effluent treatment plant.</p> <p><b>8</b> Dosing equipment.</p> <p><b>9</b> Sterilisation equipment.</p>	<p><b>1</b> Chemical, toxic and industrial liquid waste drainage from the external face of the external wall of the building to the point of disposal (included in sub-element 8.6.3).</p> <p><b>2</b> Builder's work in connection with services (included in element 5.14).</p>
	<p><b>2</b> Testing of installations.</p>	%	<p><b>C2</b> Work to existing buildings is to be described and identified separately.</p>		
	<p><b>3</b> Commissioning of installations.</p>		<p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>10</b> Supports integral to the storage tanks and vessels, settlement tanks, etc. (including mountings).</p> <p><b>11</b> Thermal insulation.</p> <p><b>12</b> Connections to equipment.</p> <p><b>13</b> Control components located externally.</p> <p><b>14</b> Monitoring equipment located externally.</p> <p><b>15</b> Painting, anti-corrosion treatments and coating systems for drainage pipelines.</p> <p><b>16</b> Sundry items.</p> <p><b>17</b> Testing and commissioning.</p> <p><b>18</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
5.3.3 Refuse disposal. Definition: refuse chutes, incineration plant, etc.	1 Refuse disposal installations: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	1 Refuse input devices. 2 Refuse chutes and ducts.	1 Sanitary incinerators and sanitary macerators (included in sub-element 5.1.2).
	2 Testing of installations.	%	<b>C2</b> Work to existing buildings is to be described and identified separately.	3 Plant for the compacting/ macerating of refuse ready for collection (including compactors, bailing machines and shredding machines).	2 Builder's work in connection with services (included in element 5.14).
	3 Commissioning of installations.		<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	4 Refuse collection equipment, including bins and continental bins. 5 Incineration plant and ancillaries, including refuse and waste-handling equipment, afterburners, proprietary metal chimney and flues, and ash-handling equipment, as well as gas-fired incineration plant. 6 Paper shredders. 7 Safety devices. 8 Painting/anti-corrosive treatments. 9 Final connections to services. 10 Sundry items. 11 Testing and commissioning. 12 Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	

## Element 5.4: Water installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.4.1</b> Mains water supply.  <b>Definition:</b> piped water supply systems from point of entry into building to appliance or equipment.	<b>1</b> Mains water supply: details, including the number of draw-off points (nr), to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the total GIFA of the building.	<b>1</b> Pipelines and pipeline fittings.  <b>2</b> Valves.  <b>3</b> Internal water meters.  <b>4</b> Rising main to storage tanks.	<b>1</b> Piped water supply systems bringing water from statutory undertaker's water main to point of entry into building (included in sub-element 8.7.1).  <b>2</b> Connections to statutory undertaker's water main (included in sub-element 8.7.1).
	<b>2</b> Testing of installations.	%	<b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>5</b> Water meters, where not provided as part of water mains supply installation by the statutory undertaker.	<b>3</b> Water treatment systems (included in sub-element 5.4.2).
	<b>3</b> Commissioning of installations.		<b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>6</b> Trace heating.  <b>7</b> Thermal insulation.  <b>8</b> Sundry items.  <b>9</b> Testing and commissioning.  <b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>4</b> Storage tanks (included in sub-element 5.4.2).  <b>5</b> Water meters, where provided as part of water mains supply by statutory undertaker (included in sub-element 8.7.1).  <b>6</b> Builder's work in connection with services (included in element 5.14).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.4.2</b> Cold water distribution.  <b>Definition:</b> <ul style="list-style-type: none"> <li>• piped water supply systems to distribute cold water from point of storage to user point</li> <li>• internal rainwater harvesting systems and piped water supply systems to distribute cold water from point of storage, including storage tanks, to user point.</li> </ul>	<b>1</b> Cold water distribution: details, including the number of draw-off points (nr), to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.	<b>1</b> Cold water distribution pipelines to sanitary appliances, sinks, equipment, etc. including fittings.  <b>2</b> Valves.  <b>3</b> Water-saving devices.	<b>1</b> Taps for sanitary appliances and domestic kitchen sinks (included in sub-elements 5.1.1 or 4.1.2, as appropriate).  <b>2</b> Taps and valves for service equipment (included in sub-element 5.2.1).
	<b>2</b> Water treatment systems.	nr	<b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>4</b> Taps, where not part of a sanitary appliance or service equipment.  <b>5</b> Pumps.  <b>6</b> Pressurisation expansion units.	<b>3</b> Water tanks (i.e. header tanks), including cold water distribution to heat source (included in sub-element 5.5.1).
	<b>3</b> Storage tanks: details, including type, material and capacity, to be stated.	Item		<b>7</b> Pressure booster sets.  <b>8</b> Water treatment systems, including reverse osmosis (RO) systems, ultraviolet systems, filtration systems, water cooler filter systems, etc.	
	<b>4</b> Rainwater harvesting systems: details to be stated.	%	<b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>9</b> Water storage tanks and cisterns.  <b>10</b> Trace heating.  <b>11</b> Instrumentation and control components for cold water distribution systems.	
	<b>5</b> Testing of installations.			<b>12</b> Thermal insulation.  <b>13</b> Rainwater-harvesting systems (internal), including collection pipelines.	
	<b>6</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>14</b> Grey water collection pipe systems (internal), including collection pipelines.</p> <p><b>15</b> Sundry items.</p> <p><b>16</b> Testing and commissioning.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.4.3</b> Hot water distribution.</p> <p><b>Definition:</b> piped water supply systems to distribute hot water to sanitary appliances, sinks, equipment and other appliances, and to distribute mixed water to water heaters and equipment.</p>	<p><b>1</b> Hot water distribution: details, including the number of draw-off points (nr), to be stated.</p>	nr/m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.</p>	<p><b>1</b> Hot water distribution pipelines to sanitary appliances, sinks, equipment, etc. including fittings.</p> <p><b>2</b> Valves.</p> <p><b>3</b> Water-saving devices.</p> <p><b>4</b> Taps, where not part of a sanitary appliance or service equipment.</p> <p><b>5</b> Pumps (i.e. secondary hot water circulation pumps).</p>	<p><b>1</b> Boilers or other heat sources (included in sub-element 5.5.1).</p> <p><b>2</b> Distribution pipelines that distribute hot water from the heat source to heat emitters (included in element 5.6, as appropriate)</p> <p><b>3</b> Taps for sanitary appliances and domestic kitchen sinks (included in sub-elements 5.1.1 or 4.1.2, as appropriate).</p> <p><b>4</b> Taps and valves for service equipment (included in sub-element 5.2.1).</p>
	<p><b>2</b> Testing of installations.</p>	%			
	<p><b>3</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>6</b> Heat exchangers (including coil type, reheaters and water-to-water plate heat exchangers).</p> <p><b>7</b> Storage cylinders and calorifiers.</p> <p><b>8</b> Trace heating and frost-protection devices.</p> <p><b>9</b> Hot water storage vessels and expansion vessels (including domestic hot water system (DHWS) calorifiers, hot water system (HWS) cylinders, unvented hot water systems and hot water calorifiers incorporating load levellers).</p> <p><b>10</b> Immersion heaters.</p> <p><b>11</b> Insulated combination units, with own feed and expansion tank.</p> <p><b>12</b> Water softeners (including ion exchange plant (commercial and domestic), magnetic water conditioners and reverse osmosis plant).</p> <p><b>13</b> Instrumentation and control components for hot water distribution systems (including temperature measurement sensors).</p> <p><b>14</b> Thermal insulation.</p>	<p><b>5</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>6</b> Builder's work in connection with services (included in element 5.14).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>15</b> Sundry items.</p> <p><b>16</b> Testing and commissioning.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.4.4</b> Local hot water distribution.</p> <p><b>Definition:</b> systems where hot water is generated in the vicinity of the appliance being served.</p>	<b>1</b> Water heaters: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<p><b>1</b> Instantaneous water heaters (including shower heaters) and storage water heaters, including flue pipes and terminals.</p> <p><b>2</b> Wall or floor mounted, under-sink, multipoint and over-sink units.</p> <p><b>3</b> Sundry items.</p> <p><b>4</b> Testing and commissioning.</p> <p><b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<b>1</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%	<b>C2</b> Work to existing buildings is to be described and identified separately.		
	<b>3</b> Commissioning of installations.		<p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.4.5</b> Steam and condensate distribution.  <b>Definition:</b> steam distribution and condensate return pipelines to and from service equipment within the building.	<b>1</b> Steam and condensate distribution: details, including number of draw-off points (nr), to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.	<b>1</b> Steam distribution pipelines to and condensate return pipelines from service equipment, including fittings.  <b>2</b> Valves, strainers, pressure reducing sets, etc.  <b>3</b> Steam reduction stations.  <b>4</b> Condensate receivers and storage tanks.  <b>5</b> Condensate pump sets.  <b>6</b> Steam connection outlets.  <b>7</b> Taps, where not part of service equipment.  <b>8</b> Heat exchangers.  <b>9</b> Storage cylinders and calorifiers.  <b>10</b> Instrumentation and control components for steam and condensate systems.  <b>11</b> Thermal insulation.  <b>12</b> Sundry items.  <b>13</b> Testing and commissioning.	<b>1</b> Steam generators or other heat sources (included in sub-element 5.5.1).  <b>2</b> Taps and valves for service equipment (included in sub-element 5.2.1).  <b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>4</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%	<b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.		
	<b>3</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 5.5: Heat source

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.5.1</b> Heat source.  <b>Definition:</b> a heat source supplying heat to one or more heating systems.	<b>1</b> Heat source (nr): details, including output of heat source (kW), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Biomass fuel boiler plant and ancillary items.  <b>2</b> Gas- and oil-fired boiler plant and ancillary items, including low temperature hot water (LTHW) and medium temperature hot water (MTHW) gas-fired boilers, wall hung and floor mounted domestic gas-fired boilers, light commercial gas-fired boilers, gas-fired burners (e.g. atmospheric free standing, blown gas burners (modular), and combination atmospheric), gas-fired condensing boilers, dual-fuel boilers (gas and oil), gas-fired blow-down facilities, oil-fired condensing boilers, oil-fired blow-down facilities and pressurisation plant.  <b>3</b> Coal-fired boiler plant and ancillary items, including burners, blow-down facilities, coal distribution equipment, ash handling and storage equipment, grit arrestors and pressurisation plant.	<b>1</b> Heat distribution and delivery (included in element 5.6).  <b>2</b> Chimneys and flues that are an integral part of the building structure should be included with the appropriate structural element.  <b>3</b> Local heat source (included in sub-element 5.6.2).  <b>4</b> Fuel storage (included in sub-elements 5.9.1 or 8.7.7, as appropriate).  <b>5</b> Photovoltaic tiles, panels, etc. (included in sub-element 5.8.5).  <b>6</b> Wind turbines (included in sub-element 5.8.5).  <b>7</b> Solar collectors (included in sub-element 5.8.5).  <b>8</b> Local generation equipment for the production of electrical energy, including emergency and/or standby generator plant (included in sub-element 5.8.5).
	<b>2</b> Testing of installations.	%			
	<b>3</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>4</b> Electric boiler plant and ancillaries, including electric and electrode boiler, blow-down facilities and pressurisation plant.</p> <p><b>5</b> Packaged steam generators and ancillaries, including blow-down facilities and pressurisation plant.</p> <p><b>6</b> Waste and wood pellet boiler plant and ancillary items.</p> <p><b>7</b> Central combined heat and power boiler plant.</p> <p><b>8</b> Heat pumps (including domestic air-to-water heat pumps).</p> <p><b>9</b> Ground source heating (GSH), including boreholes and all ancillary components (including closed loop and open loop systems).</p> <p><b>10</b> Water or steam mains, pumps, valves and other equipment from district heating systems.</p> <p><b>11</b> Step-down/non-storage calorifiers connected to external heat source.</p> <p><b>12</b> Building mounted solar thermal panels.</p>	<p><b>9</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>10</b> Builder's work in connection with services (included in element 5.14).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>13</b> Other heat sources.</p> <p><b>14</b> Water tanks (i.e. header tanks) and cold-water distribution to heat source.</p> <p><b>15</b> Vibration isolation mountings.</p> <p><b>16</b> Instrumentation and control components for heat source.</p> <p><b>17</b> Forced draft fans.</p> <p><b>18</b> Gantries.</p> <p><b>19</b> Chimneys and all types of flues, where not part of the building.</p> <p><b>20</b> Forced draft extractor.</p> <p><b>21</b> Sundry items.</p> <p><b>22</b> Testing and commissioning.</p> <p><b>23</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 5.6: Space heating and air conditioning systems

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.1</b> Central heating systems.  <b>Definition:</b> systems where heating is generated at a central point and distributed to the spaces and/or locations being treated.	1 Central heating systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.	<b>1</b> Heating systems from, and including everything within, the plant room specifically related to the heating system, excluding the heat source (including domestic heating and hot water systems).  <b>2</b> Heat distribution pipelines from heat source to heat emitter or other equipment.  <b>3</b> Heat emission units, such as: <ul style="list-style-type: none"> <li>• heat emitters</li> <li>• skirting heaters (e.g. natural convectors and perimeter skirting heaters)</li> <li>• radiant strip heater systems</li> <li>• radiator systems</li> <li>• natural convectors</li> <li>• fan convectors</li> <li>• unit heaters</li> <li>• radiators (e.g. cast iron, steel and aluminium)</li> <li>• convector heaters</li> <li>• continuous convectors</li> <li>• painting radiators.</li> </ul>	<b>1</b> Heat source (included in element 5.5).  <b>2</b> Electrically operated heaters other than in storage radiator (included in sub-element 5.6.2).  <b>3</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).  <b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>5</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>4</b> In-screed embedded pipelines (i.e. underfloor heating).</p> <p><b>5</b> Electrical underfloor heating systems.</p> <p><b>6</b> Heated ceiling panels.</p> <p><b>7</b> Warm air heating.</p> <p><b>8</b> Convection systems.</p> <p><b>9</b> Fan-assisted convection systems, including underfloor systems.</p> <p><b>10</b> Cable heating systems.</p> <p><b>11</b> Plenum air heating system.</p> <p><b>12</b> Off-peak heating system, including storage radiators.</p> <p><b>13</b> Distribution pipelines and pipeline fittings.</p> <p><b>14</b> Heated towel rails, where an integral part of a heating system.</p> <p><b>15</b> Valves and fittings.</p> <p><b>16</b> Ductwork.</p> <p><b>17</b> Air handling equipment.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>18</b> Grilles, fans, filters and other ancillary components of central heating systems.</p> <p><b>19</b> Plate recuperator.</p> <p><b>20</b> Thermal wheel – rotary heat recuperator.</p> <p><b>21</b> Duct heater battery – electric.</p> <p><b>22</b> Cables.</p> <p><b>23</b> Instrumentation and control components for heating systems.</p> <p><b>24</b> Thermal insulation.</p> <p><b>25</b> Sundry items.</p> <p><b>26</b> Testing and commissioning.</p> <p><b>27</b> Where works are to be carried out by a subcontractor, the subcontractor’s preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.2</b> Local heating systems.  <b>Definition:</b> systems where heating is generated in or adjacent to the space or location to be treated.	1 Heaters: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Room heaters or fires, with or without boilers (including electric air heaters).	<b>1</b> Chimneys and flues that are an integral part of the structure should be included with the appropriate structural element.
	2 Testing of installations.	%	<b>C2</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>2</b> Chimneys and all flues, where not part of the building structure (e.g. proprietary chimneys and flue pipes).	<b>2</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).
	3 Commissioning of installations.		<b>C3</b> Work to existing buildings is to be described and identified separately.	<b>3</b> Instrumentation and control components for heating systems.	<b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).
			<b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>4</b> Sundry items.	<b>4</b> Builder's work in connection with services (included in element 5.14).
			<b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>5</b> Testing and commissioning.	
				<b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.3</b> Central cooling systems.  <b>Definition:</b> systems where cooling is performed at a central point and distributed to the spaces and/or locations being treated.	1 Central cooling systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Chilled beams. <b>2</b> Fan coil systems for cooling only. <b>3</b> Air-based systems – variable air volume (VAV) for cooling only. <b>4</b> Variable refrigerant volume (VRV) systems. <b>5</b> Chillers and packaged chillers. <b>6</b> Central refrigeration plant. <b>7</b> Cooling towers. <b>8</b> Distribution pipelines and pipeline fittings (including refrigerant distribution systems and chilled water distribution systems). <b>9</b> Cold and treated water feeds (including central filtration plant). <b>10</b> Valves. <b>11</b> Pumps (including air-to-water heat pumps, water-to-water heat pumps, and brine-to-water pumps). <b>12</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).	<b>1</b> General-purpose LVLV power supplies (included in sub-element 5.8.2). <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3). <b>3</b> External cooling towers (included in sub-element 8.8.2). <b>4</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>13</b> Grilles, fans, filters and other ancillary components of central cooling systems.</p> <p><b>14</b> Air handling units (AHUs).</p> <p><b>15</b> Emission units, including fan coil units, chilled beam, etc.</p> <p><b>16</b> Instrumentation and control components for central cooling systems (including relative and absolute humidity systems).</p> <p><b>17</b> Thermal insulation.</p> <p><b>18</b> Sundry items.</p> <p><b>19</b> Testing and commissioning.</p> <p><b>20</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.4</b> Local cooling systems.  <b>Definition:</b> systems where cooling is performed in or adjacent to the space or location to be treated.	1 Cooling units: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Local cooling units, including those with remote condensers. <b>2</b> Distribution pipelines and pipeline fittings. <b>3</b> Valves. <b>4</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke). <b>5</b> Grilles, fans, filters and other ancillary components of local cooling systems. <b>6</b> Instrumentation and control components for local cooling systems. <b>7</b> Thermal insulation. <b>8</b> Sundry items. <b>9</b> Testing and commissioning. <b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LVLV power supplies (included in sub-element 5.8.2). <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3). <b>3</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%	<b>C2</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.		
	3 Commissioning of installations.		<b>C3</b> Work to existing buildings is to be described and identified separately. <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately. <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.5</b> Central heating and cooling systems.  <b>Definition:</b> combined systems where heating and cooling are performed at a central point and distributed to the spaces and locations being treated.	<b>1</b> Combined central heating and cooling systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.	<b>1</b> Fan coil systems for heating and cooling.  <b>2</b> Air-based systems – variable air volume (VAV) for heating and cooling.  <b>3</b> Reverse cycle heat pump systems.  <b>4</b> Chillers, including vapour compression chillers, absorption chillers (run using low-grade waste heat from other industrial processes), solar thermal absorption chillers, etc.  <b>5</b> Distribution pipelines and pipeline fittings.  <b>6</b> Valves.  <b>7</b> Pumps.  <b>8</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).  <b>9</b> Grilles, fans, filters and other ancillary components of central heating and cooling systems.	<b>1</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%			
	<b>3</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>10</b> Air handling units (AHUs).</p> <p><b>11</b> Emission equipment, including fan coil units, etc.</p> <p><b>12</b> Vibration isolation mountings.</p> <p><b>13</b> Instrumentation and control components for central heating and cooling systems.</p> <p><b>14</b> Thermal insulation.</p> <p><b>15</b> Sundry items.</p> <p><b>16</b> Testing and commissioning.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.6</b> Local heating and cooling systems.  <b>Definition:</b> combined systems where heating and cooling are performed in or adjacent to the space to be treated.	1 Local heating and cooling units: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Local heating and cooling units, including those with remote condensers.  <b>2</b> Distribution pipelines and pipeline fittings.  <b>3</b> Valves.  <b>4</b> Pumps.  <b>5</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).  <b>6</b> Grilles, fans, filters and other ancillary components of local heating and cooling systems.  <b>7</b> Vibration isolation mountings.  <b>8</b> Instrumentation and control components for local heating and cooling systems.  <b>9</b> Thermal insulation.  <b>10</b> Sundry items.  <b>11</b> Testing and commissioning.	<b>1</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.6.7</b> Central air conditioning systems.</p> <p><b>Definition:</b> systems where air treatment is performed at a central point and air is distributed to the spaces and locations being treated.</p>	<p><b>1</b> Central air conditioning system: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.</p> <p><b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.</p> <p><b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.</p>	<p><b>1</b> Plenum air heating systems.</p> <p><b>2</b> Variable air volume (VAV) and constant volume air conditioning systems.</p> <p><b>3</b> Single and dual-duct air conditioning systems.</p> <p><b>4</b> Multi-zone air conditioning systems.</p> <p><b>5</b> Induction air conditioning systems.</p> <p><b>6</b> Hybrid air conditioning systems (i.e. systems based on a combination of a number of other air conditioning systems).</p> <p><b>7</b> Chillers.</p> <p><b>8</b> Air handling units (AHUs).</p>	<p><b>1</b> Heat source (included in element 5.5).</p> <p><b>2</b> Local cooling and air treatment independent of heating systems, e.g. local comfort cooling, (included in sub-element 5.6.8).</p> <p><b>3</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).</p> <p><b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>5</b> Builder's work in connection with services (included in element 5.14).</p>
	<p><b>2</b> Testing of installations.</p>	%			
	<p><b>3</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>9</b> Terminal units/emitters.</p> <p><b>10</b> Distribution pipelines and pipeline fittings.</p> <p><b>11</b> Valves.</p> <p><b>12</b> Pumps.</p> <p><b>13</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).</p> <p><b>14</b> Grilles, fans, filters and other ancillary components of central air conditioning systems.</p> <p><b>15</b> Instrumentation and control components for central air conditioning systems.</p> <p><b>16</b> Thermal insulation.</p> <p><b>17</b> Sundry items.</p> <p><b>18</b> Testing and commissioning.</p> <p><b>19</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.6.8</b> Local air conditioning systems.  <b>Definition:</b> systems where air treatment is performed in or adjacent to the space to be treated.	<b>1</b> Self-contained air conditioning units: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>1</b> Self-contained air conditioning units providing conditioned air to rooms or areas, including units with remote condensers. These include room air conditioners such as unitary reverse cycle heat pump terminal units with electric heating and reversing valve, and split systems such as air-cooled with direct expansion (DX) evaporator, plus gas, hot water or electric heaters.  <b>2</b> Separate clean room or other local air conditioning systems requiring air management, e.g. terminal reheat and terminal heat pump air conditioning systems. These include computer room air conditioners, minicomputer room enclosures, telecom equipment precision air conditioning systems and units.  <b>3</b> Distribution pipelines and pipeline fittings.  <b>4</b> Valves.  <b>5</b> Pumps.	<b>1</b> Heat source (included in element 5.5).  <b>2</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).  <b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>4</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Other local air conditioning systems: details to be stated.				
	<b>3</b> Testing of installations.	%			
	<b>4</b> Commissioning of installations.		<b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>6</b> Distribution ductwork, ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).</p> <p><b>7</b> Grilles, fans, filters and other ancillary components of local air conditioning systems.</p> <p><b>8</b> Vibration isolation mountings.</p> <p><b>9</b> Instrumentation and control components for local air conditioning systems.</p> <p><b>10</b> Thermal insulation.</p> <p><b>11</b> Air curtains (i.e. air movement systems for circulating a 'curtain' of tempered air across the dividing space between two areas of differing temperatures).</p> <p><b>12</b> Sundry items.</p> <p><b>13</b> Testing and commissioning.</p> <p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 5.7: Ventilation systems

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.7.1</b> Central ventilation systems.  <b>Definition:</b> air movement systems removing vitiated air from spaces and/or supplying fresh outside air to spaces. There is no environmental control or air treatment, except filtration when required.	1 Central ventilation systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Air extraction systems.  <b>2</b> Air supply (ventilators) and extraction systems.  <b>3</b> Extraction units/terminal units.  <b>4</b> Fan units.  <b>5</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).  <b>6</b> Grilles, fans, filters and other ancillary components of central ventilation systems.  <b>7</b> Distribution pipelines and pipeline fittings.  <b>8</b> Valves.  <b>9</b> Pumps.  <b>10</b> Vibration isolation mountings.  <b>11</b> Instrumentation and control components for central ventilation systems.	<b>1</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>12</b> Sundry items.</p> <p><b>13</b> Testing and commissioning.</p> <p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.7.2</b> Local and special ventilation systems.</p> <p><b>Definition:</b> local and special air movement systems removing vitiated air from spaces and/ or supplying fresh outside air to spaces. No environmental control or air treatment, except filtration when required.</p>	<b>1</b> Toilet/bathroom ventilation units: details to be stated.	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Toilet/bathroom ventilation (air movement systems for removing odours and other unwanted contaminants from, or supplying fresh air to, toilet areas, e.g. packaged toilet extractor fans).</p> <p><b>2</b> Kitchen ventilation (air movement systems for collecting, containing and removing odours, fumes and other unwanted contaminants from, or supplying fresh air to, kitchen areas), including hoods, canopies and grease filters.</p>	<p><b>1</b> Kitchen ventilation units where an integral part of a domestic kitchen installation or catering installation (included in sub-elements 4.1.2 or 5.2.1).</p> <p><b>2</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).</p> <p><b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>4</b> Builder's work in connection with services (included in element 5.14).</p>
	<b>2</b> Kitchen ventilation units: details to be stated.				
	<b>3</b> Safety cabinet and fume cupboard extractors: details to be stated.				
	<b>4</b> Fume extractors: details to be stated.				
	<b>5</b> Dust collection units: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>6</b> Anaesthetic gas extractors: details to be stated.	nr	<b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>3</b> Safety cabinet and fume cupboard extractors (air movement systems for collecting, containing, cleaning and removing odours, fumes and other unwanted contaminants), including safety cabinets and fume cupboard extractors with integral extraction.  <b>4</b> Fume extractors (air movement systems for collecting, containing, cleaning and removing odours, fumes and other unwanted contaminants), including hoods, canopies and valances.  <b>5</b> Dust collection, including dust and particle extraction or separation equipment, discharge stacks, hoods and collection equipment.  <b>6</b> Anaesthetic gas extractors (i.e. scavenging systems for the removal of anaesthetic gases).	
	<b>7</b> Cyclone systems: details to be stated.				
	<b>8</b> Unit extraction fans: details to be stated.				
	<b>9</b> Rotating ventilators: details to be stated.				
	<b>10</b> Roof mounted ventilation units: details to be stated.				
	<b>11</b> Car parking ventilation: details to be stated.				
	<b>12</b> Other local and special ventilation systems: details to be stated.				
	<b>13</b> Testing of installations.	%			
	<b>14</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>7</b> Cyclone systems.</p> <p><b>8</b> Unit extractor fans.</p> <p><b>9</b> Rotating ventilators.</p> <p><b>10</b> Roof mounted ventilation units, including smoke extraction units.</p> <p><b>11</b> Car parking ventilation (i.e. air movement systems for removing fumes, odours and other contaminants in the air from car parks to the outside), including systems involving no air treatment and systems supplying fresh air to the car parking spaces.</p> <p><b>12</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).</p> <p><b>13</b> Grilles, fans, filters and other ancillary components of local and special ventilation systems.</p> <p><b>14</b> Vibration isolation mountings.</p> <p><b>15</b> Instrumentation and control components for local and special ventilation systems.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>16</b> Sundry items.</p> <p><b>17</b> Testing and commissioning.</p> <p><b>18</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.7.3</b> Smoke extraction/control systems.</p> <p><b>Definition:</b> air movement and pressurisation systems for removing and controlling the build-up of smoke arising from a fire, and to assist in ensuring the safety of personnel and maintaining safe escape routes.</p>	<p><b>1</b> Smoke extraction/control systems: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.</p> <p><b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.</p>	<p><b>1</b> Automatic smoke extraction systems, including natural smoke relief and fire ventilators, and powered smoke relief ventilators).</p> <p><b>2</b> Automatic smoke compartmentalisation systems.</p> <p><b>3</b> Fan units.</p> <p><b>4</b> Distribution ductwork and ductwork fittings and ancillaries, e.g. supports, hangers, access openings and dampers (control, fire and smoke).</p> <p><b>5</b> Grilles, fans, filters and other ancillary components of smoke ventilation systems.</p>	<p><b>1</b> Roof vents and roof cowls (included in sub-element 2.3.5).</p> <p><b>2</b> General-purpose LVLV power supplies (included in sub-element 5.8.2).</p> <p><b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>4</b> Builder's work in connection with services (included in element 5.14).</p>
	<p><b>2</b> Testing of installations.</p>	%			
	<p><b>3</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>6</b> Vibration isolation mountings.</p> <p><b>7</b> Instrumentation and control components for smoke ventilation systems.</p> <p><b>8</b> Sundry items.</p> <p><b>9</b> Testing and commissioning.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 5.8: Electrical installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.8.1</b> Electrical mains and sub-mains distribution.  <b>Definition:</b> the distribution of LV electricity from (and including) the building's main switchgear panel to (and including) the area distribution boards.	1 Electrical mains and sub-mains distribution: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the total GIFA of the building.  <b>C2</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.)  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs.	<b>1</b> Distribution of LV electricity from (and including) the building's main switchgear panel to (and including) the area distribution boards.  <b>2</b> HV switchgear.  <b>3</b> LV switchgear and distribution boards.  <b>4</b> HV and LV cables and wiring, including support components, cable trays, etc.  <b>5</b> Conduits and cable trunking, including all fittings and support components.  <b>6</b> Busbar trunking.  <b>7</b> Earthing and bonding components.  <b>8</b> Transformers.  <b>9</b> Fuse pillars, base units, poles and accessories, etc.  <b>10</b> Sundry items.  <b>11</b> Testing and commissioning.  <b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Connections to statutory undertaker's electricity main (included in sub-element 8.7.2).  <b>2</b> Distribution of HV electricity to on-site transformer (included in sub-element 8.7.2).  <b>3</b> Transformer sub-stations, including packaged sub-station's main (included in sub-element 8.7.2).  <b>4</b> Distribution of LV electricity to main switchgear panel within the building, including main switchgear panel, cables, excavating and backfilling trenches, etc. (included in sub-element 5.8.2).  <b>5</b> Electric generation installations within the building (included in sub-element 5.8.5).  <b>6</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>7</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.8.2</b> Power installations.  <b>Definition:</b> sub-circuit power installations from sub-distribution boards terminating at socket outlets, fuse connection units and other accessories, including final connections to permanent mechanical and electrical equipment.	<b>1</b> Power installation: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.	<b>1</b> General-purpose LVLV power installations.  <b>2</b> Extra LV supply installations.  <b>3</b> Direct current (DC) installations.  <b>4</b> LV switchgear and distribution boards, where not included as part of the sub-mains distribution.  <b>5</b> Uninterruptible power supply (UPS) installations, etc.  <b>6</b> Cables and wiring, including support components from sub-distribution boards to socket outlets, fuse connection units, etc.  <b>7</b> Conduits and cable trunking, including all fittings and support components.  <b>8</b> Earthing and bonding components.  <b>9</b> Socket outlets, fuse connection units and other outlet accessories.	<b>1</b> Electric heating installation (included in sub-elements 5.6.1 or 5.6.2, as appropriate).  <b>2</b> LV switchgear and distribution boards included as part of the sub-mains distribution (included in sub-element 5.8.1).  <b>3</b> Final connections to sanitary appliances and pods (included in sub-elements 5.1.1 and 5.1.3, as appropriate).  <b>4</b> Final connections to specialist mechanical and electrical equipment where carried out by the equipment installer.  <b>5</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>6</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%			
	<b>3</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>10</b> Final connections to equipment (e.g. boilers, kitchen and catering equipment, instantaneous water heaters, cookers and extraction terminals).</p> <p><b>11</b> Separate power installations for specialist mechanical and electrical equipment (e.g. for transportation systems).</p> <p><b>12</b> Final connections to specialist mechanical and electrical equipment where not carried out by the equipment installer.</p> <p><b>13</b> Sundry items.</p> <p><b>14</b> Testing and commissioning.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.8.3</b> Lighting installations.  <b>Definition:</b> sub-circuit installations from sub-distribution boards to provide lighting.	1 Lighting installation: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.	<b>1</b> General internal lighting, including lighting fixed to the exterior of the building (e.g. bulkhead fittings and downlights for soffits/external suspended ceilings).  <b>2</b> Emergency lighting.  <b>3</b> Lighting fixed to the exterior of the building supplied as part of the interior system.  <b>4</b> LVLV switchgear and distribution boards, where not included as part of the sub-mains distribution.  <b>5</b> Cables and wiring, including support components from sub-distribution boards to lighting points, switches, etc.  <b>6</b> Conduits and cable trunking, including all fittings and support components.  <b>7</b> Earthing and bonding.  <b>8</b> Fittings for lighting points, including roses, pendants, etc.	<b>1</b> Specialist lighting systems (included in sub-element 5.8.4).  <b>2</b> Security lights and lighting systems (included in sub-element 8.7.8).  <b>3</b> Street lighting, area lighting and flood lighting (included in sub-element 8.7.9).  <b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>5</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>9</b> Switches, including pull cords.</p> <p><b>10</b> Luminaires and lamps.</p> <p><b>11</b> Lighting control equipment.</p> <p><b>12</b> Sundry items.</p> <p><b>13</b> Testing and commissioning.</p> <p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.8.4</b> Specialist lighting installations.</p> <p><b>Definition:</b> specialist or special effect internal illumination systems.</p>	<b>1</b> Specialist lighting installation: details to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<p><b>1</b> Illuminated display signs, lettering, emblems and symbols for information purposes, advertising, etc. such as cold cathode, fluorescent lighting, etc.</p> <p><b>2</b> Studio lighting.</p> <p><b>3</b> Auditorium lighting, theatre lighting, stage lighting, etc.</p> <p><b>4</b> Arena lighting.</p> <p><b>5</b> Operating theatres and other specialist lighting installations.</p>	<p><b>1</b> General lighting and emergency lighting installations (included in sub-element 5.8.3).</p> <p><b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>3</b> Builder's work in connection with services (included in element 5.14).</p>
	<b>2</b> Testing of installations.	%	<b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.		
	<b>3</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>6</b> LV switchgear and distribution boards, where not included as part of the sub-mains distribution.</p> <p><b>7</b> Cables and wiring, including support components from sub-distribution boards to lighting points, switches, etc.</p> <p><b>8</b> Conduits and cable trunking, including all fittings and support components.</p> <p><b>9</b> Earthing and bonding.</p> <p><b>10</b> Fittings for lighting points.</p> <p><b>11</b> Switches, including pull cords.</p> <p><b>12</b> Luminaires and lamps.</p> <p><b>13</b> Lighting gantries, etc.</p> <p><b>14</b> Lighting control equipment.</p> <p><b>15</b> Sundry items.</p> <p><b>16</b> Testing and commissioning.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.8.5</b> Local electricity generation systems.  <b>Definition:</b> <ul style="list-style-type: none"> <li>local generation equipment for the production of electrical energy, including emergency and/or standby generator plant</li> <li>systems using the natural elements (i.e. wind and sun) to generate energy.</li> </ul>	1 Electricity generation systems: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Emergency/standby generator plant (gas, oil and dual fuel).  <b>2</b> Ancillary cables and wiring, conduits and cable trunking, and controls required to connect local electricity generation systems to other systems.  <b>3</b> Sundry items.	<b>1</b> Storage tanks and vessels, and fuel distribution pipelines (included in sub-elements 5.9.2 or 8.7.7, as appropriate).  <b>2</b> Central heat and power boiler plant (included in element 5.5).  <b>3</b> Solar collectors (included in element 5.5).
	2 Testing of installations.	%	<b>C2</b> Work to existing buildings is to be described and identified separately.	<b>4</b> Testing (including full load and off load testing) and commissioning.	<b>4</b> Photovoltaic tiles, panels, etc. (included in sub-elements 5.8.5 or 8.7.3, as appropriate).
	3 Commissioning of installations.		<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>5</b> Wind turbines, etc. (included in sub-elements 5.8.5 or 8.7.3, as appropriate).  <b>6</b> Uninterruptible power supply (UPS) installations, etc. (included in sub-element 5.8.2).  <b>7</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>8</b> Builder's work in connection with services (included in element 5.14).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	Transformation devices:	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>1</b> Wind turbines, including rooftop wind energy systems.</p> <p><b>2</b> Photovoltaic devices, including cells, panels, modules, etc. both roof mounted and building mounted.</p> <p><b>3</b> Solar collectors, including supporting framework (fish plate collectors, evacuated tube collectors, etc.).</p> <p><b>4</b> Other transformation devices.</p> <p><b>5</b> Generators in connection with transformation devices.</p> <p><b>6</b> Ancillary cables and wiring, conduits and cable trunking, and controls required to connect transformation devices to other systems.</p> <p><b>7</b> Sundry items.</p> <p><b>8</b> Testing and commissioning.</p> <p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Building mounted solar thermal panels (included in sub-element 5.5.1).</p> <p><b>2</b> Horizontal solar power systems providing protection to external walls (included in sub-element 2.5.3).</p> <p><b>3</b> Wind turbines external to the building envelope (included in sub-element 8.7.3).</p> <p><b>4</b> Photovoltaic devices external to the building envelope (included in sub-element 8.7.3).</p> <p><b>5</b> Heat pumps (included in element 5.5).</p> <p><b>6</b> Ground source heating (included in element 5.5).</p> <p><b>7</b> Solar collectors (included in element 5.5).</p> <p><b>8</b> Photovoltaic devices (e.g. tiles, slates and profiled sheets) where an integral part of a roof covering system (included in sub-element 2.3.2).</p>
	<b>4</b> Wind turbines: details, including output (kW), to be stated.				
	<b>5</b> Photovoltaic devices: details, including surface area of units (m <sup>2</sup> ) and output (kW), to be stated.				
	<b>6</b> Other transformation devices: details, including output (kW), to be stated.				
	<b>7</b> Testing of installations.	%			
	<b>8</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
					<p><b>9</b> Photovoltaic devices (e.g. profiled sheet cladding systems) where an integral part of an external wall system (included in sub-elements 2.5.1 or 2.5.2, as appropriate).</p> <p><b>10</b> Photovoltaic glazing where an integral part of a curtain walling system, a structural glazing assembly or external windows (included in sub-elements 2.5.1, 2.5.2 or 2.6.1, as appropriate).</p> <p><b>11</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>12</b> Builder's work in connection with services (included in element 5.14).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.8.6</b> Earthing and bonding systems.  <b>Definition:</b> systems for the transfer of electrical current to earth, to protect personnel, buildings, structure, plant and equipment in the case of an electrical fault within the electricity supply system, and also to protect against interference from electromagnetic fields and electromagnetic forces.	1 Earthing and bonding systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.	<b>1</b> Earthing and bonding cables.  <b>2</b> Earthing and bonding components, including protective conductors, earth clamps, earth tapes, clean earth bars, earth electrodes, earthing busbars, earth rod covers and boxing, equipotential bonding and all other ancillary components.  <b>3</b> Sundry items.  <b>4</b> Testing and commissioning.  <b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Earthing provided with individual systems (included in appropriate sub-element).  <b>2</b> Builder's work in connection with services (included in element 5.14).
	2 Testing of installations.	%			
	3 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>		

## Element 5.9: Fuel installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.9.1</b> Fuel storage.  <b>Definition:</b> storage tanks and vessels, for gas, oil, petrol, diesel or LPG.	1 Fuel storage: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	1 Gas, oil, petrol, diesel, LPG, biomass and other fuel systems.	1 Storage tanks and vessels supplied as an integral part of heat source installations (included in element 5.5).
	2 Testing of installations.	%	<b>C2</b> The area measured is the total GIFA of the building.	2 Storage tanks and vessels not supplied in connection with heat source installations.	2 Storage tanks and vessels external to the building (included in sub-element 8.7.7).
	3 Commissioning of installations.		<b>C3</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.  <b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	3 Proprietary supports forming an integral part of the storage tank/vessel unit.  4 Off-site painting/anti-corrosion treatments.  5 Thermal insulation.  6 Sundry items.  7 Testing and commissioning.  8 Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	3 Supports not integral to the storage tank/vessel (included in element 5.14).  4 Fuel bunds, etc. for storage/retention tanks and vessels (included in element 5.14).  5 On-site painting of storage tanks and vessels, supports and pipelines (included in element 5.14).  6 Building management systems and other control systems (included in sub-element 5.12.3).  7 Builder's work in connection with services (included in element 5.14).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.9.2</b> Fuel distribution systems.  <b>Definition:</b> piped gas supply systems taking gas from mains connection point within building and distributing it to user points.	1 Piped distribution systems: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the total GIFA of the building.  <b>C2</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>1</b> Gas, oil, petrol, diesel and LPG, and other fuel systems.  <b>2</b> Distribution pipelines from mains connection point within building to user points, including pipeline ancillaries and fittings.	<b>1</b> Connection to the statutory undertaker's main (included in sub-element 8.7.5).
	2 Testing of installations.	%	<b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>3</b> Pipeline components/ancillaries (e.g. valves and pumps).  <b>4</b> Bracketry.  <b>5</b> Manifolds, local meters, gas governors, gas boosters and gas connection outlets.  <b>6</b> Terminal control equipment.  <b>7</b> Thermal insulation.  <b>8</b> Off-site painting/anti-corrosion treatments.  <b>9</b> Monitoring equipment.	<b>2</b> On-site painting of pipelines and supports for pipelines (included in element 5.14).
	3 Commissioning of installations.		<b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>10</b> Sundry items.  <b>11</b> Testing and commissioning.  <b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>4</b> Builder's work in connection with services (included in element 5.14).

## Element 5.10: Lift and conveyor installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.1</b> Lifts and enclosed hoists.  <b>Definition:</b> <ul style="list-style-type: none"> <li>electro-mechanical or electro-hydraulic installations for the conveyance of people, goods or equipment from one level to another in a vertical plane</li> <li>permanently fixed lifting equipment, either electro-mechanical or hydraulically operated, for the raising or lowering of people, goods or equipment.</li> </ul>	<b>1</b> Passenger lifts: details, including capacity (i.e. number of people), speed (in m/sec), number of doors (nr), door heights (mm) and number of levels serviced (nr), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Complete lift installation, including lift cars, doors and equipment, guides and counter balances, hydraulic and lifting equipment, emergency lighting, lift alarms and telephones.  <b>2</b> Firefighting lifts.  <b>3</b> Wall climbing lifts.  <b>4</b> Gantries, trolleys, blocks, hooks and ropes, down shop leads, pendants, etc.  <b>5</b> Controls and electrical work from, and including, isolator where supplied with installation.  <b>6</b> Sundry items.  <b>7</b> Testing and commissioning.  <b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Lift shaft (included in group elements 1 and 2, as appropriate).  <b>2</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>4</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Wall climbing lifts: details, including capacity (in kg), number of people, speed (in m/sec) and number of levels serviced (nr), to be stated.				
	<b>3</b> Goods lifts: details, including capacity (in kg), number of doors, door heights (mm) and number of levels serviced (nr), to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>4</b> Testing of lift installations.	%			
	<b>5</b> Commissioning of lift installations.				
	<b>6</b> Enclosed hoists: details, including capacity (in kg) and number of levels (nr) serviced, to be stated.	nr		<p><b>1</b> Hoists, kitchen service hoists, dumb waiters, etc.</p> <p><b>2</b> Complete hoist installation, including cages, doors and equipment, guides and counter-balances, and hydraulic and lifting equipment.</p> <p><b>3</b> Controls and electrical work from, and including, isolator where supplied with installation.</p> <p><b>4</b> Sundry items.</p> <p><b>5</b> Testing and commissioning.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Hoist enclosure or shaft (included in group elements 1 and 2, as appropriate).</p> <p><b>2</b> General-purpose LV power supplies (included in sub-element 5.8.2).</p> <p><b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>4</b> Builder's work in connection with services (included in element 5.14).</p>
	<b>7</b> Testing of enclosed hoist installations.	%			
	<b>8</b> Commissioning of enclosed hoist installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.2</b> Escalators.  <b>Definition:</b> electro-mechanical systems for the conveyance of people from one level to another by means of a continually moving stairway.	<b>1</b> Escalators: details, including number of flights served (nr), angle of rise (in degrees), rise (m) and step width (mm), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The rise is the distance between the finished floor level at the bottom of the escalator and the finished floor level at the top of the escalator.	<b>1</b> Escalators.  <b>2</b> Ancillary components, including under-step lighting, under-handrail lighting, balustrades, cladding to sides and soffits, and chairs.  <b>3</b> Controls and electrical work from, and including, isolator where supplied with installation.  <b>4</b> Sundry items.  <b>5</b> Testing and commissioning.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%	<b>C3</b> Work to existing buildings is to be described and identified separately.		
	<b>3</b> Commissioning of installations.		<b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.3</b> Moving pavements.  <b>Definition:</b> electro-mechanical systems for the conveyance of people from one place to another by means of a moving flat strip of pavement, either level or inclined, to elevate from one level to another.	<b>1</b> Moving pavements: details, including length (m) and width (mm), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The linear length measured is the extreme length.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Moving pavements. <b>2</b> Travelators. <b>3</b> Stairlifts. <b>4</b> Controls and electrical work from, and including, isolator where supplied with installation. <b>5</b> Sundry items. <b>6</b> Testing and commissioning. <b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%			
	<b>3</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.4</b> Powered stairlifts.  <b>Definition:</b> electro-mechanical systems, fixed to the wall or balustrade of a staircase, for the conveyance of people with impaired mobility from one level to another.	<b>1</b> Powered stairlifts: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Complete stairlift installation, including rails, folding rails, carriages, hinged bridging platforms, guards, drive units and signage.  <b>2</b> Controls and electrical work from, and including, isolator where supplied with installation.  <b>3</b> Sundry items.  <b>4</b> Testing and commissioning.  <b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%	<b>C2</b> Work to existing buildings is to be described and identified separately.		
	<b>3</b> Commissioning of installations.		<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.5</b> Conveyors.  <b>Definition:</b> systems for the mechanical conveyance of goods between two or more points.	<b>1</b> People conveyors: details, including length (m) and width (mm), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The linear length measured is the extreme length.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Complete conveyor systems.  <b>2</b> Specialist systems (e.g. baggage handling systems, etc.).  <b>3</b> Controls and electrical work from, and including, isolator where supplied with installation.  <b>4</b> Sundry items.  <b>5</b> Testing and commissioning.  <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Goods conveyors: details, including length (m) and width (mm), to be stated.				
	<b>3</b> Testing of installations.	%			
	<b>4</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.6</b> Dock levellers and scissor lifts.  <b>Definition:</b> localised lifting systems for goods and people.	<b>1</b> Dock levellers: details, including total rise (m), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.	<b>1</b> Dock levellers, including canopy.  <b>2</b> Scissor lifts and levellers.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Scissor lifts: details, including total rise (m), to be stated.				
	<b>3</b> Testing of installations.	%	<b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>3</b> Controls and electrical work from, and including, isolator where supplied with installation.  <b>4</b> Sundry items.  <b>5</b> Testing and commissioning.	
	<b>4</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.7</b> Cranes and unenclosed hoists.  <b>Definition:</b> cranes and unenclosed hoists for the lifting and movement of heavy goods and equipment.	<b>1</b> Cranes: details, including design load (kN) and total rise (m), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Cranes.  <b>2</b> Travelling cranes.  <b>3</b> Unenclosed hoists and other lifting systems for materials and goods.  <b>4</b> Controls and electrical work from, and including, isolator where supplied with installation.  <b>5</b> Sundry items.  <b>6</b> Testing and commissioning.  <b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Travelling cranes: details, including design load (kN), to be stated.				
	<b>3</b> Unenclosed hoists: details, including total rise (m), to be stated.				
	<b>4</b> Testing of installations.	%			
	<b>5</b> Commissioning of installations.		<b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.10.8</b> Car lifts, car stacking systems, turntables, etc.  <b>Definition:</b> vehicle lifting, storage and moving systems.	1 Car lifts: details, including number of floors served (nr), to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Car lifts, car stacking systems, etc. <b>2</b> Vehicle turntables. <b>3</b> Controls and electrical work from, and including, isolator where supplied with installation. <b>4</b> Sundry items. <b>5</b> Testing and commissioning. <b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	2 Car stacking systems: details, including capacity (i.e. number of cars, nr), to be stated.				
	3 Vehicle turntables: details to be stated.				
	4 Testing of installations.				
	5 Commissioning of installations.				
<b>5.10.9</b> Document handling systems.  <b>Definition:</b> specialist document handling/delivery systems, warehouse picking systems, etc.	1 Document handling/delivery systems: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Work to existing buildings is to be described and identified separately.  <b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Document handling/delivery systems, warehouse picking systems, etc. <b>2</b> Controls and electrical work from, and including, isolator where supplied with installation. <b>3</b> Sundry items. <b>4</b> Testing and commissioning.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	2 Warehouse picking systems: details to be stated.				
	3 Other systems: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>4</b> Testing of installations.</p> <p><b>5</b> Commissioning of installations.</p>	nr	<p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.10.10</b> Other lift and conveyor installations.</p> <p><b>Definition:</b> transport systems not covered by sub-elements 5.11.1 to 5.11.10.</p>	<p><b>1</b> Other lift and conveyor installations: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>1</b> Paternoster lifts.</p> <p><b>2</b> Hoists for moving people with disabilities.</p> <p><b>3</b> Other transport systems.</p> <p><b>4</b> Controls and electrical work from, and including, isolator where supplied with installation.</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Testing and commissioning.</p> <p><b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Shafts, etc. (included in group elements 1 and 2, as appropriate).</p> <p><b>2</b> General-purpose LV power supplies (included in sub-element 5.8.2).</p> <p><b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>4</b> Builder's work in connection with services (included in element 5.14).</p>

## Element 5.11: Fire and lightning protection

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.11.1</b> Firefighting systems.  <b>Definition:</b> piped distribution systems within the confines of the building for firefighting purposes.	<b>1</b> Fire hose reels: details of each type of system to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.	<b>1</b> Fire hose reels, including hose reels and pressure booster sets.  <b>2</b> Dry risers, including inlet breechings, inlet boxes, landing valves, outlet boxes and drain valves.  <b>3</b> Wet risers, including landing valves, outlet boxes, pressure vessels within diaphragms and control panels.  <b>4</b> Distribution pipelines, pipeline ancillaries and fittings.  <b>5</b> Thermal insulation.  <b>6</b> Control components.  <b>7</b> Fire and smoke protection curtains (e.g. dropdown curtains), including control panels.  <b>8</b> Sundry items.  <b>9</b> Testing and commissioning	<b>1</b> Water supply (included in element 5.4, as appropriate).  <b>2</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>3</b> Fire hydrants (included in sub-element 5.4.1).  <b>4</b> Hand-held firefighting equipment, including fire extinguishers, fire blankets, etc. (included in sub-element 4.1.1).  <b>5</b> Fire detection and alarm systems (included in sub-element 5.12.1).  <b>6</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>7</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Dry risers: details to be stated.				
	<b>3</b> Wet risers: details to be stated.				
	<b>4</b> Fire and smoke protection curtains: details of each type of system to be stated.				
	<b>5</b> Other firefighting systems: details of each type of system to be stated.	nr/m <sup>2</sup>	<b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C4</b> Work to existing buildings is to be described and identified separately.		
	<b>6</b> Testing of installations.	%			
	<b>7</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.11.2</b> Fire suppression systems.</p> <p><b>Definition:</b> piped distribution systems within the confines of the building for firefighting purposes.</p>	<p><b>1</b> Sprinklers: details of each type of system to be stated.</p> <p><b>2</b> Deluge systems: details of each type of system to be stated.</p> <p><b>3</b> Gas firefighting systems: details of each type of system to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.</p>	<p><b>1</b> Sprinklers, including reaction and control devices, and sprinkler heads.</p> <p><b>2</b> Deluge systems, including water storage, reaction and control devices, and deluge discharge nozzles.</p> <p><b>3</b> Gas firefighting systems, including gas storage cylinders and vessels, gas manifolds and equipment, discharge nozzles, detectors and activators.</p>	<p><b>1</b> Water supply (included in element 5.4, as appropriate).</p> <p><b>2</b> General-purpose LV power supplies (included in sub-element 5.8.2).</p> <p><b>3</b> Fire hydrants (included in sub-element 5.4.1).</p> <p><b>4</b> Hand-held firefighting equipment, including fire extinguishers, fire blankets, etc. (included in sub-element 4.1.1).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>4</b> Foam firefighting systems: details of each type of system to be stated.	m <sup>2</sup>	<b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C4</b> Work to existing buildings is to be described and identified separately.	<b>4</b> Foam firefighting systems, including foam generation equipment, storage vessels, detectors and activators, foam discharge nozzles, etc.	<b>5</b> Fire detection and alarm systems (included in sub-element 5.12.1).  <b>6</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>7</b> Builder's work in connection with services (included in element 5.14).
	<b>5</b> Other fire suppression systems: details of each type of system to be stated.				
	<b>6</b> Testing of installations.	%	<b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>5</b> Distribution pipelines, pipeline ancillaries and fittings.  <b>6</b> Water tanks and cisterns for firefighting installations.  <b>7</b> Thermal insulation.  <b>8</b> Control components.  <b>9</b> Sundry items.  <b>10</b> Testing and commissioning.  <b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	<b>7</b> Commissioning of installations				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.11.3</b> Lightning protection.  <b>Definition:</b> lightning protection installations.	<b>1</b> Lightning protection installations: details of each type of system to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.  <b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C3</b> Work to existing buildings is to be described and identified separately.  <b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Bonded steel frames and other tape-based systems.  <b>2</b> Finials.  <b>3</b> Conductor tapes.  <b>4</b> Grounding/earthing.  <b>5</b> Sundry items.  <b>6</b> Testing and commissioning.  <b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Earthing systems (included in sub-element 5.8.6).  <b>2</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Testing of installations.	%			
	<b>3</b> Commissioning of installations.				

## Element 5.12: Communication, security and control systems

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.12.1</b> Communication systems.  <b>Definition:</b> systems for communicating, including visual, audio and data installations.	<b>1</b> Telecommunication systems: details of each type of system to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.  <b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C4</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>1</b> Telecommunication systems, including wiring, handsets and equipment, telex equipment, facsimile equipment, combined systems (e.g. PAX, PAXB and PNBX systems), etc.  <b>2</b> Data transmission, including wiring, computer networking, modems, multiplexers, data terminals and data-bus systems.  <b>3</b> Paging and emergency call systems, including emergency call buttons, pull cords, aerials, radio paging equipment, microphones, amplifiers and speakers, induction loops, personal receivers and indicator boards.  <b>4</b> Public address and conference audio facilities, including public address systems, hospital radio, conference audio facilities, audio frequency induction loop systems, background noise systems, microphones, amplifiers, and speakers.	<b>1</b> Radio and television studio installations (included in sub-element 5.8.2).  <b>2</b> Illuminated display signs, lettering, emblems and symbols for information purposes, advertising, etc. (included in sub-element 5.13.2).  <b>3</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>5</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Data transmission systems: details of each type of system to be stated.				
	<b>3</b> Paging and emergency call systems: details of each type of system to be stated.				
	<b>4</b> Public address and conference audio systems: details of each type of system to be stated.				
	<b>5</b> Radio systems: details of each type of system to be stated.				
	<b>6</b> Projection systems: details of each type of system to be stated.	nr			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>7</b> Fire detection and alarm systems: details of each type of system to be stated.	m <sup>2</sup>	<p><b>C5</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C7</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>5</b> Radio, cable and satellite systems (including receivers).</p> <p><b>6</b> Projection systems (e.g. cinematographic equipment, fixed or portable projection equipment, screens, back-projection equipment and sound equipment).</p> <p><b>7</b> Fire detection and alarm systems, including manual call points, automatic detection equipment, sounders, controls and indicator panels.</p> <p><b>8</b> Smoke detection and alarm systems.</p> <p><b>9</b> Liquid detection alarms (i.e. systems that give early warning of water/liquid leaks to prevent damage), including flood line multi-zone leak detection systems.</p> <p><b>10</b> Clocks, card clocks and flexitime installations.</p> <p><b>11</b> Radio and television, including cable and satellite systems.</p> <p><b>12</b> Television systems, including satellite.</p>	
	<b>8</b> Smoke detection and alarm systems: details of each type of system to be stated.				
	<b>9</b> Liquid detection systems: details of each type of system to be stated.	nr			
	<b>10</b> Clocks, card clocks, flexitime installations: details of each type of system to be stated.	nr			
	<b>11</b> Door entry systems: details of each type of system to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>13</b> Television systems: details of each type of system to be stated.	nr		<b>13</b> TV monitors. <b>14</b> Pneumatic message systems. <b>15</b> Other communication systems. <b>16</b> Sundry items. <b>17</b> Testing and commissioning. <b>18</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	<b>14</b> TV monitors: details of each type of system to be stated.				
	<b>15</b> Pneumatic message systems: details of each type of system to be stated.				
	<b>16</b> Other communication systems: details of each type of system to be stated.	nr/m <sup>2</sup>			
	<b>17</b> Testing of installations.	%			
	<b>18</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.12.2 Security systems.</b>  <b>Definition:</b> observation and access control installations, etc.	<b>1</b> Surveillance equipment: details of each type of system to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.  <b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C4</b> Installations for residential units, hotel rooms, student accommodation units, etc. may be enumerated (nr). The type of residential unit or room, and size (by number of bedrooms) of unit, is to be stated.	<b>1</b> Surveillance equipment (e.g. CCTV), including cameras.  <b>2</b> Security detection equipment, including intruder alarms, temperature measurement sensors, occupancy sensors and active infra-red.  <b>3</b> Security alarm equipment (i.e. personal attack alarm systems).  <b>4</b> Access control systems.  <b>5</b> Burglar and security alarms.  <b>6</b> Door entry systems (audio (intercom) and visual).  <b>7</b> Security lights and lighting systems.  <b>8</b> Other security systems, including active infra-red, hand geometry, microwave, passive infra-red, x-ray equipment, metal detection portals and pegging systems.  <b>9</b> Sundry items.  <b>10</b> Testing and commissioning.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> External observation and access control installations, etc. (unless stated otherwise, included in sub-element 8.7.8).  <b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>4</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Security detection equipment: details of each type of system to be stated.				
	<b>3</b> Security alarm equipment: details of each type of system to be stated.				
	<b>4</b> Access control systems: details of each type of system to be stated.				
	<b>5</b> Burglar and security alarms: details of each type of system to be stated.				
	<b>6</b> Door entry systems: details of each type of system to be stated.	nr	<b>C5</b> Work to existing buildings is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>7</b> Security lights and lighting systems: details of each type of system to be stated.	nr/m <sup>2</sup>	<b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C7</b> State whether external security systems are included with building security systems (cross-reference with sub-element 9.7.8).	<b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
	<b>8</b> Other security systems: details of each type of system to be stated.				
	<b>9</b> Testing of installations.	%	<b>C8</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		
	<b>10</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.12.3</b> Central control/building management systems.  <b>Definition:</b> control systems that, from a central remote location, provide means for controlling and reporting on the performance of the operational systems of a building.	<b>1</b> Central control/building management systems: details of each type of system to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.	<b>1</b> Control panels for mechanical and electrical equipment.	<b>1</b> Individual controls for heating, air conditioning installations, etc. (included with service installation or system as appropriate) (included in element 5.6 and element 5.7, as appropriate).
	<b>2</b> Computer-aided facilities management systems (CAFMs): details of each type of system to be stated.	item	<b>C2</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.	<b>2</b> Building management systems (BMS), including central operating station and satellite computer terminal software.  <b>3</b> CAFMs, including central operating station and computer terminal software.	<b>2</b> General-purpose LV power supplies (included in sub-element 5.8.2).
	<b>3</b> Testing of installations.	%	<b>C3</b> Work to existing buildings is to be described and identified separately.	<b>4</b> Controlling terminal units and switches.	<b>3</b> Web-based documentation project management systems (included in component 9.1.2.1).
	<b>4</b> Commissioning of installations.		<b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning	<b>5</b> Control cabling and containment.  <b>6</b> Compressed air and vacuum operated control systems.  <b>7</b> Sundry items.  <b>8</b> Testing and commissioning.  <b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>4</b> Builder's work in connection with services (included in element 5.14).

## Element 5.13: Specialist installations

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.13.1</b> Specialist piped supply installations.  <b>Definition:</b> <ul style="list-style-type: none"> <li>• piped gas supply systems of high purity (e.g. oxygen or nitrous oxide) from storage source to distribution points in medical treatment, medical research or similar establishments</li> <li>• piped distribution systems providing suction for vacuum cleaning and collection facilities</li> <li>• piped water supply systems where the water is treated to obtain a high degree of purity for special use and application</li> </ul>	<b>1</b> Medical and laboratory gas supply systems: details of each type of system to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.	<b>1</b> Medical and laboratory gas supply systems, including gas bottles and bulk storage vessels, manifold headers, gas governors, monitoring equipment, terminal control equipment, gas detection and alarm equipment, gas connection outlets, etc.  <b>2</b> Centralised vacuum cleaning systems, including vacuum pumps, blowers and vacuum connection units.  <b>3</b> Treated water systems, including de-alkalisation, de-ionisation, de-aeration, raw sewage storage tanks and vessels, chemical storage tanks and vessels, purified water tanks and vessels, distillation equipment, electrolytic chlorine ion generation equipment, demineralisation plant, reverse osmosis plant, etc.	<b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).  <b>2</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>3</b> Builder's work in connection with services (included in element 5.14).
	<b>2</b> Centralised vacuum cleaning systems: details of each type of system to be stated.		<b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.		
	<b>3</b> Treated water systems: details of each type of system to be stated.		<b>C4</b> Work to existing buildings is to be described and identified separately.		
	<b>4</b> Swimming pool water treatment systems: details of each type of system to be stated.		<b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		
	<b>5</b> Compressed air systems: details of each type of system to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<ul style="list-style-type: none"> <li>systems for the treatment and circulation of water for swimming pools</li> <li>piped distribution systems providing compressed air for motive power and general-purpose use</li> <li>piped distribution systems providing compressed air of high quality (oil-free) for purposes of operating pneumatic controls and other delicate instruments and equipment</li> <li>piped distribution systems providing negative pressure at a number of points for particular user or process functions</li> <li>other piped distributions of a specialist nature.</li> </ul>	<b>6</b> Vacuum installations: details of each type of system to be stated.	nr/m <sup>2</sup>	<b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>4</b> Swimming pool water treatment, including filter vessels, chemical storage vessels, chemical dosing equipment, ozone generation and injection equipment, de-ozoning vessels, electrolytic chlorine ion generation equipment, pool inlet jets, scum channels, perimeter draw-off grilles, etc.  <b>5</b> Compressed air systems, including compressors (with motors and starters), inter-coolers, after-coolers, air storage vessels and receivers, air separators, cooling water systems, lubrication systems, local water coolers, compressed air ancillaries, compressed air connection outlets, instrument air pipeline ancillaries (such as manifolds), instrument air connection outlets, etc.  <b>6</b> Vacuum systems, including vacuum pumps, intercoolers and driers, vacuum connection points, etc.	
	<b>7</b> Other specialist piped supply systems: details of each type of system to be stated.				
	<b>8</b> Testing of installations.	%			
	<b>9</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>7</b> Other specialist piped supply systems.</p> <p><b>8</b> Pipelines, pipeline ancillaries and fittings.</p> <p><b>9</b> Air duct lines, duct line ancillaries and fittings.</p> <p><b>10</b> Thermal insulation.</p> <p><b>11</b> Silencers and acoustic treatment.</p> <p><b>12</b> Control components.</p> <p><b>13</b> Sundry items.</p> <p><b>14</b> Testing and commissioning.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.13.2</b> Specialist refrigeration systems.  <b>Definition:</b> specialist refrigeration systems, including cold rooms, ice pads and other specialist systems.	<b>1</b> Cold rooms: details of each type of system to be stated.	nr/m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.	<b>1</b> Cold rooms, including packaged cold rooms, packaged walk-in freezers, wall panels and linings, ceiling panels and linings, flooring systems, doors and door mechanisms, jointing material, thermal cladding, refrigeration plant and equipment, evaporators, lighting, etc.  <b>2</b> Ice pads, including waterproof layer, insulation layer, working screed, slip plane layer, bonded refrigeration pads (incorporating pipelines, reinforcement, etc.), floor drains and sealing plates, cooling towers, evaporative condensers, heat recovery systems, etc.	<b>1</b> Central refrigeration plant and chillers (included in sub-element 5.6.3).  <b>2</b> Cooling towers (included in sub-element 5.6.3).  <b>3</b> External cooling towers (included in sub-element 8.8.2).  <b>4</b> General-purpose LV power supplies (included in sub-element 5.8.2).
	<b>2</b> Ice pads: details to be stated.				
	<b>3</b> Other specialist refrigeration systems: details of each type of system to be stated.				
	<b>4</b> Testing of installations.	%	<b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.  <b>C4</b> Work to existing buildings is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>5</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>6</b> Builder's work in connection with services (included in element 5.14).	
	<b>5</b> Commissioning of installations.			<b>3</b> Other specialist refrigeration systems.  <b>4</b> Sundry items.  <b>5</b> Testing and commissioning.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.13.3</b> Specialist mechanical installations.</p> <p><b>Definition:</b> specialist installations not covered by elements 5.1 to 5.12 or sub-elements 5.13.1, 5.13.2 or 5.13.4.</p>	<p><b>1</b> Specialist mechanical installations: details of each type of system to be stated.</p>	nr/m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The area measured is the area serviced by the system (i.e. the area of the rooms and circulation spaces that are served by the system, which is not necessarily the total GIFA of the building). The area serviced is measured using the rules of measurement for ascertaining the GIFA.</p> <p><b>C3</b> Where more than one system is employed, the area measured for each system is the area serviced by the system.</p> <p><b>C4</b> Work to existing buildings is to be described and identified separately.</p>	<p><b>1</b> Wave machines.</p> <p><b>2</b> Saunas and sauna equipment.</p> <p><b>3</b> Jacuzzis.</p> <p><b>4</b> Swimming pools.</p> <p><b>5</b> Other specialist installations.</p> <p><b>6</b> Sundry items.</p> <p><b>7</b> Testing and commissioning.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Water supply (included in element 5.4, as appropriate).</p> <p><b>2</b> Gas supply (included in sub-element 5.9.1).</p> <p><b>3</b> General-purpose LV power supplies (included in sub-element 5.8.2).</p> <p><b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>5</b> Builder's work in connection with services (included in element 5.14).</p>
	<p><b>2</b> Testing of installations.</p>	%			
	<p><b>3</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>		
<p><b>5.13.4</b> Specialist electrical/electronic installations.</p> <p><b>Definition:</b> electrical and electronic installations, and/or systems, for specialist purposes.</p>	<p><b>1</b> Specialist electrical and electronic installations and/or systems: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Radio and television studio equipment and installations.</p> <p><b>2</b> Recording studio equipment and installations.</p> <p><b>3</b> Discrete and communal television aerial and satellite systems.</p> <p><b>4</b> Home cinema.</p> <p><b>5</b> Multi-room audio and video.</p> <p><b>6</b> Automated curtains and blinds.</p> <p><b>7</b> Other specialist electrical and electronic installations and systems.</p>	<p><b>1</b> General-purpose LV power supplies (included in sub-element 5.8.2).</p> <p><b>2</b> Builder's work in connection with services (included in element 5.14).</p>
	<p><b>2</b> Testing of installations.</p>	%			
	<p><b>3</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>8</b> Sundry items.</p> <p><b>9</b> Testing and commissioning.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>5.13.5</b> Water features.</p> <p><b>Definition:</b> systems for display or decorative purposes involving the movement of water.</p>	<p><b>1</b> Water features: details to be stated.</p>	nr	<p><b>C1</b> Quantity of water features.</p> <p><b>C2</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>1</b> Water features, including ornamental fountains and waterfalls.</p> <p><b>2</b> Water filtration equipment.</p> <p><b>3</b> Nutrient treatment and equipment.</p> <p><b>4</b> Final electrical connections.</p> <p><b>5</b> Control components.</p> <p><b>6</b> Sundry items.</p> <p><b>7</b> Testing and commissioning.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Drinking fountains (included in sub-element 5.1.1).</p> <p><b>2</b> Cold water supply (included in sub-element 5.4.2).</p> <p><b>3</b> General-purpose LV power supplies (included in sub-element 5.8.2).</p> <p><b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>5</b> Builder's work in connection with services (included in element 5.14).</p>
	<p><b>2</b> Testing of installations</p>				
	<p><b>3</b> Commissioning of installations</p>				

## Element 5.14: Builder's work in connection with services

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>5.14.1</b> Builder's work in connection with services.  <b>Definition:</b> sundry builder's work associated with the installation of water, gas, electricity, heating, ventilation, aboveground drainage, telecommunications and other services, as well as prefabricated buildings and pods (i.e. pre-fabricated bathroom, toilet and shower units).	1 Builder's work in general areas: details to be stated.	nr/m/ m <sup>2</sup> /%	<b>C1</b> Where quantifiable, cost-significant builder's work items in connection with services should be separately identified and measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr).  <b>C2</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Builder's work in general areas. <b>2</b> Builder's work to landlord's areas. <b>3</b> Builder's work to plant rooms. <b>4</b> Plant and equipment bases constructed on top of ground slabs and beds. <b>5</b> Fuel bunds, etc. for storage/retention tanks and vessels. <b>6</b> Forming/cutting holes, mortices, sinkings, chases, etc. including making good. <b>7</b> Ducts, pipe sleeves, etc. <b>8</b> Trench covers, duct covers and frames. <b>9</b> Supports for storage tanks, vessels, cisterns, etc. <b>10</b> Stopping up and sealing holes. <b>11</b> Fire-resistant stopping, including fire sleeves. <b>12</b> Fire breaks.	
	2 Builder's work to landlord's areas: details to be stated.				
	3 Builder's work to plant rooms: details to be stated.				
	4 Large plant and equipment bases: details, including overall size (in m), to be stated.	nr	<b>C3</b> Where the length of a component is to be measured, the length of linear components measured is their extreme length, over all obstructions.  <b>C4</b> When not quantifiable, or of a non-cost-significant nature, builder's work items in connection with services should be identified and quantified by a percentage allowance or by applying the GIFA.  <b>C5</b> The area measured is the floor area relating to each builder's work classification.		
	5 Fuel bunds: details, including construction and overall size (m), to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Percentage additions for builder's work items in connection with services should be applied to the total cost of all elements comprising group element 5.</p> <p><b>C7</b> Other cost-significant items are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) and identified separately.</p> <p><b>C8</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C9</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>13</b> Painting/anti-corrosion treatment of mechanical service equipment, including fuel storage tanks and vessels, supports and pipelines.</p> <p><b>14</b> Identification labelling and colour coding of service installations and systems.</p> <p><b>15</b> Other builder's work items in connection with services.</p> <p><b>16</b> Sundry items.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

# Group element 6: Prefabricated buildings and building units

Group element 6 comprises the following elements:

## 6.1 Prefabricated buildings and building units

**Note:** where on-site testing and commissioning is required to be measured under sub-elements 6.1.1 to 6.1.3, the terms should include the following works:

### 1 Testing includes:

- (1) testing equipment and consumables
- (2) calibration
- (3) site installation tests
- (4) static testing, including testing records
- (5) performance testing, including performance test records
- (6) fuels required for testing.

### 2 Commissioning includes:

- (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
- (2) temporary operation of equipment to employer's requirements
- (3) fuels required for commissioning.

### 3 Setting all mechanical and electrical services and installations to work after completion of commissioning (initial operation).

## Element 6.1: Prefabricated buildings and building units

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>6.1.1</b> Complete buildings.  <b>Definition:</b> complete or substantially complete self-finished building superstructures of proprietary modular construction, largely prefabricated.	<b>1</b> Prefabricated modular buildings: details to be stated.	m <sup>2</sup>	<b>C1</b> The area measured is the GIFA of the complete building unit.  <b>C2</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Complete self-finished prefabricated modular building systems for: <ul style="list-style-type: none"> <li>• industrial use (e.g. a complete warehouses)</li> <li>• commercial use (e.g. a complete office building)</li> <li>• retail use (e.g. retail units and retail distribution centres)</li> <li>• agricultural use (e.g. complete livestock buildings and barns)</li> <li>• domestic use (complete dwellings, garages and workshops)</li> <li>• education use (complete school buildings)</li> <li>• healthcare buildings (e.g. complete offices, staff and public amenities, training centres, laboratories, day care centres and specialist surgical buildings)</li> <li>• other complete off-site prefabricated complete self-finished modular buildings (e.g. aircraft hangars).</li> </ul>	<b>1</b> Prefabricated room units, supplied as completed units, manufactured off-site (included in sub-element 6.1.2).  <b>2</b> Bathroom, toilet and shower pods, supplied as completed units, manufactured off-site (included in sub-element 6.1.3).  <b>3</b> Non-permanent prefabricated buildings/building systems (i.e. used as temporary accommodation for the duration of the building project) (included in sub-elements 0.2.1 or 0.2.2, as appropriate).  <b>4</b> Foundations and substructures (included in group element 1).  <b>5</b> Drainage below ground (included in sub-element 1.1.3 or element 8.6, as appropriate).  <b>6</b> Minor prefabricated buildings, such as workshops, sheds, stores, etc. (included in sub-element 8.8.2).
	<b>2</b> On-site testing of installations.	%	<b>C3</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.		
	<b>3</b> On-site commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>2</b> Where included as part of the building systems:</p> <ul style="list-style-type: none"> <li>• structure, roof and wall cladding</li> <li>• rainwater drainage</li> <li>• windows, external doors, stairs, etc.</li> <li>• internal partitions, linings and finishes</li> <li>• internal doors</li> <li>• fixtures, furnishings and equipment</li> <li>• sanitary appliances</li> <li>• mechanical and electrical services</li> <li>• stopping up and sealing holes</li> <li>• fire-resistant stopping, including fire sleeves</li> <li>• fire breaks around units.</li> </ul> <p><b>3</b> Final connections of cold water, hot water, electricity and other fuels to pods.</p> <p><b>4</b> Sundry items.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>5</b> Testing and commissioning.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>6.1.2</b> Building units.</p> <p><b>Definition:</b> complete or substantially complete modular room units of proprietary construction, largely prefabricated and manufactured off-site, for incorporation into buildings.</p>	<p><b>1</b> Prefabricated room units, including type of unit, GIFA of unit (in m<sup>2</sup>), construction of unit and content of units, to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The area measured is the GIFA for each type of unit.</p> <p><b>C3</b> Building units of different type, composition and GIFA are to be measured separately.</p>	<p><b>1</b> Prefabricated modular room units, singular or multiple, which are to be enclosed by an external envelope, such as:</p> <ul style="list-style-type: none"> <li>• accommodation units/ bedroom units</li> <li>• hotel suites</li> <li>• office units</li> <li>• classrooms</li> <li>• toilet units/washroom units</li> <li>• corridors</li> <li>• staircases</li> <li>• student accommodation</li> <li>• soundproof rooms</li> <li>• computer rooms</li> </ul>	<p><b>1</b> Complete self-finished prefabricated modular buildings (included in sub-element 6.1.1).</p> <p><b>2</b> Bathroom, toilet and shower pods, supplied as completed units, manufactured off-site (included in sub-element 6.1.3).</p>
	<p><b>2</b> On-site testing of installations.</p>	%	<p><b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>		
	<p><b>3</b> On-site commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<ul style="list-style-type: none"> <li>• cold rooms</li> <li>• spray booths</li> <li>• kitchens</li> <li>• kiosks</li> <li>• healthcare modules, including operating theatres.</li> </ul> <p><b>2</b> Where included as part of the building unit:</p> <ul style="list-style-type: none"> <li>• structure, roof and wall cladding</li> <li>• windows, external doors, stairs, etc.</li> <li>• internal partitions, linings and finishes</li> <li>• internal doors</li> <li>• fixtures, furnishings and equipment</li> <li>• sanitary appliances</li> <li>• mechanical and electrical services</li> <li>• stopping up and sealing holes</li> <li>• fire-resistant stopping, including fire sleeves</li> <li>• fire breaks around units.</li> </ul>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>3</b> Final connections of cold water, hot water, electricity and other fuels to pods.</p> <p><b>4</b> Sundry items.</p> <p><b>5</b> Testing and commissioning.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>6.1.3</b> Pods.</p> <p><b>Definition:</b> bathroom, toilet and shower pods, supplied as complete units, manufactured off-site.</p>	<p><b>1</b> Prefabricated bathroom pods: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p>	<p><b>1</b> Complete pods including structural framework; floor, wall and ceiling linings; applied finishes; sanitary appliances; all fixtures, furnishings and equipment; and all mechanical and electrical services within the pod.</p> <p><b>2</b> Bathroom pods.</p> <p><b>3</b> Toilet pods.</p> <p><b>4</b> Shower room pods.</p> <p><b>5</b> Final connections of cold water, hot water, electricity and other fuels to pods.</p>	<p><b>1</b> Cold water and hot water distribution feeding pod (included in sub-elements 5.4.2 or 5.4.3).</p> <p><b>2</b> Foul drainage from pod (included in sub-element 5.3.1).</p> <p><b>3</b> General-purpose LV power supplies to pod (included in sub-element 5.8.2).</p> <p><b>4</b> Fire-resistant stopping in connection with pods, including fire sleeves installed on site (included in element 5.14).</p>
	<p><b>2</b> Prefabricated toilet pods: details to be stated.</p>		<p><b>C2</b> Work to existing buildings is to be described and identified separately.</p>		
	<p><b>3</b> Prefabricated shower room pods: details to be stated.</p>		<p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>4</b> On-site testing of installations</p> <p><b>5</b> On-site commissioning of installations.</p>	%	<p><b>C4</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>6</b> Sundry items.</p> <p><b>7</b> Testing and commissioning.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>5</b> Builder's work in connection with services (included in element 5.14).</p>

# Group element 7: Work to existing buildings

Group element 7 comprises the following elements:

- 7.1 Minor demolition and alteration works
- 7.2 Repairs to existing services
- 7.3 Damp-proof courses/fungus and beetle eradication
- 7.4 Facade retention
- 7.5 Cleaning existing surfaces
- 7.6 Renovation works

**Note:** fit-out works in connection with a new building (i.e. one for which the shell and core have already been constructed) do not constitute work to existing buildings. Such fit-out works are to be measured as new work in accordance with the measurement rules.

## Element 7.1: Minor demolition and alteration works

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>7.1.1</b> Minor demolition and alteration works.  <b>Definition:</b> individual items of work to existing buildings, such items involving one or more trades. Items involve altering, adapting or repairing existing buildings, including cutting away and removing existing work, inserting new, minor demolition works and soft strip.	1 Spot items: details to be stated.	item	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Stripping out existing service installations, including pipe casings, etc.	<b>1</b> Removal of toxic or hazardous material prior to alteration works, e.g. asbestos removal (included in sub-element 0.1.1).
	2 Minor demolition works: details to be stated.	nr/m/m <sup>2</sup>	<b>C2</b> Where the length of a component is to be measured, the length of linear components measured is their extreme length, over all obstructions.	<b>2</b> Stripping out fixtures and fittings.	<b>2</b> Decontaminating existing service systems prior to demolition, e.g. boilers and fuel storage tanks and vessels (included in sub-element 0.1.1).
	3 Removal: details to be stated.	item/nr/m/m <sup>2</sup>	<b>C3</b> Where the area of a component is to be measured, the area measured for an item is the surface area of the item, with no deduction for voids.	<b>3</b> Stripping out skirtings, dado rails, picture rails, architraves, etc.	<b>3</b> Underpinning to external walls that are an integral part of the new building (included in sub-element 1.1.2).
	4 Alteration works: details to be stated.		<b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>4</b> Taking out kitchen fittings and appliances.  <b>5</b> Removing shelves, work benches, etc.  <b>6</b> Removing sanitary appliances and fittings.  <b>7</b> Removing parts of existing buildings.  <b>8</b> Cutting openings in existing work.  <b>9</b> Strutting and supports for openings in walls or after removal of walls.  <b>10</b> Inserting tie beams, tie rods, etc.	<b>4</b> Underpinning to walls within existing buildings that are to be rehabilitated, i.e. internal walls (included in sub-element 1.1.2).  <b>5</b> Underpinning to external site boundary walls (included in sub-element 8.8.3).  <b>6</b> Overhauling and repairs to existing mechanical and electrical installations, systems, plant and equipment (included in sub-element 7.2.1).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>11</b> Removing wall, floor and ceiling finishes.</p> <p><b>12</b> Removing internal walls and partitions, including making good.</p> <p><b>13</b> Removing floor construction.</p> <p><b>14</b> Removing existing roof coverings.</p> <p><b>15</b> Repairs to external wall cladding and covering systems.</p> <p><b>16</b> Repairs to roof coverings (e.g. tiles, slates, sheet coverings, flexible sheet coverings and asphalt).</p> <p><b>17</b> Repairs to existing rainwater installations.</p> <p><b>18</b> Rebuilding chimney stacks.</p> <p><b>19</b> Cutting back chimney breasts.</p> <p><b>20</b> Rebuilding piers and columns.</p> <p><b>21</b> Rebuilding walls and partitions (isolated – where not included in element 2.7).</p> <p><b>22</b> Repairs to sheet linings (e.g. plasterboard and timber sheeting for walls, floors and ceilings).</p>	<p><b>7</b> Repairs to masonry, concrete, metal, timber and plastic components (included in element 7.6, as appropriate).</p> <p><b>8</b> New building work and services within existing buildings to be included in the appropriate element/sub-element for building works. Work to existing buildings to be described and identified separately within each element/sub-element.</p> <p><b>9</b> Repairs to or replacement of structural members, e.g. roof members and structural beams (included in sub-elements 7.6.2, 7.6.3 or 7.6.4, as appropriate).</p> <p><b>10</b> Repairs to existing windows, doors, hatches, rooflights, frames, linings, etc. (included in sub-elements 7.6.3, 7.6.4 or 7.6.5, as appropriate).</p> <p><b>11</b> Damp-proof courses (included in sub-element 7.3.1).</p> <p><b>12</b> Fungus/beetle eradication (included in sub-element 7.3.2).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>23</b> Taking out windows, doors, frames, linings, screens, etc. in preparation for filling openings and/or taking down walls or partitions.</p> <p><b>24</b> Filling in or covering over existing openings.</p> <p><b>25</b> Inserting new windows, doors, stairs, rooflights, etc. into existing building fabric.</p> <p><b>26</b> Re-glazing.</p> <p><b>27</b> Repairs to screeds.</p> <p><b>28</b> Repairs to toppings (e.g. granolithic).</p> <p><b>29</b> Latex screeds for existing floors.</p> <p><b>30</b> Repairs to plastered, rendered and roughcast coatings (including lathing and baseboards).</p> <p><b>31</b> Repairs to tiled finishes for walls and floors (e.g. quarry tiles and ceramic tiles).</p> <p><b>32</b> Repairs to wood block flooring.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>33</b> Repairs to floor coverings.</p> <p><b>34</b> Degreasing old painted surfaces.</p> <p><b>35</b> Stripping previously decorated surfaces.</p> <p><b>36</b> Removing paint from timber, metal and other similar surfaces (e.g. burning off paint and chemically stripping paint).</p> <p><b>37</b> Repainting existing timber, metal and other similar surfaces (e.g. windows, doors, rooflights, etc.).</p> <p><b>38</b> Scraping paint from plastered surfaces, etc.</p> <p><b>39</b> Minor painting and redecoration (e.g. touch-up painting).</p> <p><b>40</b> Overhauling ironmongery to windows, doors, etc.</p> <p><b>41</b> Applying sealants to existing window and door frames, rooflights, etc.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>42</b> Other alteration works (spot items).</p> <p><b>43</b> Temporary screens required for alteration works.</p> <p><b>44</b> Sundry items.</p> <p><b>45</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 7.2: Repairs to existing services

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>7.2.1</b> Repairs to existing services.  <b>Definition:</b> refurbishment of existing service installations, systems, equipment and plant.	1 Equipment/plant repairs: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Repairs to existing sanitary appliances (including clearing blockages).  <b>2</b> Repairs to/overhauling of existing mechanical and electrical plant and equipment (e.g. boilers, water heaters, storage tanks and vessels, and extractor fans), including the replacement of components.  <b>3</b> Fault finding.  <b>4</b> Overhauling existing mechanical and electrical installations and systems (e.g. heating installation, ventilation systems, electrical systems, etc.), including the replacement of components.  <b>5</b> Repairs and upgrades to existing specialist services (e.g. lifts).  <b>6</b> Renewing flue pipes.  <b>7</b> Sundry items.  <b>8</b> Testing and commissioning.	<b>1</b> Decontaminating existing service systems prior to demolition, e.g. boilers and fuel storage tanks and vessels (included in sub-element 0.1.1).  <b>2</b> New service installations (included in group element 5, as appropriate).  <b>3</b> New service equipment and plant (included in group element 5, as appropriate).
	2 Overhauling service installations/systems: details to be stated.	m <sup>2</sup>	<b>C2</b> The area measured is the area serviced by the installation/system. The area serviced is measured using the rules of measurement for ascertaining the GIFA.		
	3 Testing of equipment/plant and/or installations.	%	<b>C3</b> Where more than one installation/system is employed, the area measured for each system is the area serviced by the installation/system.		
	4 Commissioning of equipment/plant and/or installations.		<b>C4</b> Where components are to be itemised, the number of key subcomponents comprising the component are to be identified, described and enumerated within the description of the component.  <b>C5</b> Other cost-significant items are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C8</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 7.3: Damp-proof courses/fungus and beetle eradication

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.3.1</b> Damp-proof courses.</p> <p><b>Definition:</b> preventing rising damp in existing masonry walls.</p>	<p><b>1</b> Damp-proof courses: details to be stated.</p>	m	<p><b>C1</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C2</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Chemical damp-proof courses, including drilling holes, injecting chemicals and making good holes.</p> <p><b>2</b> Injection mortar damp-proof courses.</p> <p><b>3</b> Inserted mechanical damp-proof courses.</p> <p><b>4</b> Local making good to finishes.</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Damp-proof courses inserted into new walls (included in group element 1, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.3.2</b> Fungus/beetle eradication.</p> <p><b>Definition:</b> treating existing timbers to eradicate fungus attacks such as dry and wet rot, and various types of wood-boring beetle infestation.</p>	<p><b>1</b> Eradication treatment: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the surface area of the treatment, with no deduction for voids.</p> <p><b>C2</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Opening up existing work (e.g. lifting and replacing floorboards).</p> <p><b>2</b> Cutting out fungus- or beetle-infested timber, plaster, etc., and disposing of cut out material.</p> <p><b>3</b> Applying preservative treatment (e.g. irrigation of walls by pressure injection, application of fungicide solution and treatment with insecticide).</p> <p><b>4</b> Solid rod preservative inserts.</p> <p><b>5</b> Preservative treatments.</p> <p><b>6</b> Paste preservative treatment.</p> <p><b>7</b> Insecticidal smoke treatment.</p> <p><b>8</b> Sundry items.</p> <p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 7.4: Facade retention

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>7.4.1</b> Facade retention.  <b>Definition:</b> temporary or semi-permanent support for unstable structures or facades (i.e. structures not to be demolished).	<b>1</b> Support structures: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Facade retention works where existing facade is to be integrated into new building.  <b>2</b> Location surveys.  <b>3</b> Commencement and completion condition surveys.  <b>4</b> Dead, raking, flying or box shoring; strutting (including bracing; sole plates and wall plates; needles, including holes; brackets, blockings and wedges; dog irons and similar metalwork).  <b>5</b> Foundations for shoring.  <b>6</b> Cutting holes in existing structures for needles, etc.  <b>7</b> Design, erection, maintenance, repositioning and removal of support structures.  <b>8</b> Periodic technical inspections.  <b>9</b> Sundry items.  <b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Temporary or semi-permanent supports for structures adjacent to the site on which the building is being built, including party walls (included in sub-element 0.3.1).  <b>2</b> Temporary supports for basement retaining walls (included in sub-element 0.2.1).  <b>3</b> Temporary screens required for alteration works (included in sub-element 7.1.1).  <b>4</b> Supports for small openings cut into existing walls or after removal of internal walls, etc. (included in sub-element 7.1.1).
	<b>2</b> Periodic technical inspections of support structures: details to be stated.				
	<b>3</b> Removing support structures: details to be stated.				

## Element 7.5: Cleaning existing surfaces

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.5.1</b> Cleaning.</p> <p><b>Definition:</b> cleaning and removing stains and deposits from existing surfaces.</p>	<p><b>1</b> Cleaning existing surfaces: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured is the surface area of the surface to be cleaned, with no deduction for voids.</p> <p><b>C2</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Removing efflorescence, stains, soot, graffiti, vegetation, algae, bird droppings, etc.</p> <p><b>2</b> Cleaning by washing, abrasive blasting, chemical treatment or other methods.</p> <p><b>3</b> Artificial weathering.</p> <p><b>4</b> Sundry items.</p> <p><b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.5.2</b> Protective coatings.</p> <p><b>Definition:</b> coatings to protect existing surfaces, including bird/vermin repellent coatings.</p>	<p><b>1</b> Protective coatings for existing surfaces: details to be stated.</p>	<p>m<sup>2</sup></p>	<p><b>C1</b> The area measured is the surface area of the surface to be coated, with no deduction for voids.</p> <p><b>C2</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Internal and external surfaces.</p> <p><b>2</b> Specialist painting/coating systems (i.e. designed for use on concrete, masonry, steelwork, etc.).</p> <p><b>3</b> Lime washing, colourless waterproofers, anti-graffiti colourless coatings, etc.</p> <p><b>4</b> Bird repellent coatings, etc.</p> <p><b>5</b> Sundry items.</p> <p><b>6</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 7.6: Renovation works

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.6.1</b> Masonry repairs.</p> <p><b>Definition:</b> local cutting out and reinstatement of existing brick, block or stonework, and repointing defective joints.</p>	<p><b>1</b> Masonry repairs: details to be stated.</p>	nr/m/m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Where the length of a repair is to be measured, the length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> Where the area of a repair is to be measured, the area measured is the surface area of the repair.</p> <p><b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Cutting out decayed, defective and cracked bricks, blocks or stones and inserting new (including isolated repairs, stitching, etc.).</p> <p><b>2</b> Plastic stone repairs.</p> <p><b>3</b> Re-dressing stonework to new profiles.</p> <p><b>4</b> Inserting new wall ties (without demolition).</p> <p><b>5</b> Grouting.</p> <p><b>6</b> Repointing/repointing existing masonry.</p> <p><b>7</b> Sundry items.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Damp-proof courses inserted into new walls (included in group element 1, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.6.2</b> Concrete repairs.</p> <p><b>Definition:</b> cutting out, repairing, partially replacing, resurfacing and rehabilitating eroded and defective concrete.</p>	<p><b>1</b> Concrete repairs: details to be stated.</p>	nr/m/m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> The area measured is the surface area of the repair.</p> <p><b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Cutting out defective concrete and replacing with new.</p> <p><b>2</b> Cutting out defective reinforcement and replacing with new.</p> <p><b>3</b> Cleaning and rust proofing existing rusted reinforcement.</p> <p><b>4</b> Concrete and resin/cement mixes in repairs and resurfacing, including spray-applied concrete.</p> <p><b>5</b> Anchored mesh reinforcement.</p> <p><b>6</b> Resin or cement impregnation/injection.</p> <p><b>7</b> Sundry items.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.6.3</b> Metal repairs.</p> <p><b>Definition:</b> repairing, renovating and conserving existing architectural metalwork, metal components and finishes.</p>	<p><b>1</b> Metal repairs: details to be stated.</p>	nr/m/m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> The area measured is the surface area of the repair.</p> <p><b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Taking down metalwork.</p> <p><b>2</b> Cleaning and restoring surface finishes.</p> <p><b>3</b> Straightening.</p> <p><b>4</b> Rust proofing.</p> <p><b>5</b> Metalwork repairs (e.g. welding, riveting and bolting), rejoining, reassembling and refixing.</p> <p><b>6</b> Renewing surface finishes off-site.</p> <p><b>7</b> Repairs to structural members (e.g. roof members and structural beams).</p> <p><b>8</b> Repairs to existing windows, doors, hatches, rooflights, frames, linings, etc. (including overhauling/renewing ironmongery, sash cords, opening gear, etc.).</p> <p><b>9</b> Repairs to staircases, including handrails and balustrades.</p> <p><b>10</b> Sundry items.</p> <p><b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Renewing/replacing metal components in their entirety, e.g. roof structure, windows, doors, frames, rooflights, etc. (included in group element 2 or sub-element 7.1.1, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.6.4</b> Timber repairs.</p> <p><b>Definition:</b> repairing, renovating and conserving existing timber structures, components and finishes.</p>	<p><b>1</b> Timber repairs: details to be stated.</p>	nr/m/ m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> The area measured is the surface area of the repair.</p> <p><b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Taking down existing work, cleaning and resurfacing, cutting out defective or decayed timber, piecing-in new timber, rejoining and refixing.</p> <p><b>2</b> Resin repairs to timbers.</p> <p><b>3</b> Preservative/fire-retardant treatments.</p> <p><b>4</b> Repairs to structural members (e.g. roof members and structural beams).</p> <p><b>5</b> Repairs to existing windows, doors, hatches, rooflights, frames, linings, etc. (including overhauling/renewing ironmongery, sash cords, opening gear, etc.).</p> <p><b>6</b> Repairs to staircases, including handrails and balustrades.</p> <p><b>7</b> Sundry items.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Renewing/replacing timber components in their entirety, e.g. roof structure, windows, doors, frames, rooflights, etc. (included in group element 2 or sub-element 7.1.1, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>7.6.5</b> Plastics repairs.</p> <p><b>Definition:</b> repairs to plastic windows, rooflights, doors, cladding, etc.</p>	<p><b>1</b> Plastics repairs: details to be stated.</p>	nr/m/ m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> The area measured is the surface area of the repair.</p> <p><b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Renewing domed rooflights.</p> <p><b>2</b> Overhauling of windows, rooflights, doors, etc.</p> <p><b>3</b> Repairs to rooflights, doors, etc.</p> <p><b>4</b> Sundry items.</p> <p><b>5</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Renewing/replacing plastic items in their entirety, e.g. roof coverings, windows, doors (including frames), rooflights, etc. (included in group element 2 or sub-element 7.1.1, as appropriate).</p>

# Group element 8: External works

Group element 8 comprises the following elements:

- 8.1 Site preparation works
- 8.2 Roads, paths, pavings and surfacings
- 8.3 Soft landscaping, planting and irrigation systems
- 8.4 Fencing, railings and walls
- 8.5 External fixtures
- 8.6 External drainage
- 8.7 External services
- 8.8 Minor building works and ancillary buildings

**Note:** works associated with toxic/hazardous/contaminated material removal, major demolition works, specialist groundworks, temporary diversion works and extraordinary site investigation works are included in group element 0.

## Element 8.1: Site preparation works

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.1.1</b> Site clearance.  <b>Definition:</b> preparatory work required to clear existing site vegetation, trees, etc., including the application of herbicides over the site before commencement of excavation works.	<b>1</b> Clearing vegetation: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Clearing existing site vegetation (e.g. shrubs and undergrowth), including disposing of arisings.	<b>1</b> Removal of toxic or hazardous materials, e.g. asbestos (included in sub-element 0.1.1).
	<b>2</b> Taking down trees: details to be stated.	nr	<b>C2</b> Where components are to be itemised, the key attributes comprising the component are to be identified, described and enumerated within the description of the component.	<b>2</b> Taking down trees, including grubbing up tree stumps and roots and disposing of arisings.	<b>2</b> Major demolition works (included in sub-element 0.2.1).
	<b>3</b> Removing tree stumps and roots: details to be stated.			<b>3</b> Preservation of protected trees.	<b>3</b> Contaminated ground material removal (included in sub-element 0.1.2).
	<b>4</b> Tree protection: details to be stated.	item	<b>C3</b> The area measured is the surface area to which the work applies.	<b>4</b> Minor demolition works (e.g. outbuildings, etc.).	<b>4</b> Contaminated ground material treatment (included in sub-element 0.1.2).
	<b>5</b> Minor demolition works: details to be stated.	item/ nr	<b>C4</b> Other cost-significant components are to be described and identified separately.	<b>5</b> Applying herbicides before commencement of excavation works.	<b>5</b> Eradication of Japanese knotweed, giant hogweed or other invasive plant species (included in sub-element 0.1.3).
	<b>6</b> Applying herbicides: details to be stated.	m <sup>2</sup>	Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C5</b> Work outside the curtilage of the site is to be described and identified separately.	<b>6</b> Sundry items.	<b>6</b> General site contouring and adjusting levels (included in sub-element 8.1.2).
				<b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		
<b>8.1.2</b> Preparatory groundworks.  <b>Definition:</b> preparatory earthworks to form new contours.	<b>1</b> Forming new site contours and adjusting existing site levels: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the surface area to which the work applies.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.	<b>1</b> Excavation and earthworks to form new site contours and adjust existing site levels.  <b>2</b> Breaking out (or grubbing up) existing substructures, ground slabs, strip foundations, basement retaining walls, etc., including disposal.  <b>3</b> Extracting old piles, including disposal.  <b>4</b> Breaking out existing hard pavings, including concrete, bituminous bound material, brick, block and other hard materials, including disposal.  <b>5</b> Removing existing underground storage tanks, including disposal and decontamination where not undertaken as facilitating works.	<b>1</b> Ground investigation (included in group element 11).  <b>2</b> Removing contaminated ground material (included in sub-element 0.1.2).  <b>3</b> Treatment of contaminated ground material (included in sub-element 0.1.2).  <b>4</b> Eradication of Japanese knotweed, giant hogweed or other invasive plant species (included in sub-element 0.1.3).  <b>5</b> Site dewatering and pumping (included in sub-element 0.4.1).  <b>6</b> Soil stabilisation measures (included in sub-element 0.4.2).  <b>7</b> Ground gas venting measures (included in sub-element 0.4.3).
	<b>2</b> Breaking out existing substructures: details to be stated.				
	<b>3</b> Breaking out existing hard pavings: details to be stated.				
	<b>4</b> Grubbing up old drainage pipelines: details to be stated.	m			
	<b>5</b> Grubbing up old manholes, etc.: details to be stated.	nr	<b>C4</b> Work outside the curtilage of the site is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>6</b> Filling disused manholes, etc.: details to be stated.</p> <p><b>7</b> Removing existing underground storage tanks, including disposal: details to be stated.</p>	nr	<b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<p><b>6</b> Grubbing up redundant foul and surface water drainage, including manholes, soakaways, catch pits, interceptors, etc., including disposal and filling resulting void.</p> <p><b>7</b> Filling disused maintenance holes, shafts, etc.</p> <p><b>8</b> Sundry items.</p> <p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>8</b> Temporary diversion of existing drainage systems, existing service installations and systems, rivers, streams, etc. (included in sub-element 0.5.1).</p> <p><b>9</b> Cultivating and final grading of soil for seeding, turfing or planting (included in element 8.3, as appropriate).</p> <p><b>10</b> Excavation and earthworks associated with foundations, basements, ground slabs and beds (included in group element 1, as appropriate).</p>

## Element 8.2: Roads, paths, pavings and surfacings

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.2.1</b> Roads, paths and pavings.  <b>Definition:</b> roads, paths and pavements, vehicular and pedestrian, including car parks and protection of grassed areas, and non-specialist surfacings and pavings used for sports and general amenities.	<b>1</b> Roads: details, including width (m), to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> Excavation and earthworks associated with the construction of roads, paths and pavings.  <b>2</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).  <b>Note:</b> where no contamination/remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.  <b>3</b> Disposal of surface water and groundwater.  <b>4</b> Preparation of sub-grades, including applying herbicides, levelling, grading, rolling, sub-grade improvement layers and geotextile membranes.	<b>1</b> Temporary roads, paths, pavings, hardstandings, etc. (included in sub-element 9.2.2).  <b>2</b> Special surfacings and pavings for sport and general amenity areas (included in sub-element 8.2.2).  <b>3</b> Bollards, including removable and collapsible (included in sub-element 8.5.1).  <b>4</b> Surface water drainage, including road gullies (included in sub-element 8.6.1).  <b>5</b> Prefabricated channels where not formed by using paving material (included in sub-element 8.6.1).
	<b>2</b> Paths: details, including width (m), to be stated.				
	<b>3</b> Paved areas, hardstandings, etc.: details to be stated.	m <sup>2</sup>	<b>C3</b> The area measured for paved areas, hardstandings, etc. is the surface area of the paving. No deduction is made for voids caused by tree grilles, etc.		
	<b>4</b> Roundabouts: details to be stated.	nr			
	<b>5</b> Road crossings: details to be stated.		<b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.		
	<b>6</b> Steps: details to be stated.				
	<b>7</b> Ramps: details to be stated.	nr/m	<b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.		
	<b>8</b> Traffic calming accessories: details to be stated.	nr			
	<b>9</b> Tree grilles: details to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>10</b> Vehicle protection barriers: details to be stated.	m	<b>C6</b> Curved work is to be described and identified separately. <b>C7</b> Work outside the curtilage of the site is to be described and identified separately.	<b>5</b> Sub-bases for roads, paths and pavings (e.g. granular and soil cement), including laying, levelling, grading and compacting. <b>6</b> Blinding (e.g. sand, cement bound sand and lean mix concrete).	
	<b>11</b> Bumpers: details to be stated.				
	<b>12</b> Pavement markings: details to be stated.	nr/m	<b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>7</b> In situ concrete for roads, paths and pavings, including formwork, reinforcement, joints, worked finishes, etc. <b>8</b> Coated macadam and asphalt for roads, paths and pavings, including road bases, base courses and wearing courses, application of binders, forming channels, etc.	
	<b>13</b> Repairs to existing roads, paths and pavings: details to be stated.	nr/m/ m <sup>2</sup>			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>10</b> Paving slabs for paths and pavings, including sand and mortar beds, separating layers, geotextile membranes, paving slabs, shallow channels and low edgings formed with standard paving units, movement joints and dividing strips (e.g. precast concrete, and natural and artificial stone slab paving).</p> <p><b>11</b> Frangible smoke outlet paving panels for basements.</p> <p><b>12</b> Paving slab cycle stands.</p> <p><b>13</b> Brick paving for paths and pavings, including sand and mortar beds, separating layers, geotextile membranes, brick paving, shallow channels and low edgings formed with standard paving units, movement joints and dividing strips.</p> <p><b>14</b> Sett and cobbled pavings for roads, paths and pavings, including sand and mortar beds, separating layers, geotextile membranes, brick paving, shallow channels and low edgings formed with standard paving units, movement joints and dividing strips (e.g. stone setts, concrete setts and cobbles).</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>15</b> Gravel surfacing for roads, paths and pavings (sealed and unsealed), including treating base with weedkiller, geotextile membranes, sealing surface with bituminous emulsion, etc.</p> <p><b>16</b> Uncoated stone chip surfacing for roads, paths and pavings, including treating base with weedkiller, binders, etc.</p> <p><b>17</b> Hoggin and woodchip surfacing for roads, paths and pavings, including treating base with weedkiller, binders, etc.</p> <p><b>18</b> Perforated units as protection for grassed areas (e.g. to form roads, paths and car parking areas).</p> <p><b>19</b> Kerbs, kerb channels, etc., including concrete foundations, haunchings, kerbs and kerb accessories (standard and purpose-made kerbs).</p> <p><b>20</b> Edgings, including concrete foundations and haunchings (standard and purpose-made edgings).</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>21</b> Timber edgings and pegs.</p> <p><b>22</b> Road crossings, zebra crossings and pelican crossings, including road markings, beacons, lights, signs, etc. and final connections to services.</p> <p><b>23</b> Vehicle protection barriers.</p> <p><b>24</b> Vehicle bump rails, etc.</p> <p><b>25</b> Paving accessories, including cat's eyes, tree grilles, traffic calming accessories, etc.</p> <p><b>26</b> Pavement markings, including paint, thermoplastic and hot applied markings.</p> <p><b>27</b> Steps, including structure, finishings, balustrades and handrails.</p> <p><b>28</b> Ramps, including structure, finishings, balustrades and handrails.</p> <p><b>29</b> Repairs to existing roads, paths and pavings.</p> <p><b>30</b> Sundry items.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>31</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.2.2</b> Special surfacings and pavings.</p> <p><b>Definition:</b> surfacings and pavings specifically for outdoor sporting activities and general amenities.</p>	<p><b>1</b> Surfacings and pavings: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> The area measured for surfacings and pavings is the surface area of the surfacing or paving.</p> <p><b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p>	<p><b>1</b> Surfacings and pavings designed specifically for sports and general amenities, such as:</p> <ul style="list-style-type: none"> <li>• sheet and liquid applied surfacings (e.g. synthetic rubber, granulated rubber, plastic and fibre)</li> <li>• synthetic tufted surfacings for ski slopes</li> <li>• proprietary coloured no-fines concrete and clay/shale surfacings and pavings.</li> </ul> <p><b>2</b> Excavation and earthworks associated with the construction of surfacings and pavings for sporting activities and general amenities.</p>	<p><b>1</b> Non-specialist surfacings and pavings used for sports and general amenities (included in sub-element 8.2.1).</p> <p><b>2</b> Natural grass surfaces used for sports (included in sub-element 8.3.1).</p> <p><b>3</b> Indoor surfaces used for sports (included in sub-element 3.2.1).</p> <p><b>4</b> Surface water drainage that is not an integral part of the surfacing or paving system (included in sub-elements 8.6.1 or 8.6.4, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C6</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>3</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).</p> <p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p> <p><b>4</b> Disposal of surface water and groundwater.</p> <p><b>5</b> Preparation of subgrades, including applying herbicides, levelling, grading, rolling, sub-grade improvement layers and geotextile membranes, etc.</p> <p><b>6</b> Sub-bases for surfacings and pavings, including laying, levelling, grading and compacting.</p> <p><b>7</b> Accessories for surfacings and pavings.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>8</b> Markings for surfacings and pavings.</p> <p><b>9</b> Sundry items.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 8.3: Soft landscaping, planting and irrigation systems

**Note:** where testing and commissioning is required to be measured under sub-element 8.3.3, the terms should include the following works:

- 1 Testing includes:
  - (1) water tests
  - (2) water required for testing.
- 2 Commissioning includes:
  - (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
  - (2) temporary operation of equipment to employer's requirements
  - (3) fuels required for testing and commissioning.
- 3 Setting all installations to work after completion of commissioning.

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.3.1</b> Seeding and turfing.  <b>Definition:</b> preparing soil and seeding or turfing to form lawns, parklands and other general grassed areas.	1 Grassed areas: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> Applying herbicides.  <b>2</b> Topsoil, including transporting from stockpiles or importing and spreading.  <b>3</b> Cultivating topsoil, including removing stones and weeds.  <b>4</b> Fine grading of topsoil.  <b>5</b> Providing, spreading and working in manure, compost, mulch, fertiliser, soil ameliorants, etc.  <b>6</b> Light mesh reinforcement.  <b>7</b> Seeding, including hydraulic seeding.  <b>8</b> Turfing.  <b>9</b> Reinforced grass proprietary systems, including sub-base, topsoil, reinforced root zone, seeding or turfing.  <b>10</b> Seeding and turfing for retaining structures.  <b>11</b> Initial grass cutting.	<b>1</b> Excavation and earthworks to form new site contours and adjust existing site levels (included in sub-element 8.1.2).  <b>2</b> Grass block pavings (included in sub-element 8.2.1).
	2 Reinforced grass proprietary systems: details to be stated.				
	3 Marking out of grass sports pitches: details to be stated.	nr	<b>C3</b> The area measured for grassed areas is the surface area of the area to be grassed, measured over all obstructions. Areas of roads, paths, pavings, ponds, etc. to be deducted.  <b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.		
	4 Work to existing grassed areas: details to be stated.	m <sup>2</sup>			
	5 Maintenance of grassed areas: details, including time period (weeks) to be stated.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>12</b> Initial marking out of grass sports pitches (e.g. football, rugby and cricket).</p> <p><b>13</b> Watering, before end of defects liability period, period for rectifying defects or maintenance period.</p> <p><b>14</b> Replacement seeding and turfing.</p> <p><b>15</b> Maintenance work specified to be executed during the defects liability period, period for rectifying defects or maintenance period (distinct from making good defects), including mowing and fertilising.</p> <p><b>16</b> Work to existing grassed areas, including scarifying, forking, fertilising, applying weedkiller, local reseeded or re-turfing, etc.</p> <p><b>17</b> Sundry items.</p> <p><b>18</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.3.2</b> External planting.  <b>Definition:</b> preparing soil and planting bulbs, corms, tubers, herbaceous plants, trees, hedges, shrubs and reed beds.	1 Planting bulbs, corms and tubers: details to be stated.	m <sup>2</sup>	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> Applying herbicides.  <b>2</b> Topsoil, including transporting from stockpiles or importing and spreading.  <b>3</b> Cultivating topsoil, including removing stones and weeds.  <b>4</b> Fine grading of topsoil.  <b>5</b> Forming raised and sunken beds, borders, etc.  <b>6</b> Providing, spreading and working in manure, compost, mulch, fertiliser, soil ameliorants, etc.  <b>7</b> Overlays, including mulch matting, gravel, bark or other materials.  <b>8</b> Planting bulbs, corms, tubers, etc.  <b>9</b> Planting container-grown plants.  <b>10</b> Planting to retaining structures.  <b>11</b> Planting shrubs and hedges.  <b>12</b> Fence support for hedges.	<b>1</b> Clearing existing site vegetation (e.g. shrubs and undergrowth), including disposing of arisings (included in sub-element 8.1.1).  <b>2</b> Taking down trees, including grubbing up tree stumps and roots, and disposing of arisings (included in sub-element 8.1.1).  <b>3</b> General site contouring and adjusting levels (included in sub-element 8.1.2).  <b>4</b> Internal planting (included in sub-element 4.1.7).  <b>5</b> Tree grilles (included in sub-element 8.2.1).  <b>6</b> Seeding and turfing (included in sub-element 8.3.1).  <b>7</b> Green roofs and roof gardens (included in sub-element 2.3.2).  <b>8</b> Planting for green roofs/roof gardens (included in sub-element 2.3.2).
	2 Planting reed beds: details to be stated.				
	3 Planting hedges: details to be stated.	m	<b>C3</b> The area measured is the surface area of external planting, measured over all obstructions. Areas of roads, paths, pavings, ponds, etc. to be deducted.		
	4 Planting trees: details to be stated.	nr			
	5 Planting woodland: details to be stated.	m <sup>2</sup>	<b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.		
	6 Tree surgery, thinning and pruning: details to be stated.	nr			
	7 Maintenance work to plants, shrubs and planting beds: details, including time period (weeks), to be stated.	m <sup>2</sup>	<b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>8</b> Maintenance work to trees: details, including number of occasions and time period (weeks), to be stated.	nr	<b>C6</b> Work outside the curtilage of the site is to be described and identified separately.	<b>13</b> Planting trees, including nursery stock and semi-mature trees.	
	<b>9</b> Maintenance work to hedges: details, including time period (weeks), to be stated.	m	<b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>14</b> Excavating and backfilling tree pits. <b>15</b> External prefabricated plant/tree containers. <b>16</b> Support wires for climbers; tree stakes; tree guards; wrapping; labelling; and other protection for trees, shrubs and plants. <b>17</b> Planting reed beds, etc. <b>18</b> Planting woodland. <b>19</b> Tree surgery, thinning and pruning. <b>20</b> Applying anti-desiccants. <b>21</b> Watering before end of defects liability period, period for rectifying defects or maintenance period. <b>22</b> Protecting newly planted areas with temporary fencing, boards, tarpaulins, etc.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>23</b> Maintenance work specified to be executed during the defects liability period, period for rectifying defects or maintenance period (distinct from making good defects), including weeding and pruning.</p> <p><b>24</b> Replacement planting.</p> <p><b>25</b> Sundry items.</p> <p><b>26</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.3.3</b> Irrigation systems.</p> <p><b>Definition:</b> piped water supply systems for planted areas, providing a water supply for growing purposes.</p>	<p><b>1</b> Irrigation systems: details to be stated.</p>	m <sup>2</sup>	<p><b>C1</b> The area measured for irrigation systems is the surface area of land serviced by the system.</p> <p><b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p>	<p><b>1</b> Pipelines, including pipeline fittings and ancillaries.</p> <p><b>2</b> Storage tanks and vessels.</p> <p><b>3</b> Chemical storage vessels.</p> <p><b>4</b> Chemical dosing equipment.</p> <p><b>5</b> Nutrient treatment and equipment.</p> <p><b>6</b> Outlet pipes and nozzles.</p>	<p><b>1</b> Mains water supply (included in sub-element 8.7.1).</p> <p><b>2</b> General-purpose power installations for external plant and equipment (included in sub-element 8.7.4).</p> <p><b>3</b> Builder's work in connection with external services (included in sub-element 8.7.11).</p>
	<p><b>2</b> Testing of installations.</p>	%			
	<p><b>3</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>7</b> Painting, anti-corrosion treatments and coating systems to storage tanks and vessels, pipelines, etc.</p> <p><b>8</b> Builder's work in connection with land drainage.</p> <p><b>9</b> Sundry items.</p> <p><b>10</b> Testing and commissioning.</p> <p><b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 8.4: Fencing, railings and walls

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.4.1</b> Fencing and railings.  <b>Definition:</b> fencing and railings, etc. to prevent access to or from an area, or to provide light or noise screening, with associated gates.	<b>1</b> Fencing: details, including height (m), to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Timber, metal and concrete fencing systems, including all system components.  <b>2</b> Railings.  <b>3</b> Noise/light screening, including systems applied to fencing.  <b>4</b> Gates and gate posts associated with fencing, and railings.  <b>5</b> Security gates and gate posts associated with fencing and railings, including mechanical and electrical operating equipment, guide rails, etc.  <b>6</b> Ironmongery for gates.  <b>7</b> Fencing to provide light or noise screening, including systems attached to fencing.  <b>8</b> Excavating, concreting and backfilling holes for posts, etc.  <b>9</b> Fixing railings to concrete and masonry.	<b>1</b> Balustrades and handrails for external steps (included in sub-element 8.2.1).  <b>2</b> Balustrades and handrails for external ramps (included in sub-element 8.2.1).  <b>3</b> Hedges (included in sub-element 8.3.2).  <b>4</b> Masonry walls and screens (included in sub-element 8.4.2).  <b>5</b> Masonry walls and screens with timber infill panels (included in sub-element 8.4.2).  <b>6</b> Retaining walls (included in sub-element 8.4.3).  <b>7</b> General-purpose LV power installations for security gates (included in sub-element 8.7.4).
	<b>2</b> Railings: details, including height (m), to be stated.		<b>C2</b> The length of linear components measured is their extreme length, over all obstructions.		
	<b>3</b> Gates: details to be stated.	nr	<b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C4</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C5</b> Curved work is to be described and identified separately.  <b>C6</b> Work outside the curtilage of the site is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>10</b> Painting, coating and preservative treatments. <b>11</b> Sundry items. <b>12</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
<b>8.4.2</b> Walls and screens.  <b>Definition:</b> non-retaining walls and screens, etc. to prevent access to or from an area, or to provide light or noise screening, with associated gates.	<b>1</b> Walls: details, including height (m), to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Masonry walls and screens (e.g. brickwork, blockwork and stonework), including foundations, reinforcement and design joints. <b>2</b> Masonry walls and screens with timber infill panels, including foundations. <b>3</b> Trench and pit excavations. <b>4</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).	<b>1</b> Retaining walls (included in sub-element 8.4.3). <b>2</b> General-purpose LV power installations for security gates (included in sub-element 8.7.4).
	<b>2</b> Screens: details, including height (m), to be stated.		<b>C2</b> The length of linear components measured is their extreme length, over all obstructions.		
	<b>3</b> Gates: details to be stated.	nr	<b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C5</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p> <p><b>5</b> Disposal of surface water and groundwater.</p> <p><b>6</b> Consolidating and compacting formation level to receive foundations.</p> <p><b>7</b> Blinding.</p> <p><b>8</b> Piers, including reinforcement.</p> <p><b>9</b> Pier caps.</p> <p><b>10</b> Copings, etc.</p> <p><b>11</b> Gates and gate posts associated with walls and screens.</p> <p><b>12</b> Security gates and gate posts associated with walls and screens, including mechanical and electrical operating equipment, guide rails, etc.</p> <p><b>13</b> Ironmongery for gates.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>14</b> Sundry items.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.4.3</b> Retaining walls.</p> <p><b>Definition:</b> retaining walls which are not an integral part of the building.</p>	<p><b>1</b> Retaining walls: details, including height (m) above ground, to be stated.</p>	m	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p> <p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p>	<p><b>1</b> Concrete retaining walls, including reinforcement, formwork and design joints.</p> <p><b>2</b> Fixings cast into or fixed to concrete retaining walls to retain masonry walls (e.g. brickwork, blockwork and stonework) facing wall.</p> <p><b>3</b> Masonry facing walls to concrete retaining walls (e.g. brickwork, blockwork and stonework), including reinforcement and design joints.</p> <p><b>4</b> Masonry retaining walls (e.g. brickwork, blockwork and stonework) including reinforcement and design joints.</p>	<p><b>1</b> Retaining walls that form an integral part of the building (included in sub-elements 1.1.5, as appropriate).</p> <p><b>2</b> Soft landscape work associated with retaining structures, including provision of topsoil, preparation of topsoil, seeding or turfing, and planting (included in sub-elements 8.3.1 and 8.3.2, as appropriate).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C5</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>5</b> Crib walls, including timber (including preservative treatment) and precast concrete headers and stretchers, and combined units; and sand and gravel filling.</p> <p><b>6</b> Gabions, including steel mesh cages/mattresses and wiring together, graded stone filling and filter membranes.</p> <p><b>7</b> Reinforced earth, including reinforcement layers (e.g. steel, polymeric and geotextile), selected fill material, anchors and soil nails, mesh to support soft landscape facing, concrete, timber facing, etc.</p> <p><b>8</b> Other types of retaining structure.</p> <p><b>9</b> Piles associated with external retaining walls (individual, continuous and steel sheet), including piling mats and platforms (installing and removing), piling rigs, cutting off excess lengths of piles or steel sheet piles, cutting out concrete to tops of piles and preparing pile heads and reinforcement, and pile tests.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>10</b> Trench and pit excavations, including earthwork support (including insertion and extraction of steel sheet piling if used).</p> <p><b>11</b> Excavating below groundwater level.</p> <p><b>12</b> Disposal of excavated material, including tipping charges and landfill tax (including inert, non-hazardous and hazardous material where not to be carried out as facilitating works).</p> <p><b>Note:</b> where no contamination/ remediation strategy report exists, an allowance is to be made within the construction risk allowance for the extra cost of disposing of contaminated material.</p> <p><b>13</b> Disposal of surface water and groundwater.</p> <p><b>14</b> Consolidating and compacting formation level to receive foundations.</p> <p><b>15</b> Blinding.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>16</b> Weep holes.</p> <p><b>17</b> Land drainage forming an integral part of the retaining wall.</p> <p><b>18</b> Copings, etc.</p> <p><b>19</b> Sundry items.</p> <p><b>20</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.4.4</b> Barriers and guardrails.</p> <p><b>Definition:</b> external vehicle and pedestrian barriers and guardrail systems with associated gates.</p>	<p><b>1</b> Vehicle restraint systems: details to be stated.</p>	m	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p>	<p><b>1</b> Vehicle restraint systems, including parapets.</p> <p><b>2</b> Pedestrian restraint systems, including parapets.</p> <p><b>3</b> Vehicle and pedestrian control barriers and gates not associated with fencing.</p> <p><b>4</b> Excavating, disposal of excavated material, concreting and backfilling holes for posts, etc.</p>	<p><b>1</b> Vehicle protection barriers (included in sub-element 8.2.1).</p> <p><b>2</b> Vehicle bump rails, etc. (included in sub-element 8.2.1).</p>
	<p><b>2</b> Pedestrian restraint systems: details to be stated.</p>				
	<p><b>3</b> Vehicle and pedestrian control barriers and gates: details to be stated.</p>	nr			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C4</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>5</b> Fixing barriers and guardrails to concrete and masonry.</p> <p><b>6</b> Painting, coatings, etc.</p> <p><b>7</b> Sundry items associated with the provision of barriers and guardrails.</p> <p><b>8</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 8.5: External fixtures

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<p><b>8.5.1</b> Site/street furniture and equipment.</p> <p><b>Definition:</b> furniture and equipment designed for use externally, excluding items provided by a statutory undertaker.</p>	<p><b>1</b> Site/street furniture and equipment: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Gates, where not part of fencing, railings, walls, screens, barriers or guardrails.</p> <p><b>2</b> Turnstiles.</p> <p><b>3</b> Bollards, including removable and collapsible.</p> <p><b>4</b> Seats, benches and tables.</p> <p><b>5</b> Litter bins, grit bins and dustbins (including continental bins).</p> <p><b>6</b> Poster display units and notice boards.</p> <p><b>7</b> Cycle stands.</p> <p><b>8</b> Directional signs, including reflective traffic signs.</p> <p><b>9</b> Flagpoles.</p> <p><b>10</b> Sports and playground equipment, including safety mats.</p> <p><b>11</b> Other furniture and equipment to be used externally.</p> <p><b>12</b> Minor footbridges.</p>	<p><b>1</b> Road crossings, including associated warning signs (included in sub-element 8.2.1).</p> <p><b>2</b> Cycle stands that are an integral part of pavings (included in sub-element 8.2.1).</p> <p><b>3</b> Tree grilles (included in sub-element 8.2.1).</p> <p><b>4</b> External prefabricated plant/tree containers (included in sub-element 8.3.2).</p> <p><b>5</b> Gates where an integral part of fencing, railings, walls, screens, barriers or guardrails (included in element 8.4, as appropriate).</p> <p><b>6</b> Items that are the responsibility of a statutory undertaker (e.g. street lighting, bus stops and shelters, telephone boxes/booths, post boxes and road signs).</p> <p><b>7</b> Illuminated traffic signs (included in sub-element 8.7.9).</p> <p><b>8</b> External illumination/lighting systems (included in sub-element 8.7.9).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>13</b> Clothes drying fittings.</p> <p><b>14</b> Bus stops, bus shelters, telephone boxes/booths, post boxes and road signs where not the responsibility of a statutory undertaker.</p> <p><b>15</b> Sculptures and other works of art external to the building envelope.</p> <p><b>16</b> Site/street furniture and equipment that act as transformation devices (i.e. generate energy).</p> <p><b>17</b> Other site/street furniture and equipment.</p> <p><b>18</b> All builder's work in connection with installing site/street furniture and equipment, including excavating, disposal of excavated material, concreting and backfilling holes for posts, etc., fixing devices, and fixing furniture and equipment in place.</p> <p><b>19</b> Painting, coating and preservative treatments.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>20</b> Sundry items.</p> <p><b>21</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.5.2</b> Ornamental features.</p> <p><b>Definition:</b> ornamental water features, etc.</p>	<p><b>1</b> Water features: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C3</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>1</b> Water features, etc.</p> <p><b>2</b> Builder's work in connection with installing water features, etc.</p> <p><b>3</b> Sundry items.</p> <p><b>4</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>1</b> Drainage installations (included in sub-element 8.6.1).</p> <p><b>2</b> Mains water and power supply (included in sub-elements 8.7.1, 8.7.2 or 8.7.3, as appropriate).</p> <p><b>3</b> Testing and commissioning of external services (included in sub-element 8.7.11).</p>
	<p><b>2</b> Other features: details to be stated.</p>				

## Element 8.6: External drainage

**Note:** where testing and commissioning is required to be measured under element 8.6, the terms should include the following works:

- 1 Testing includes:
  - (1) air tests
  - (2) water tests
  - (3) dyes required for testing.
- 2 Commissioning includes:
  - (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
  - (2) temporary operation of drainage to employer's requirements.
- 3 Setting all drainage installations to work after completion of commissioning.

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.6.1</b> Surface water and foul water drainage.  <b>Definition:</b> foul water and surface water drainage systems, below ground and above ground, from the first manhole beyond the enclosing walls of the building, the sewer connection or other outfall (e.g. on-site sewage treatment facility).	<b>1</b> Connections to statutory undertaker's sewers: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all branches, fittings, etc.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately.  <b>C4</b> Work outside the curtilage of the site is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Connection to statutory undertaker's sewer or sewers.  <b>2</b> Trenches for pipework, including excavation, earthwork support, backfilling and disposal of surplus material.  <b>3</b> Pipeline and pipeline fittings.  <b>4</b> Granular beds and surrounds, concrete beds, cradles, haunchings and surrounds, and foamed concrete backfill.  <b>5</b> Supports for aboveground drainage, including earth embankments.  <b>6</b> Connections to manholes, etc.  <b>7</b> Connections to aboveground soil stacks, sanitary appliances and wastes.  <b>8</b> Connections to ancillary equipment and systems (e.g. pumping stations and sewage treatment vessels).  <b>9</b> Gullies and gratings, including road gullies and gratings.	<b>1</b> Aboveground soil stacks, waste pipes, etc. (included in sub-element 5.3.1).  <b>2</b> Groundwater pressure relief drains for basement retaining walls connected to the drainage system, i.e. fin drains, filter drains and blanket drains (included in element 1.1).  <b>3</b> Sustainable urban drainage (SUD) schemes (included in sub-element 8.6.2).  <b>4</b> External on-site waste water or sewage treatment facilities (included in sub-element 8.6.2).  <b>5</b> Laboratory/industrial waste drainage (included in sub-element 8.6.3).
	<b>2</b> Drainage runs below ground: details, including depth of trench (m) and nominal size of pipe (mm), to be stated.	m			
	<b>3</b> Drainage runs above ground: details, including height above ground (m) and nominal size of pipe (mm), to be stated.				
	<b>4</b> Prefabricated channels: details, including nominal size (mm), to be stated.				
	<b>5</b> Manholes, etc.: details, including depth (m), to be stated.	nr			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>6</b> Alterations to existing external drainage systems: details to be stated.	nr	<b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>10</b> Rodding and access points. <b>11</b> Prefabricated channels (i.e. in roads, paths and pavements). <b>12</b> Interceptor traps and fresh air inlets, and air release and wash out valves for pressure pipelines. <b>13</b> Inspection chambers, manholes and catch pits, including channel benching, step irons, access covers and other accessories. <b>14</b> Soakaways. <b>15</b> Retention/storage tanks and vessels. <b>16</b> Cesspools and septic tanks. <b>17</b> Petrol interceptor units. <b>18</b> Packaged pumping stations. <b>19</b> Outfalls/outlet headwalls. <b>20</b> Connections to sewers where not statutory undertaker's sewers. <b>21</b> Connections to ancillary drainage systems.	
	<b>7</b> Work to existing manholes, etc.: details to be stated.				
	<b>8</b> Clearing existing drains: details to be stated	nr/m			
	<b>9</b> Sealing redundant drains: details to be stated.				
	<b>10</b> Filling disused manholes, etc.: details to be stated.	nr			
	<b>11</b> Testing of installations.	%			
	<b>12</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
				<p><b>22</b> Painting, anti-corrosion treatments and coating systems for aboveground drainage.</p> <p><b>23</b> Builder's work in connection with external surface water and foul water drainage.</p> <p><b>24</b> Alterations to existing external drainage systems.</p> <p><b>25</b> Work to existing manholes, etc.</p> <p><b>26</b> Clearing existing drains.</p> <p><b>27</b> Sealing redundant drains, including filling entire length of drain with foam concrete, etc.</p> <p><b>28</b> Filling disused manholes.</p> <p><b>29</b> Testing and commissioning of external surface water and foul water drainage.</p> <p><b>30</b> Sundry items.</p> <p><b>31</b> Testing and commissioning.</p> <p><b>32</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.6.2</b> Ancillary drainage systems.  <b>Definition:</b> systems with a storage tank or vessel for the reception of foul water and sewage at one level, for transfer by pump to drains or sewers at a higher level; sewage treatment systems to meet local special needs where it is necessary to treat human or animal sewage to render it safe for discharge into the statutory undertaker's drainage system; and sustainable urban drainage schemes.	1 Pumping stations: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> The area measured for sustainable urban drainage schemes is the surface area of land served by the scheme.  <b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C5</b> Work outside the curtilage of the site is to be described and identified separately.	<b>1</b> Pumping stations.  <b>2</b> Ejector stations.  <b>3</b> Storage/retention tanks and vessels (e.g. concrete and proprietary), including supports, forming protective bunds, etc.  <b>4</b> Sewage treatment systems, including receivers or storage vessels and treatment vessels (e.g. concrete and proprietary), control components and monitoring equipment.  <b>5</b> Enzyme systems.  <b>6</b> Sustainable urban drainage schemes (SUDs).  <b>7</b> Control components located externally.  <b>8</b> Monitoring equipment located externally.  <b>9</b> Painting, anti-corrosion treatments and coating systems for ancillary drainage equipment and systems.	<b>1</b> Packaged pumping stations (included in sub-element 8.6.1).  <b>2</b> General-purpose LV power installations for ancillary drainage systems, including cables, excavating and backfilling trenches, etc. (included in sub-element 8.7.4).  <b>3</b> Connections from drainage pipeline to system (included in sub-element 8.6.1).  <b>4</b> Building management systems and other control systems (included in sub-element 5.12.3).
	2 Ejector stations: details to be stated.				
	3 Storage/retention tanks and vessels: details to be stated.				
	4 Sewage treatment systems: details to be stated.				
	5 Enzyme systems: details to be stated.				
	6 Sustainable urban drainage schemes: details to be stated.	m <sup>2</sup>			
	7 Testing of installations.	%			
	8 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C7</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>10</b> Builder's work in connection with the provision of ancillary drainage equipment and systems.</p> <p><b>11</b> Sundry items associated with the provision of ancillary drainage equipment and systems.</p> <p><b>12</b> Testing and commissioning.</p> <p><b>13</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.6.3</b> External chemical, toxic and industrial liquid waste drainage.</p> <p><b>Definition:</b> laboratory/industrial waste drainage, from the external face of the external wall to the point of disposal.</p>	<p><b>1</b> Drainage runs below ground: details, including depth of trench (m) and nominal size of pipe (mm), to be stated.</p>	m	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all branches, fittings, etc.</p>	<p><b>1</b> Trenches for pipework, including excavation, earthwork support, backfilling and disposal of surplus material.</p> <p><b>2</b> Pipework and pipework fittings.</p> <p><b>3</b> Granular beds and surrounds, concrete beds, cradles, haunchings and surrounds, and foamed concrete backfill.</p> <p><b>4</b> Supports for aboveground drainage, including earth embankments.</p>	<p><b>1</b> Laboratory and industrial liquid waste drainage from the external face of the external wall of the building to the appliance or equipment (included in sub-element 5.3.2).</p> <p><b>2</b> Testing and commissioning of external laboratory and industrial liquid waste drainage (included in sub-element 8.6.3).</p>
	<p><b>2</b> Drainage runs above ground: details, including height above ground (m) and nominal size of pipe (mm), to be stated.</p>	m			

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>3</b> Equipment and plant: details to be stated.	nr	<p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C4</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.</p> <p><b>C5</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C7</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>5</b> Connections, tanks, etc.</p> <p><b>6</b> Storage tanks and vessels.</p> <p><b>7</b> Settlement tanks.</p> <p><b>8</b> Effluent treatment plant.</p> <p><b>9</b> Dosing equipment.</p> <p><b>10</b> Sterilisation equipment.</p> <p><b>11</b> Connections to equipment.</p> <p><b>12</b> Control components located externally.</p> <p><b>13</b> Monitoring equipment located externally.</p> <p><b>14</b> Painting, anti-corrosion treatments and coating systems for drainage pipelines.</p> <p><b>15</b> Builder's work in connection with external laboratory and industrial liquid waste drainage.</p> <p><b>16</b> Sundry items.</p> <p><b>17</b> Testing and commissioning.</p> <p><b>18</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
	<b>4</b> Testing of installations.	%			
	<b>5</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.6.4</b> Land drainage.  <b>Definition:</b> disposal systems for the drainage of waterlogged ground.	<b>1</b> Drainage runs below ground: details, including depth of trench (m) and nominal size of pipe (mm), to be stated.	m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all branches, fittings, etc.	<b>1</b> Filter drains, with or without pipes. <b>2</b> Fin drains, with or without pipes. <b>3</b> Mole drains. <b>4</b> Trenchless drains.	<b>1</b> Groundwater pressure relief drains for basement retaining walls connected from the main underground drainage systems to the point of disposal (included in element 1.1).  <b>2</b> Testing and commissioning of land drainage (included in sub-element 8.6.4).
	<b>2</b> Manholes, etc.: details, including depth (m), to be stated.	nr	<b>C3</b> The area measured for drainage blankets is the surface area of land serviced by the blanket.  <b>C4</b> The area measured for land drainage for parklands is the surface area of parkland.	<b>5</b> Pipe drains, including fittings. <b>6</b> Drainage blankets (e.g. comprising layer of aggregate, porous pipes and upper/lower geotextile pipes).	
	<b>3</b> Drainage blankets: details to be stated.	m <sup>2</sup>	<b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.	<b>7</b> Trenches for pipework, including excavation, earthwork support, backfilling and disposal of surplus material.	
	<b>4</b> Land drainage for parkland: details, including centres of main runs (m) and laterals (m), to be stated.	ha	<b>C6</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.	<b>8</b> Pipework and pipework fittings (to point of disposal). <b>9</b> Granular fill and surrounds.	
	<b>5</b> Testing of installations.	%	<b>C7</b> Work outside the curtilage of the site is to be described and identified separately.	<b>10</b> Geotextile filters and trench linings. <b>11</b> Silt traps, silt trap, manholes, etc.	
	<b>6</b> Commissioning of installations.			<b>12</b> Soakaways. <b>13</b> Storage tanks and vessels. <b>14</b> Outfalls/outlet headwalls. <b>15</b> Builder's work in connection with land drainage.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C9</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>16</b> Clearing existing ditches, channels, etc.</p> <p><b>17</b> Sundry items.</p> <p><b>18</b> Testing and commissioning.</p> <p><b>19</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 8.7: External services

**Note:** where testing and commissioning is required to be measured under element 8.7, the terms should include the following works:

- 1 Testing includes:
  - (1) testing equipment and consumables
  - (2) calibration
  - (3) site installation tests
  - (4) static testing, including testing records
  - (5) performance testing, including performance test records
  - (6) fuels required for testing.
- 2 Commissioning includes:
  - (1) preliminary checks, setting systems and installations to work, regulation of such systems and installations, and commissioning records
  - (2) temporary operation of equipment to employer's requirements
  - (3) fuels required for commissioning.
- 3 Setting all mechanical and electrical services and installations to work after completion of commissioning (initial operation).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.1</b> Water mains supply.  <b>Definition:</b> piped water supply systems bringing water from statutory undertaker's water main to point of entry into building, including distribution to external user points (e.g. to external plant and equipment) and fire hydrants.	<b>1</b> Connections to statutory undertaker's water main: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> For connections to external plant and equipment, the number of draw-off points is to be stated.  <b>C3</b> The length of linear components measured is their extreme length, over all branches, fittings, etc.  <b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C5</b> Descriptions should include the amount of any PC sum included in the unit rates applied to the item.  <b>C6</b> Work outside the curtilage of the site is to be described and identified separately.	<b>1</b> Connections to statutory undertaker's water main.  <b>2</b> Water main from statutory undertaker's main to water meter, including pipelines and pipeline fittings, excavating and backfilling trenches, ground anchor blocks, etc.  <b>3</b> Connections to external plant and equipment.  <b>4</b> Mains water supply and distribution of water supply to external plant and equipment, including pipelines and pipeline fittings, excavating and backfilling trenches, ground anchor blocks, etc.  <b>5</b> Water meters, where not provided by the statutory undertaker, including chambers and enclosures.  <b>6</b> Fire hydrants.  <b>7</b> Trace heating.  <b>8</b> Thermal insulation.  <b>9</b> Constructing stop valve surface boxes.	<b>1</b> Piped water supply systems from point of entry into building to appliances and equipment within the building (included in sub-element 5.4.1).  <b>2</b> Piped water supply systems to distribute cold water from point of storage to user points within the building (included in sub-element 5.4.2).  <b>3</b> Rainwater harvesting systems internal to the building (included in sub-element 5.4.2).  <b>4</b> Grey water systems internal to the building (included in sub-element 5.4.2).  <b>5</b> Irrigation (included in sub-element 8.8.3).  <b>6</b> Builder's work in connection with external services (included in sub-element 8.7.11).
	<b>2</b> Connections to external plant and equipment: details to be stated.				
	<b>3</b> Service runs: details to be stated.	m			
	<b>4</b> Rainwater harvesting systems: details, including the number of collection points (nr), to be stated.	nr			
	<b>5</b> Grey water systems: details, including the number of collection points (nr), to be stated.				
	<b>6</b> Testing of installations.	%			
	<b>7</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C7</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C8</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>10</b> Rainwater harvesting systems external to the building, including collection pipelines.</p> <p><b>11</b> Grey water systems external to the building, including collection pipelines.</p> <p><b>12</b> Sundry items.</p> <p><b>13</b> Testing and commissioning.</p> <p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.2</b> Electricity mains supply.  <b>Definition:</b> the distribution of high voltage (HV) electricity from statutory undertaker's supply to an on-site transformer station; the distribution of LV electricity from the on-site transformer (or other supply intake) to the main switchgear panel within the building; and external installations for providing electricity, including emergency or standby generation plant.	<b>1</b> Connections to statutory undertaker's electricity main: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> Connections to statutory undertaker's electricity main.  <b>2</b> Distribution of HV electricity to on-site transformer, including cables, excavating and backfilling trenches, etc.	<b>1</b> LV distribution from, and including, main switchgear panel to area distribution boards and/or sub-distribution boards (included in sub-element 5.8.1).
	<b>2</b> Service runs: details to be stated.	m	<b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.	<b>3</b> Transformer substations, including packaged substations.	<b>2</b> Protective compounds connected with transformer substations, etc. (included in sub-element 8.7.11).
	<b>3</b> Transformer substations: details to be stated.	nr	<b>C4</b> Work outside the curtilage of the site is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>4</b> Distribution of LV electricity to main switchgear panel within the building, excavating and backfilling trenches, etc.  <b>5</b> Constructing draw pits, including access covers.	<b>3</b> Electric generation installations within the building (included in sub-element 5.8.5).
	<b>4</b> External electricity generation installation/plant: details to be stated.		<b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>6</b> Marker tape, cover tiles and other special protection for electrical cables.  <b>7</b> External electricity generation plant, including emergency or standby generation plant.  <b>8</b> Sundry items.  <b>9</b> Testing and commissioning.	<b>4</b> Fuel storage and distribution in connection with external electricity generation plant (included in sub-element 8.7.7).  <b>5</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>6</b> Builder's work in connection with external services (included in sub-element 8.7.11).
			<b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.3</b> External transformation devices.  <b>Definition:</b> systems using renewable sources (i.e. wind and sun) to generate energy.	1 Wind turbines: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.  <b>C3</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>1</b> Wind turbines, where external to the building.  <b>2</b> Photovoltaic devices, where external to the building.  <b>3</b> Solar collectors, where external to the building.  <b>4</b> Other transformation devices.  <b>5</b> Generators in connection with transformation devices.  <b>6</b> Distribution of LV electricity to main switchgear panel within the building, excavating and backfilling trenches, etc.  <b>7</b> Constructing draw pits, including access covers.  <b>8</b> Marker tape, cover tiles and other special protection for electrical cables.  <b>9</b> Sundry items.  <b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Wind turbines, photovoltaic devices and other transformation devices that are an integral part of the building (included in sub-element 5.8.6).  <b>2</b> Heat pumps (included in element 5.5).  <b>3</b> Ground source heating (included in element 5.5).  <b>4</b> Solar collectors that are an integral part of the building (included in sub-element 5.8.5).  <b>5</b> Site/street furniture and equipment (e.g. playground equipment and sculptures) that act as transformation devices (included in sub-element 8.5.1).  <b>6</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>7</b> Builder's work in connection with external transformation devices, including bases (included in sub-element 8.7.11).
	2 Photovoltaic devices: details, including surface area of units (m <sup>2</sup> ), to be stated.				
	3 Other transformation devices: details to be stated.				
	4 Testing of installations.	%			
	5 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.4</b> Electricity distribution to external plant and equipment.  <b>Definition:</b> subcircuit power installations from subdistribution boards to external equipment terminating at socket outlets, fuse connection units and other accessories, including final connections to permanent mechanical and electrical plant and equipment, external features (e.g. water features), etc.	1 Connections to external plant or equipment: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> General-purpose LV power installations for external plant and equipment, including cables, excavating and backfilling trenches, etc.  <b>2</b> LV switchgear and distribution boards, where not included as part of the submains distribution.	<b>1</b> General-purpose power installations within building (included in sub-element 5.8.2).  <b>2</b> General-purpose power installations for external water features, etc. (included in sub-element 8.5.2).
	2 Service runs: details to be stated.	m	<b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C4</b> Work outside the curtilage of the site is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>3</b> Uninterruptible power supply (UPS) installations, etc., specific to external plant and equipment.  <b>4</b> Cables and wiring, including support components from subdistribution boards to fuse connection units, etc.	<b>3</b> General-purpose power installations for external security systems (included in sub-element 8.7.8).  <b>4</b> General-purpose power installations for external illumination systems (included in sub-element 8.7.9).
	3 Testing of installations.	%		<b>5</b> Conduits and cable trunking, including all fittings and support components.  <b>6</b> Earthing and bonding components.	<b>5</b> Final connections to specialist mechanical and electrical equipment where carried out by the equipment installer.  <b>6</b> Building management systems and other control systems (included in sub-element 5.12.3).
	4 Commissioning of installations.			<b>7</b> Constructing draw pits, including access covers.  <b>8</b> Marker tape, cover tiles and other special protection for electrical cables.	<b>7</b> Builder's work in connection with external services (included in sub-element 8.7.11).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>9</b> Fuse connection units and other outlet accessories.</p> <p><b>10</b> Final connections to equipment (e.g. to pumping stations and ejector stations).</p> <p><b>11</b> Separate power installations for specialist mechanical and electrical equipment (e.g. for sewage treatment plant).</p> <p><b>12</b> Final connections to specialist mechanical and electrical equipment where not carried out by the equipment installer.</p> <p><b>13</b> Sundry items.</p> <p><b>14</b> Testing and commissioning.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.5</b> Gas mains supply.  <b>Definition:</b> piped natural gas supply systems taking gas from the statutory undertaker's main to gas meter; and taking LPG from external storage vessels to distribution point, including mains gas supply and distribution of gas supply to external user points (e.g. to external plant and equipment).	1 Connections to statutory undertaker's gas main: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C4</b> Work outside the curtilage of the site is to be described and identified separately.  <b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>1</b> Connections to statutory undertaker's gas main.  <b>2</b> Gas main from statutory undertaker's main to point of mains connection within building, including pipelines and fittings, excavating and backfilling trenches, etc.  <b>3</b> Connections to external plant and equipment.  <b>4</b> Mains gas supply and distribution of gas supply to external plant and equipment, including pipelines and fittings, excavation and backfilling trenches.  <b>5</b> Governing stations.  <b>6</b> LPG installations, including storage bottles and containers, pipelines to gas distribution point in building and fittings.  <b>7</b> Sundry items.  <b>8</b> Testing and commissioning.	<b>1</b> Gas distribution pipelines from point of mains connection within building to user points within building (included in sub-element 5.9.1).  <b>2</b> Protective compounds, fencing and storage racks associated with LPG installations (included in sub-element 8.7.11).  <b>3</b> Builder's work in connection with external services (included in sub-element 8.7.11).
	2 Service runs: details to be stated.	m			
	3 Governing stations: detail to be stated.	nr			
	4 Testing of installations.	%			
	5 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
<b>8.7.6</b> Telecommunication and other communication system connections.  <b>Definition:</b> connection of telecommunication systems, cable television and other communication systems from statutory undertaker's or other service provider's supply to the main distribution point within the building.	<b>1</b> Telecommunication connections: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The length of linear components measured is their extreme length, over all obstructions.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.	<b>1</b> Connections to statutory undertaker's or service provider's supply.  <b>2</b> Distribution of telecommunication, cable television and other communication systems, including wiring to main distribution point within building, cables, excavating and backfilling trenches, etc.  <b>3</b> Constructing draw pits, including access covers.  <b>4</b> Marker tape, cover tiles and other special protection for electrical cables.  <b>5</b> Sundry items.  <b>6</b> Testing and commissioning.	<b>1</b> Distribution of telecommunication, cable television and other communication systems from main distribution point within building to user points within building (included in sub-element 5.12.1).  <b>2</b> Builder's work in connection with external services (included in sub-element 8.7.11).
	<b>2</b> Cable television connections: details to be stated.				
	<b>3</b> Other communication connections: details to be stated.				
	<b>4</b> Service runs: details to be stated.	m			
	<b>5</b> Testing of installations.	%			
	<b>6</b> Commissioning of installations.		<b>C4</b> Work outside the curtilage of the site is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
<p><b>8.7.7</b> External fuel storage and piped distribution systems.</p> <p><b>Definition:</b> storage tanks and vessels external to building, as well as piped supply systems distributing oil, petrol or diesel from storage tanks or vessels to entry point within building or to external plant and equipment.</p>	<p><b>1</b> Fuel storage and piped distribution systems: details to be stated.</p>	nr	<p><b>C1</b> Where components are to be enumerated, the number of components is to be stated.</p> <p><b>C2</b> The length of linear components measured is their extreme length, over all obstructions.</p>	<p><b>1</b> Oil, petrol and diesel.</p> <p><b>2</b> Storage tanks and vessels not supplied in connection with heat source installations.</p> <p><b>3</b> Proprietary supports forming an integral part of the storage tank/vessel unit.</p> <p><b>4</b> Off-site painting/anti-corrosion treatments.</p> <p><b>5</b> Connections to external plant and equipment.</p>	<p><b>1</b> Storage tanks, vessels and distribution pipelines within the building (included in sub-element 5.9.2).</p> <p><b>2</b> Supports not integral to the storage tank/vessel (included in sub-element 8.7.11).</p> <p><b>3</b> Bunds, etc. for fuel storage/tanks and vessels (included in sub-element 8.7.11).</p>
	<p><b>2</b> Service runs: details to be stated.</p>	m			
	<p><b>3</b> Testing of installations.</p>	%			
	<p><b>4</b> Commissioning of installations.</p>				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C4</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C6</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>6</b> Distribution pipelines and pipeline fittings, from storage tank or vessel to plant or equipment being served, above ground and below ground, including excavating and backfilling trenches, etc.</p> <p><b>7</b> Pipeline components/ancillaries (e.g. valves and pumps).</p> <p><b>8</b> Thermal insulation.</p> <p><b>9</b> Off-site painting/anti-corrosion treatments.</p> <p><b>10</b> Meters.</p> <p><b>11</b> Monitoring equipment.</p> <p><b>12</b> Sundry items.</p> <p><b>13</b> Testing and commissioning.</p> <p><b>14</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	<p><b>4</b> On-site painting of storage tanks, vessels, supports and pipelines (included in element 5.14).</p> <p><b>5</b> Building management systems and other control systems (included in sub-element 5.12.3).</p> <p><b>6</b> Builder's work in connection with external services (included in sub-element 8.7.11).</p>

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.8</b> External security systems.  <b>Definition:</b> external observation and access control installations, etc.	1 Surveillance equipment: details of each type of system to be stated.	item/ nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Where components are to be itemised, the key attributes comprising the component are to be identified, described and enumerated within the description of the component.  <b>C3</b> The length of linear components measured is their extreme length, over all obstructions.	<b>1</b> Surveillance equipment (e.g. CCTV).  <b>2</b> Security detection equipment.  <b>3</b> Security alarm equipment.  <b>4</b> Gate access control systems.  <b>5</b> Gate entry systems (audio and visual).  <b>6</b> Security lights and lighting systems.  <b>7</b> Other security systems.  <b>8</b> Cables/wiring interlinking components of external security systems, including excavating and backfilling trenches, protection, etc.  <b>9</b> Camera poles, etc., including excavating, concreting and backfilling holes for poles, etc.  <b>10</b> General-purpose power installations for external security systems, including cables, excavating and backfilling trenches, etc.	<b>1</b> Internal observation and access control installations, etc. (included in sub-element 5.12.2).  <b>2</b> Security gates, including mechanical and electrical operating equipment, guide rails, etc. (included in element 8.4, as appropriate).  <b>3</b> Building management systems and other control systems (included in sub-element 5.12.3).  <b>4</b> Builder's work in connection with external services (included in sub-element 8.7.11).
	2 Security detection equipment: details of each type of system to be stated.				
	3 Security alarm equipment: details of each type of system to be stated.				
	4 Gate access control systems: details of each type of system to be stated.	nr	<b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.		
	5 Gate entry systems: details of each type of system to be stated.				
	6 Security lights and lighting systems: details of each type of system to be stated.	item/ nr	<b>C5</b> Work outside the curtilage of the site is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<b>7</b> Other security systems: details of each type of system to be stated.	item/nr	<p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C7</b> State whether external security systems are included with building security systems (cross-reference with sub-element 5.12.2).</p> <p><b>C8</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>11</b> Constructing draw pits, including access covers.</p> <p><b>12</b> Marker tape, cover tiles and other special protection for electrical cables.</p> <p><b>13</b> Sundry items.</p> <p><b>14</b> Testing and commissioning.</p> <p><b>15</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	
	<b>8</b> Service runs: details to be stated.	m			
	<b>9</b> Testing of installations.	%			
	<b>10</b> Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.9</b> External street lighting systems.  <b>Definition:</b> external illumination systems, including lighting for pedestrian areas, paths and roads, and illuminated traffic signs.	1 External lighting for pedestrian areas: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C3</b> Work outside the curtilage of the site is to be described and identified separately.	<b>1</b> External lighting, columns, poles, bollards, masts, luminaires and lamps, cables and lighting for external surfaces/areas.  <b>2</b> Fixing luminaires and lamps to building fabric.  <b>3</b> Illuminated traffic signs.  <b>4</b> General-purpose power installations for external illumination systems, including cables, excavating and backfilling trenches, etc.  <b>5</b> Constructing draw pits, including access covers.  <b>6</b> Marker tape, cover tiles and other special protection for electrical cables.  <b>7</b> Lighting control points.  <b>8</b> Painting and anti-corrosion treatments for poles, bollards, masts, etc.  <b>9</b> Sundry items.  <b>10</b> Testing and commissioning.	<b>1</b> Lighting fixed to the exterior of the building but supplied as part of the interior lighting system (included in sub-element 5.8.3).  <b>2</b> Security lights and lighting systems (included in sub-element 8.7.8).  <b>3</b> Builder's work in connection with external services (included in sub-element 8.7.11).
	2 External lighting for paths: details to be stated.				
	3 External lighting for roads: details to be stated.				
	4 Illuminated traffic signs: details to be stated.				
	5 Testing of installations.	%	<b>C4</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		
	6 Commissioning of installations.				

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C5</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.	<b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
<b>8.7.10</b> Local/district heating installations.  <b>Definition:</b> local/district heating installations, including heat source.	<b>1</b> Heat source associated plant and equipment: details to be stated.	item/nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Externally located heat source (e.g. boiler plant), including ancillary plant and equipment.	<b>1</b> Internally located heat source (e.g. boiler plant), including ancillary plant and equipment (included in element 5.5).
	<b>2</b> Service runs: details to be stated.	m	<b>C2</b> Where components are to be itemised, the key attributes comprising the component are to be identified, described and enumerated within the description of the component.	<b>2</b> Instrumentation and control components for heat source.	<b>2</b> Heat distribution pipelines from point of entry into building to heat emitter or other equipment (included in element 5.6, as appropriate).
	<b>3</b> External heating ducts and duct access covers: details to be stated.		<b>C3</b> The length of linear components measured is their extreme length, over all obstructions.	<b>3</b> Heat distribution pipelines from heat source to point of entry into building, including pipelines, pipeline fittings and ancillaries (e.g. valves and pumps).	<b>3</b> Fuel supply (included in sub-elements 8.7.5 or 8.7.7, as appropriate).
	<b>4</b> Testing of installations.	%		<b>4</b> Heating ducts and access covers for local/district heating pipelines.	<b>4</b> Boiler houses, etc. (included in sub-element 8.8.2).
	<b>5</b> Commissioning of installations.			<b>5</b> Instrumentation and control components for heating systems. <b>6</b> Thermal insulation. <b>7</b> Sundry items.	<b>5</b> Builder's work in connection with external services (included in sub-element 8.7.11).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C5</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p> <p><b>C7</b> The percentage additions for testing and commissioning are to be applied to the total cost of the items comprising the sub-element. A single combined percentage addition can be applied to cover the costs of both testing and commissioning.</p>	<p><b>8</b> Testing and commissioning.</p> <p><b>9</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.7.11</b> Builder's work in connection with external services.  <b>Definition:</b> sundry builder's work associated with the installation of water, gas, electricity, heating, ventilation, aboveground drainage, telecommunications and other services.	<b>1</b> Ducts, etc.: details to be stated.	nr/m	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.	<b>1</b> Ducts, etc. for external mains services.	<b>1</b> Trenches for buried pipelines, cables and ducts, including excavation, earthwork support, backfilling, beds and surrounds (included in elements 8.6 or 8.7, as appropriate).  <b>2</b> Cover tiles, identification tape and other special protection for services (included in element 8.7, as appropriate).  <b>3</b> Constructing draw pits, including access covers (included in sub-elements 8.7.2, 8.7.3, 8.7.4, 8.7.6, 8.7.8 or 8.7.9, as appropriate).  <b>4</b> Heating ducts and access covers for local/district heating pipelines (included in sub-element 8.7.10).
	<b>2</b> Supports for external storage tanks, vessels, etc.: details to be stated.	item/nr	<b>C2</b> Where components are to be itemised, the key attributes comprising the component are to be identified, described and enumerated within the description of the component.	<b>2</b> Supports for external storage tanks, vessels, etc.	
	<b>3</b> Fuel bunds, etc. for storage/retention tanks and vessels: details to be stated.		<b>C3</b> Where the linear length of a component is to be measured, the length measured is its extreme length, over all fittings, etc.	<b>3</b> Fuel bunds, etc. for storage/retention tanks and vessels.	
	<b>4</b> Protective compounds, fencing and storage racks associated with LPG installations, etc.: details to be stated.		<b>C4</b> Where a percentage addition is to be applied, the percentage addition is to be applied to the cost targets for sub-elements 8.7.1 to 8.7.11 inclusive, as appropriate. Each system is to be identified separately.	<b>4</b> Protective compounds, fencing and storage racks associated with LPG installations, etc.	
	<b>5</b> Protective compounds connected with transformer substations, etc.: details to be stated.		<b>C5</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.	<b>5</b> Protective compounds connected with transformer substations, etc.	
	<b>6</b> Bases for service equipment: details, including size, to be stated.	nr		<b>6</b> Bases for service equipment, including for transformation devices (wind turbines, photovoltaic devices, etc.).  <b>7</b> On-site painting or anti-corrosion treatments for mechanical service equipment, including fuel storage tanks and vessels, pipelines, etc.  <b>8</b> Forming/cutting holes, mortices, sinkings, chases, etc., including making good.	

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
	<p><b>7</b> Other builder's work in connection with external services: details to be stated.</p> <p><b>8</b> Testing of installations.</p> <p><b>9</b> Commissioning of installations.</p>	%	<p><b>C6</b> Work to existing buildings is to be described and identified separately.</p> <p><b>C7</b> Work outside the curtilage of the site is to be described and identified separately.</p> <p><b>C8</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>9</b> Pipe ducts, sleeves, etc.</p> <p><b>10</b> Trench covers, duct covers and frames.</p> <p><b>11</b> Stopping up and sealing holes.</p> <p><b>12</b> Fire-resistant stopping, including fire sleeves.</p> <p><b>13</b> Identification labelling and colour coding of service installations and systems.</p> <p><b>14</b> Other builder's work items in connection with external services.</p> <p><b>15</b> Sundry items.</p> <p><b>16</b> Testing and commissioning.</p> <p><b>17</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

## Element 8.8: Minor building works and ancillary buildings

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
<b>8.8.1</b> Minor building works.  <b>Definition:</b> refurbishment of, and alterations to, existing separate and external small ancillary buildings, including overhauling existing mechanical and electrical plant and equipment.	<b>1</b> Refurbishment of existing ancillary buildings: details, including GIFA (m <sup>2</sup> ), to be stated.	item/nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> Where components are to be itemised, the key attributes comprising the component are to be identified, described and enumerated within the description of the component.	<b>1</b> Refurbishment of (including alterations to) existing separate and external small ancillary buildings (e.g. boiler houses).  <b>2</b> Overhauling existing mechanical and electrical plant and equipment (externally located).  <b>3</b> Repairs to existing fences, railings, walls, screen walls and retaining walls.  <b>4</b> Works arising out of party wall awards/agreements.  <b>5</b> Other minor building works to ancillary buildings.  <b>6</b> Sundry items.  <b>7</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	<b>1</b> Repairs to existing roads, paths and pavings (included in element 8.2).  <b>2</b> Repairs to existing grassed areas (included in sub-element 8.3.1).  <b>3</b> Alterations to existing external drainage systems (included in sub-element 8.6.1).  <b>4</b> Work on existing maintenance holes, etc. (included in sub-element 8.6.1).  <b>5</b> Clearing existing drains (included in sub-element 8.6.1).  <b>6</b> Sealing redundant drains, including filling entire length of drain with foam concrete, etc. (included in sub-element 8.6.1).  <b>7</b> Filling disused manholes (included in sub-element 8.6.1).
	<b>2</b> Overhauling existing mechanical and electrical plant and equipment: details to be stated.		<b>C3</b> The area measured is the GIFA.		
	<b>3</b> Repairs to existing fences, railings, walls and screen walls: details to be stated.	nr/m	<b>C4</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C5</b> Work outside the curtilage of the site is to be described and identified separately.		

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.		
<b>8.8.2</b> Ancillary buildings and structures.  <b>Definition:</b> separate and external small ancillary buildings and structures, including specialist structures.	<b>1</b> Minor ancillary buildings – built on site: details, including GIFA (m <sup>2</sup> ), to be stated.  <b>2</b> Prefabricated/proprietary minor ancillary buildings: details to be stated.	nr	<b>C1</b> Where components are to be enumerated, the number of components is to be stated.  <b>C2</b> The area measured is the GIFA.  <b>C3</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m <sup>2</sup> ) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.  <b>C4</b> Work outside the curtilage of the site is to be described and identified separately.  <b>C5</b> Work arising out of party wall awards/agreements is to be described and identified separately.	<b>1</b> Boiler houses.  <b>2</b> Substation buildings or housings, where not supplied and installed by the statutory undertaker.  <b>3</b> Fuel storage buildings, etc.  <b>4</b> Specialist structures (e.g. external cooling towers).  <b>5</b> Bicycle stores.  <b>6</b> Prefabricated/timber workshops, sheds, stores, etc.  <b>7</b> Guard huts, etc.  <b>8</b> Canopies for external areas.  <b>9</b> Other ancillary buildings.  <b>10</b> Sundry items.	<b>1</b> Fuel bunds, etc. for storage/retention tanks and vessels (included in sub-element 8.7.11).  <b>2</b> Protective compounds, fencing and storage racks associated with LPG installations, etc. (included in sub-element 8.7.11).  <b>3</b> Protective compounds connected with transformer substations, etc. (included in sub-element 8.7.11).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<b>C6</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.	<b>11</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.	
<p><b>8.8.3</b> Underpinning for external site boundary walls.</p> <p><b>Definition:</b> inserting additional foundation support under and around existing foundations, including boundary walls.</p>	<b>1</b> Underpinning for external site boundary walls, etc.: details to be stated.	m	<p><b>C1</b> The length of underpinning measured is the extreme length.</p> <p><b>C2</b> Other cost-significant components are to be described and identified separately. Such components are to be measured by area (m<sup>2</sup>) or linear measurement (m), or enumerated (nr) separately in accordance with the rules of measurement for this sub-element.</p> <p><b>C3</b> Curved work is to be described and identified separately.</p> <p><b>C4</b> Work arising out of party wall awards/agreements is to be described and identified separately.</p>	<p><b>1</b> Underpinning for external site boundary walls.</p> <p><b>2</b> Preliminary trenches and underpinning pits, excavation and earthwork support.</p> <p><b>3</b> Temporary supports.</p> <p><b>4</b> Disposal of excavated material.</p> <p><b>5</b> Cutting away existing projecting foundations, etc.</p> <p><b>6</b> Preparing existing work to receive pinning up of new work.</p> <p><b>7</b> Concrete, including reinforcement and formwork.</p> <p><b>8</b> Masonry (brickwork, blockwork, etc.).</p>	<b>1</b> Underpinning for walls that are an integral part of the new building or rehabilitated building (included in sub-element 1.1.3).

Sub-element	Component	Unit	Measurement rules for components	Included	Excluded
			<p><b>C5</b> Where the contractor is only responsible for designing specific elements and/or components of the building project (i.e. not the entire building project), contractor-designed work is to be described and identified separately.</p>	<p><b>9</b> Sundry items.</p> <p><b>10</b> Where works are to be carried out by a subcontractor, the subcontractor's preliminaries, design fees, risk allowance, overheads and profit, with allowance for these to be made within unit rate applied to element or component.</p>	

# Group element 9: Main contractor's preliminaries

Group element 9 comprises the following elements:

## 9.1 Employer's requirements:

- 9.1.1 Site accommodation
- 9.1.2 Site records
- 9.1.3 Completion and post-completion requirements

## 9.2 Main contractor's cost items:

- 9.2.1 Management and staff
- 9.2.2 Site establishment
- 9.2.3 Temporary services
- 9.2.4 Security
- 9.2.5 Safety and environmental protection
- 9.2.6 Control and protection
- 9.2.7 Mechanical plant
- 9.2.8 Temporary works

- 9.2.9 Site records
- 9.2.10 Completion and post-completion requirements
- 9.2.11 Cleaning
- 9.2.12 Fees and charges
- 9.2.13 Site services
- 9.2.14 Insurance, bonds, guarantees and warranties

**Note:** where the unit of measurement for a component or a part of an item has been given as 'per week', a week should mean a period of seven calendar days irrespective of public holidays.

## Element 9.1: Employer's requirements

### Sub-element 9.1.1: Site accommodation

Component	Included	Unit	Excluded
9.1.1.1 Site accommodation.	<b>1</b> Site accommodation for the employer and the employer's representatives where separate from main contractor's site accommodation, including: <ul style="list-style-type: none"> <li>• site offices</li> <li>• sanitary accommodation</li> <li>• welfare facilities</li> <li>• foundations to site accommodation</li> <li>• temporary drainage to accommodation</li> <li>• temporary services</li> <li>• intruder alarms.</li> </ul>	item	<b>1</b> 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 element 9.2, as appropriate).
	<b>2</b> Bringing to site and installing, including all temporary drainage, services and intruder alarms.		
	<b>3</b> Charges.	per week	
	<b>4</b> Maintaining (minor repairs).		
	<b>5</b> Cleaning.		
	<b>6</b> Adaptations/alterations during works.	item	
	<b>7</b> Dismantling and removing from site, including rectifying any damage.		
	<b>8</b> Off-site rented temporary accommodation.	per week	
	<b>9</b> Rectifying damage to off-site rented temporary accommodation.	item	

Component	Included	Unit	Excluded
<b>9.1.1.2</b> 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.		
	<b>1</b> Bringing to site and installing.	item	
	<b>2</b> Cleaning.	per week	
	<b>3</b> Charges.		
	<b>4</b> Dismantling and removing from site.	item	
<b>9.1.1.3</b> Telecommunication and IT systems.	<b>1</b> Telecommunication and IT systems for the employer and the employer's representatives where separate from main contractor's site accommodation, including telephones, mobile phones, photocopiers, computers, printers, scanners and consumables.	per person (nr)	
	<b>2</b> Purchase charges.		
	<b>3</b> Hire charges.	per person per week (nr)	
	<b>4</b> Consumables.	per week (nr)	

## Sub-element 9.1.2: Site records

Component	Included	Unit	Excluded
9.1.2.1 Site records.	1 Operation and maintenance manuals (paper and electronic copies on USB flash drives and other removable media).	item	
	2 Compilation of health and safety file (if required by main contractor – paper and electronic copies on USB flash drives and other removable media).		
	3 Web-based documentation project management systems for the collation, review and delivery of critical operation and maintenance requirements; commissioning data, asset, and other facilities management-related information and a health and safety file, including: <ul style="list-style-type: none"> <li>• programme software and installation</li> <li>• hardware (e.g. computers, monitors, printers, etc.).</li> </ul>	nr	
	4 Uploading data, and initial implementation and training of building management team by system provider.	item	
	1 Attendance on system provider by main contractor (included in component 9.2.9.2).		

### Sub-element 9.1.3: Completion and post-completion requirements

Component	Included	Unit	Excluded
9.1.3.1 Training.	1 Training of building user's staff in the operation and maintenance of building engineering service systems.	item	
9.1.3.2 Spare parts and consumables.	1 Spare parts and consumables for maintenance of building engineering service systems.		
9.1.3.3 Tools.	1 Tools and portable indicating instruments for the operation and maintenance of building engineering service systems.		
9.1.3.4 Operation and maintenance services.	1 Services relating to the operation and maintenance of building engineering service systems, after completion/practical completion up to expiry of defects rectification period or other specified period.	per week	1 Ongoing maintenance of internal and external planting (included in sub-elements 4.1.7 and 8.3.3, as appropriate).
	2 Operation and maintenance services additional to those required to be completed by the contractor under the terms and conditions of the building contract.		

## Element 9.2: Main contractor's cost items

### Sub-element 9.2.1: Management and staff

Component	Included	Unit	Excluded
9.2.1.1 Main contractor's project-specific management and staff.	1 Contractor's project manager.	per week (number of staff by number of worker hours per week by number of weeks)	<b>1</b> External design consultants (included in group element 11). <b>2</b> Security staff (included in sub-element 9.2.4).
	2 Construction manager.		
	3 Supervisors, including works/trade package managers, building services engineering managers/coordinators and off-site production managers.		
	4 Health and safety manager/officers.		
	5 Commissioning manager – building engineering services.		
	6 Planning/programming manager and staff.		
	7 Senior/managing quantity surveyor.		
	8 Project/package quantity surveyors.		
	9 Procurement manager.		
	10 Design manager and staff (where contract strategy is design and build).		
	11 Project engineers.		
	12 Environmental manager.		
	13 Temporary works design engineers.		
	14 Materials management staff (e.g. storeworker).		
	15 Administrative staff, including secretary, document controllers, finance clerks, etc.		
	16 Other management and staff.		

Component	Included	Unit	Excluded
9.2.1.2 Main contractor's non-project-specific management and staff.	1 Managing director, regional director, operations director, commercial director, etc.	per week (number of staff by number of worker hours per week by number of weeks)	1 Visiting management and staff for which an allowance has been made within the main contractor's overheads (included in element 10.1).
	2 Quality manager.		
	3 Contract/commercial manager.		
	4 Health and safety manager.		
	5 Environmental manager/consultant.		
	6 Other visiting management and staff.		
9.2.1.3 Extraordinary support costs.	1 Legal advice costs (i.e. solicitors).	item	1 Extraordinary support costs for which an allowance has been made within the main contractor's overheads (included in element 10.1).
	2 Recruitment costs.		
	3 Team-building costs.		
	4 Other extraordinary support costs.		
	5 Day transport.	per week (number of days per week by number of weeks)	
	6 Personnel transport (i.e. transportation of work operatives to site).		
	7 Temporary living accommodation (e.g. long-/medium-term accommodation costs).	per week (number of staff by number of days by number of weeks)	
	8 Subsistence payments.		
	9 Out-of-hours working.		

Component	Included	Unit	Excluded
9.2.1.4 Staff travel.	Costs associated with off-site visits such as:	nr (number of occasions)	
	1 Visits to employer and consultants' offices.		
	2 Visits to subcontractors' offices/works.		
	3 Overseas visits.		
	4 Accommodation charges and overnight expenses.		

### Sub-element 9.2.2: Site establishment

Component	Included	Unit	Excluded
9.2.2.1 Site accommodation.	<p>1 Main contractor's and common user temporary site accommodation, such as:</p> <ul style="list-style-type: none"> <li>• office accommodation</li> <li>• meeting rooms</li> <li>• catering facilities</li> <li>• drying rooms</li> <li>• sanitation facilities</li> <li>• medical facilities and first aid</li> <li>• laboratories</li> <li>• workshops</li> <li>• storage facilities</li> <li>• security control room</li> <li>• stairs and office staging</li> </ul>	nr	<p>1 Employer's accommodation, where not an integral part of the main contractor's site accommodation (included in sub-element 9.1.1).</p> <p>2 Temporary bases, foundations and provision of drainage and services for temporary site accommodation (included in component 9.2.2.2).</p> <p>3 Service provider's charges for temporary services (included in sub-element 9.2.12).</p> <p>4 Rates for temporary services (included in sub-element 9.2.12).</p> <p>5 Fences, screens and hoardings for site boundaries (included in sub-element 9.2.4).</p>

Component	Included	Unit	Excluded
	<ul style="list-style-type: none"> <li>• sign boards and other signage</li> <li>• fences, screens and hoardings (forming contractor's and subcontractors' compounds)</li> <li>• safety equipment and services</li> <li>• other temporary facilities</li> <li>• employer's accommodation, where an integral part of the main contractor's site accommodation.</li> </ul> <p>Type and extent of accommodation to be provided to be stated, with each type separately quantified.</p>		
	<b>2</b> Purchase charges.		
	<b>3</b> Hire and purchase.	per week	
	<b>4</b> Delivery of temporary site accommodation to site, erection, construction and removal.	item	
	<b>5</b> Temporary accommodation made available by the employer.	per week	
	<b>6</b> Intruder alarms.	item	
	<b>7</b> Land/property rental where site accommodation located off-site.	per week	
	<b>8</b> Alterations and adaptations to site accommodation, including partitioning, doors, painting and decorating, etc.	item	
	<b>9</b> Relocation and alterations of temporary accommodation during construction stage.		
	<b>10</b> Reinstating temporary site accommodation to original condition prior to removal from site.		
	<b>11</b> Removal of site accommodation and temporary works in connection with site accommodation.		

Component	Included	Unit	Excluded
<b>9.2.2.2</b> Temporary works in connection with site establishment.	<b>1</b> Temporary bases and foundations for site accommodation, including maintenance, removal and reinstatement of all disturbed existing surfaces on completion of the works.	m <sup>2</sup>	<b>1</b> Provision of temporary services for site establishment (included in sub-element 9.2.3). <b>2</b> Provision of temporary drainage for site establishment (included in sub-element 9.2.3). <b>3</b> Hoardings, fans, fencing, etc. for site boundaries and to form site compounds (included in sub-element 9.2.4).
	<b>2</b> Connections to temporary service, including maintenance, removal and reinstatement of all disturbed existing surfaces on completion of the works.	nr	
	<b>3</b> Connections to temporary drainage including maintenance, removal and reinstatement of all disturbed existing surfaces on completion of the works.		
	<b>4</b> Temporary site roads, paths and pavings (including on-site car parking), including maintenance, removal and reinstatement of all disturbed existing surfaces on completion of the works.	m <sup>2</sup>	
	<b>5</b> Temporary surface water drainage for temporary site roads, paths and pavements, including maintenance, removal and reinstatement of all disturbed existing surfaces on completion of the works.	m	
<b>9.2.2.3</b> Furniture and equipment.	<b>1</b> Workstations for staff, including maintenance.	per person (nr)	<b>1</b> Telephone installations (included in sub-element 9.2.3). <b>2</b> Computers and IT-associated equipment (included in component 9.2.2.4).
	<b>2</b> General office furniture, including maintenance.	item	
	<b>3</b> Conference/meeting room furniture, including maintenance.		
	<b>4</b> Photocopiers, including purchase/rental, maintenance and other running costs.	nr	
	<b>5</b> Canteen furniture, including maintenance.	item	
	<b>6</b> Canteen equipment, including purchase/rental, maintenance and other running costs.		
	<b>7</b> Floor coverings, including maintenance.		
	<b>8</b> Water dispensers, including purchase/rental, maintenance and other running costs.		
	<b>9</b> Heaters, including maintenance.		

Component	Included	Unit	Excluded
	<p><b>10</b> Other office equipment, including maintenance.</p> <p><b>11</b> Removal of furniture and equipment.</p> <p><b>12</b> Maintenance of furniture and floor coverings.</p>		
<b>9.2.2.4</b> IT systems.	<p><b>1</b> Computer hardware, including purchase/rental, installation, initial setup, maintenance and running costs, such as:</p> <ul style="list-style-type: none"> <li>• desktop computers and laptop computers</li> <li>• CAD stations</li> <li>• server and network equipment</li> <li>• printers and plotters</li> <li>• other computer system hardware.</li> </ul> <p><b>2</b> Software and software licences.</p> <p><b>3</b> Modem lines, modems, routers and connections (i.e. email and internet capability).</p> <p><b>4</b> WAN lines and connections (if on WAN).</p> <p><b>5</b> Line rental charges.</p> <p><b>6</b> Internet/website addresses.</p> <p><b>7</b> Internet service provider (ISP) charges.</p> <p><b>8</b> Line call charges.</p> <p><b>9</b> IT support and maintenance services.</p>	<p>per person (nr)</p> <p>per week (number of staff by number of weeks)</p> <p>per person (nr)</p>	<p><b>1</b> Computer and printer consumables (included in component 9.2.2.5).</p> <p><b>2</b> Document management, including electronic data management systems (EDMS; included in component 9.2.2.6).</p>

Component	Included	Unit	Excluded
<b>9.2.2.5</b> Consumables and services.	1 Stationery.	per week	
	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 Drawing printer/plotter consumables (e.g. paper and ink cartridges).		
<b>9.2.2.6</b> Brought in services.	Services outsourced by the main contractor, such as:	per week	
	1 Catering.		
	2 Equipment maintenance.		
	3 Document management, including electronic data management systems (EDMS).		
	4 Printing including reports and drawings.		
	5 Staff transport.		
	6 Off-site parking charges.		
	7 Meeting room facilities.		
	8 Photographic services.		

Component	Included	Unit	Excluded
9.2.2.7 Sundries.	1 Main contractor's signboards.	item	
	2 Safety and information notice boards.		
	3 Fire points.		
	4 Shelters.		
	5 Tool stores.		
	6 Crane signage.		
	7 Employer's composite signboards.		

### Sub-element 9.2.3: Temporary services

Component	Included	Unit	Excluded
9.2.3.1 Temporary water supply.	1 Temporary connection.	nr	
	2 Distribution equipment, installation and adaptations.	item	
	3 Meter charges.	per week	
9.2.3.2 Temporary gas supply.	1 Temporary connection.	nr	
	2 Distribution equipment, installation and adaptations.	item	
	3 Charges.	per week	
	4 Bottled gas.		

Component	Included	Unit	Excluded
9.2.3.3 Temporary electricity supply.	1 Temporary connection.	nr	
	2 Temporary electrical supply for tower cranes.	item	
	3 Charges: power consumption for site establishment.	per week	
	4 Charges: power consumption for the works.		
	5 Distribution equipment, installation and adaptations.	item	
	6 Attendance.	per week (number of worker hours per week by number of weeks)	
	7 Uninterrupted power supply (UPS).	item	
	8 Temporary substation modifications.		
9.2.3.4 Temporary telecommunication systems.	1 Landlines (with connection and rental charges), including: <ul style="list-style-type: none"> <li>• telephone and fax lines</li> <li>• ISDN lines.</li> </ul>	per week	1 Fax consumables (included in component 9.2.2.5).
	2 Telephone and fax equipment (with connection and rental charges), including: <ul style="list-style-type: none"> <li>• PABX equipment</li> <li>• handsets, including purchase or rental</li> <li>• installation of equipment</li> <li>• maintenance of equipment.</li> </ul>		

Component	Included	Unit	Excluded
	<p><b>3</b> Mobile phones, including:</p> <ul style="list-style-type: none"> <li>• purchase or rental and connection charges</li> <li>• spare batteries</li> <li>• chargers.</li> </ul>		
	<b>4</b> Telephone charges, including telephone call charges.		
	<p><b>5</b> Radios (with purchase or rental charges), including</p> <ul style="list-style-type: none"> <li>• base set</li> <li>• handsets and chargers</li> <li>• repairs and maintenance</li> <li>• licences</li> <li>• spare batteries.</li> </ul>		
9.2.3.5 Temporary drainage.	<b>1</b> Temporary mains.	nr	
	<b>2</b> Septic tanks.		
	<b>3</b> On-site treatment plant.		
	<b>4</b> Holding tanks.		
	<b>5</b> Sewage pumping.		
	<b>6</b> Distribution pipework, etc.	item	
	<b>7</b> Drainage installation and adaptations.		
	<b>8</b> Disposal charges (i.e. rates).	per week	
	<b>9</b> Disposal costs (i.e. tanker charges).	per week (number of collections per week by number of weeks)	

## Sub-element 9.2.4: Security

Component	Included	Unit	Excluded
9.2.4.1 Security staff.	1 Security guards (day and night).	per week (number of staff by number of worker hours per week by number of weeks)	1 Security staff accommodation (included in sub-element 9.2.2).
	2 Watch patrols (day and night).		
9.2.4.2 Security equipment.	1 Site pass issue equipment.	item	
	2 Site pass consumables.		
	3 CCTV surveillance installation, including cameras.		
	4 Temporary vehicle control barriers.	nr	
9.2.4.3 Fencing, screens, hoardings and gates.	1 Fences, screens and hoardings for site boundaries.	m	1 Fences, screens and hoardings to form main contractor's or subcontractors' accommodation and/or storage compounds (included in sub-element 9.2.2).
	2 Access gates, including frames and ironmongery.	nr	
	3 Painting of hoardings, fencing, gates, etc.	m	
	4 Temporary doors.	nr	
	5 Modifications to line of hoarding and fencing during construction.	item	
	6 Dismantling and removal of hoarding, fencing, gates, etc.	m	

## Sub-element 9.2.5: Safety and environmental protection

Works required to satisfy requirements of *The Construction (Design and Management) Regulations 2015*.

Component	Included	Unit	Excluded
9.2.5.1 Safety programme.	1 Health and safety manager/officers.	per week (number of staff by number of worker hours per week by number of weeks)	<b>1</b> Health and safety manager/officers (included in sub-element 9.2.1).  <b>2</b> Welfare facilities (included in sub-element 9.2.2).
	2 Safety audits, including safety audits carried out by external consultant.	nr	
	3 Staff safety training.		
	4 Site safety incentive scheme.	item	
	5 Notices and information for neighbours.		
	6 Personal protective equipment (PPE), including for employer and consultants.	per set (nr)	
	7 Personal protective equipment (PPE) for multi-service gangs.		
	8 Fire points.	nr	
	9 Temporary fire alarms.		
	10 Fire extinguishers.		
	11 Statutory safety signage.	item	
	12 Nurse.	per week (number of staff by number of worker hours per week by number of weeks)	
	13 Traffic marshals.		
	14 Temporary traffic lights.	per week (number of sets by number of weeks)	

Component	Included	Unit	Excluded
<b>9.2.5.2</b> Barriers and safety scaffolding.	<b>1</b> Guard rails and edge protection (e.g. to edges of suspended slabs and roofs), including supply, erection, maintenance and dismantling on completion of the works.	per week/item	<b>1</b> Debris netting/plastic sheeting provided as part of access scaffolding (included in sub-element 9.2.8).  <b>2</b> Fan protection provided as part of access scaffolding (included in sub-element 9.2.8).
	<b>2</b> Temporary staircase balustrades (to new staircases during construction), including supply, erection, maintenance and dismantling on completion of the works.		
	<b>3</b> Lift shaft protection, including supply, erection, maintenance and dismantling on completion of the works.		
	<b>4</b> Protection for holes and openings in ground floor slabs, suspended slabs, etc. including supply, erection, maintenance and dismantling on completion of the works.		
	<b>5</b> Debris netting/plastic sheeting, including supply, erection, maintenance and dismantling on completion of the works.		
	<b>6</b> Fan protection, including supply, erection, maintenance and dismantling on completion of the works.		
	<b>7</b> Scaffold inspections.	per week (number of inspections by number of weeks)	
	<b>8</b> Hoist run-offs, including supply, erection, maintenance and dismantling on completion of the works.	per week/item	
	<b>9</b> Protective walkways, including supply, erection, maintenance and dismantling on completion of the works.		
	<b>10</b> Other safety measures, including supply, erection, maintenance and dismantling on completion of the works.		

Component	Included	Unit	Excluded
<b>9.2.5.3</b> Environmental protection measures.	1 Control of pollution.	per week/item	1 Environmental manager/consultant (if already included in sub-element 9.2.1).
	2 Residual control of noise.		
	3 Environmental monitoring.		
	4 Environmental manager/consultant.	per week (number of staff by number of worker hours per week by number of weeks)	
	5 Environmental audits, including safety audits carried out by external consultant.	nr (number of occasions)	

### Sub-element 9.2.6: Control and protection

Component	Included	Unit	Excluded
<b>9.2.6.1</b> Surveys, inspections and monitoring.	1 Surveys.	item	1 Environmental monitoring (included in sub-element 9.2.5).
	2 Topographical survey.		
	3 Non-employer dilapidation survey.		
	4 Structural/dilapidations survey of adjoining buildings.		
	5 Environmental surveys.		
	6 Movement monitoring.		
	7 Maintenance and inspection costs.		

Component	Included	Unit	Excluded
9.2.6.2 Setting out.	1 Setting out primary grids.	item	
	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.		
9.2.6.3 Method statements.	1 Method statements.	item	
9.2.6.4 Protection of works.	1 Protection of finished works up to project handover.	item	
	2 Protection of work on stairs, balustrades, etc. up to project handover.		
	3 Protection of work on fittings and furnishings up to project handover.		
	4 Protection of work on entrance doors and frames up to project handover.		
	5 Protection of work on lift cars and doors up to project handover.		
	6 Protection of specifically vulnerable products to project handover.		
	7 Protection of all sundry items.		
9.2.6.5 Samples.	Samples of materials, products and work executions required by the employer for approval prior to use, including storage, protection and removal after inspection.	item	
	1 Provision of samples.		
	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 complete units (e.g. residential units, student accommodation units, hotel accommodation, etc.).			

Component	Included	Unit	Excluded
<b>9.2.6.6</b> Environmental control of building.	1 Dry out building.	item	
	2 Temporary heating/cooling.		
	3 Temporary waterproofing, including over roofs.		
	4 Temporary enclosures.		

### Sub-element 9.2.7: Mechanical plant

Component	Included	Unit	Excluded
<b>9.2.7.1</b> General plant and equipment.	1 Common user mechanical plant and equipment used in construction operations.		<p>Plant and equipment used for specific construction operations, such as:</p> <ul style="list-style-type: none"> <li><b>1</b> Earthmoving plant (included in group elements 1 or 8, as appropriate).</li> <li><b>2</b> Piling plant (included in group elements 1 or 8, as appropriate).</li> <li><b>3</b> Paving and surfacing plant (included in group element 8).</li> <li><b>4</b> Wheel spinners and road sweepers (included in component 9.2.11.2).</li> <li><b>5</b> Access scaffolding (included in sub-element 9.2.8).</li> </ul>

Component	Included	Unit	Excluded
9.2.7.2 Tower cranes.	1 Hire charges (type of tower crane to be stated, including type and length of jib, and lifting capacity, with each type separately quantified).	per week	1 Temporary electrical supply to tower crane (included in sub-element 9.2.3).
	2 Crane operator.	per week (number of operators by number of worker hours per week by number of weeks)	
	3 Overtime for crane and operator.		
	4 Piles for tower crane bases, including installation and removal on completion of the works (size of base in m <sup>2</sup> and number of piles supporting base to be stated).	nr (number of bases)	
	5 Temporary bases and/or ground anchors for tower cranes, including installation, maintenance, removal and reinstatement of all disturbed surfaces on completion of the works (size of base in m <sup>2</sup> to be stated).	m <sup>2</sup>	
	6 Ties.	per week	
	7 Connections to temporary electrical supply.	nr	
	8 Bringing to site, erection, testing and commissioning.		
	9 Periodic safety checks/inspections.	per week	
	10 Dismantling and removing from site.	nr	
	11 Other costs specific to tower crane such as: <ul style="list-style-type: none"> <li>• chain pack and sundries</li> <li>• relief operator</li> <li>• banksman</li> <li>• protection cage.</li> </ul>	item	

Component	Included	Unit	Excluded
	<p><b>12</b> Temporary voids in building structure for craneage, hoists, etc. including filling voids after removal.</p> <p><b>Note:</b> where tower crane is sited within building structure, the completion of works in connection with the building structure and fabric should be measured in accordance with the measurement rules for the specific types of work required (e.g. infilling of voids within suspended floor construction should be measured in accordance with element 2.2).</p>	nr	
9.2.7.3 Mobile cranes.	<p><b>1</b> Mobile crane hire charges, including driver/operator charges (type of mobile crane to be stated, with each type separately quantified).</p>	per week (number of days hired per week by number of weeks)	
	<p><b>2</b> Attendance.</p>	per week (number of worker hours per visit, or day hired, by number of days hired per week by number of weeks)	
	<p><b>3</b> Other costs specific to mobile crane hire.</p>	nr (cost per visit)	
9.2.7.4 Hoists.	<p><b>1</b> Goods and passenger hoists, including protection cages and embedment frames. Types of hoists to be provided should be stated, with each type separately quantified.</p>	per week	<p><b>1</b> Temporary services for hoist installations (included in sub-element 9.2.3).</p>
	<p><b>2</b> Hoist bases.</p>		
	<p><b>3</b> Bringing to site, erecting, testing and commissioning.</p>	nr	
	<p><b>4</b> Dismantling and removing from site.</p>		

Component	Included	Unit	Excluded
	5 Protection systems.	per week	
	6 Hoist operator, including overtime.	per week (number of operators by number of worker hours per week by number of weeks)	
	7 Beam hoists.	per week	
	8 Periodic safety checks/inspections.		
	9 Other costs specific to temporary hoist installations.		
9.2.7.5 Access plant.	1 Forklifts.	item	
	2 Scissor lifts.		
	3 Loading platforms.		
	4 Maintenance of mechanical access equipment.		
	5 Other costs specific to mechanical access equipment.		
9.2.7.6 Concrete plant.	1 Concrete plant.	per week	1 Temporary services for concrete plant (included in sub-element 9.2.3).
	2 Plant operator.		
	3 Overtime for plant and operator.	per week (number of operators by number of worker hours per week by number of weeks)	

Component	Included	Unit	Excluded
	4 Bases for concrete plant, including installation, maintenance, removal and reinstatement of disturbed surfaces on completion of the works (size in m <sup>2</sup> to be stated).	nr	
	5 Power connections, including cabling and statutory undertaker's charges for temporary connection to their supply.	nr/per week	
	6 Bringing concrete plant to site, erecting, testing and commissioning.	nr	
	7 Maintenance of concrete plant.	per week	
	8 Dismantling and removing from site.	item	
9.2.7.7 Other plant.	1 Small plant and tools.	per week	

### Sub-element 9.2.8: Temporary works

Component	Included	Unit	Excluded
9.2.8.1 Access scaffolding.	1 Common user access scaffolding (type of access scaffolding to be specified): <ul style="list-style-type: none"> <li>access scaffolding for elevations, lift shafts, etc. including fans and mesh screens</li> <li>structural scaffolding (e.g. for party walls)</li> <li>birdcage scaffolding</li> <li>cantilever access scaffolding</li> <li>staircase platforms</li> <li>primary loading platforms</li> <li>travelling access platforms.</li> </ul>	per week	1 Scaffolding specific to work packages (included in appropriate element or sub-element).  2 Scaffold inspections (included in sub-element 9.2.5).
	2 Bringing to site, erecting and initial safety checks.	item	

Component	Included	Unit	Excluded
	<b>3</b> Hire charges.	per week	
	<b>4</b> Altering and adapting during construction.	item	
	<b>5</b> Dismantling and removing from site.		
<b>9.2.8.2</b> Temporary works.	<b>1</b> Common user temporary works: <ul style="list-style-type: none"> <li>• support scaffolding and propping</li> <li>• crash decks</li> <li>• temporary protection for existing trees and/or vegetation</li> <li>• floodlights.</li> </ul>	item	<b>1</b> Design of temporary works (included in sub-element 9.2.1). <b>2</b> Temporary bases, drainage and services for site accommodation (included in sub-element 9.2.2). <b>3</b> Temporary roads, paths and pavement, including on-site car parking (included in sub-element 9.2.2). <b>4</b> Hoardings, fans, fencing, etc. for site boundaries and to form site compounds (included in sub-element 9.2.4). <b>5</b> Temporary earthwork support for basement excavations (included in sub-element 1.1.4). <b>6</b> Temporary props and walling to support contiguous bored pile wall of basement excavations (included in sub-elements 1.1.4 or 8.4.3, as applicable). <b>7</b> Traffic management, including traffic marshals and temporary traffic lights (included in sub-element 9.2.5).
	<b>2</b> Bringing to site, erecting and initial safety checks.		
	<b>3</b> Hire charges.	per week	
	<b>4</b> Altering and adapting during construction.	item	
	<b>5</b> Dismantling and removing from site.		

## Sub-element 9.2.9: Site records

Component	Included	Unit	Excluded
9.2.9.1 Site records.	Unless otherwise indicated, costs associated with the following should be included in management and staff costs:  <b>1</b> Photography: <ul style="list-style-type: none"> <li>• camera purchase</li> <li>• consumables</li> <li>• printing and presentation.</li> </ul>	item	
	<b>2</b> Works records: <ul style="list-style-type: none"> <li>• progress reporting</li> <li>• site setting out drawings</li> <li>• condition surveys and reports</li> <li>• operation and maintenance manuals</li> <li>• as-built/installed drawings and schedules</li> <li>• co-ordinating, gathering and compiling health and safety information</li> <li>• compilation of health and safety file (if required).</li> </ul>		
9.2.9.2 Document/ information management systems.	<b>1</b> Electronic document/information management systems, including web-based platforms.	item/nr	
	<b>2</b> Attendance on system provider.	per week (number of operators by number of worker hours per week by number of weeks)	

## Sub-element 9.2.10: Completion and post-completion requirements

Component	Included	Unit	Excluded
<b>9.2.10.1</b> Testing and commissioning plan.	If not included in sub-element 9.2.1, costs associated with the following should be included here: <b>1</b> Preparation of commissioning plan.	item	<b>1</b> Testing and commissioning of services (included in group elements 5 and/or 8, as appropriate).
<b>9.2.10.2</b> Handover.	<b>1</b> Preparation of handover plan. <b>2</b> Training of building user's staff in the operation and maintenance of the building engineering service systems. <b>3</b> Provision of spare parts for maintenance of building engineering services. <b>4</b> Provision of tools and portable indicating instruments for the operation and maintenance of building engineering service systems. <b>5</b> Pre-completion inspections. <b>6</b> Final inspections.	item	
<b>9.2.10.3</b> Post-completion services.	<b>1</b> Supervisory staff (employer/tenant care). <b>2</b> Handyman. <b>3</b> Minor materials and sundry items. <b>4</b> Insurances. <b>5</b> Other post-construction staff.	per week (number of staff by number of worker hours per week by number of weeks) item per week (number of operators by number of worker hours per week by number of weeks)	

## Sub-element 9.2.11: Cleaning

Component	Included	Unit	Excluded
9.2.11.1 Site tidying.	1 Cleaning site accommodation: internal, including cleaning telephone handsets, other office furniture and equipment, and windows.	per week	
	2 Periodic maintenance of site accommodation, including redecoration (internal and external).		
	3 Waste management, including rubbish disposal (such as compactor visits; skips and waste bins; and roll-off, roll-on waste bins) and other waste disposal.		
	4 Pest control.		
9.2.11.2 Maintenance of roads, paths and pavings.	1 Maintenance of temporary site roads, paths and pavements.	per week	
	2 Maintenance of public and private roads, including wheel spinners and road sweepers.		
9.2.11.3 Final clean.	1 Builder's final clean.	item	

## Sub-element 9.2.12: Fees and charges

Component	Included	Unit	Excluded
9.2.12.1 Fees.	1 Building control fees, where not paid by the employer.	item	<p>1 Building control fees, where paid by the employer (included in group element 11).</p> <p>2 Oversailing fees, where paid by the employer (included in group element 11).</p> <p>3 Building scheme registration fees or similar fees, where paid by the employer (included in group element 11).</p>
	2 Oversailing fees, where not paid by the employer.		
	3 Considerate Constructors' Scheme fees (or alternative scheme operated by local authority).		
	4 Building scheme registration fees (e.g. NHBC Buildmark) or similar fees, where not paid by the employer.		
9.2.12.2 Charges.	1 Rates on temporary accommodation.	per week	<p>1 Statutory undertaker's charges in connection with permanent services to the building (included in element 8.7, as appropriate).</p> <p>2 Statutory undertaker's charges in connection with temporary services (included in sub-element 9.2.3).</p>
	2 Licences in connection with hoardings, scaffolding, gantries, etc.	item	
	3 Licences in connection with crossovers, parking permits, parking bay suspensions, etc.		

### Sub-element 9.2.13: Site services

Component	Included	Unit	Excluded
9.2.13.1 Temporary works.	1 Temporary works that are not specific to an element.	item/nr/m/m <sup>2</sup> /m <sup>3</sup>	<p>1 Temporary screens (included in sub-element 7.1.1).</p> <p>2 Supports for small openings cut into existing walls or after removal of internal walls, etc. (included in sub-element 7.1.1).</p> <p>3 Temporary or semi-permanent support for unstable structures or facades, i.e. structures not to be demolished (included in sub-element 7.4.1).</p>
9.2.13.2 Multi-service gang.	1 Ganger.	per week (number of staff by number of worker hours per week by number of weeks)	
	2 Labour.		
	3 Forklift driver.		
	4 Service gang plant and transport.		

### Sub-element 9.2.14: Insurance, bonds, guarantees and warranties

Component	Included	Unit	Excluded
9.2.14.1 Works insurances.	1 Contractors all risks (CAR) insurance.	item	
	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.		

Component	Included	Unit	Excluded
<b>9.2.14.2</b> Public liability insurances.	1 Non-negligence insurance.	item	
	2 Professional indemnity insurance.		
	3 Insurance premium tax (IPT).		
	4 Allowance for recovery of all or part of insurance premium excess.		
<b>9.2.14.3</b> Employer's (main contractor's) liability insurances.	1 Management and staff, including administrative staff.		
	2 Works operatives.		
	3 Insurance premium tax (IPT).		
	4 Allowance for recovery of all or part of insurance premium excess.		
<b>9.2.14.4</b> Other insurances.	1 Employer's loss of liquidated damages.		
	2 Latent defects cover.		
	3 Motor vehicles.		
	4 Other insurances.		
	5 Insurance premium tax (IPT).		
	6 Allowance for recovery of all or part of insurance premium excess.		
<b>9.2.14.5</b> Bonds.	1 Tender bonds (if applicable).		
	2 Performance bonds.		
<b>9.2.14.6</b> Guarantees.	1 Parent company guarantees.		
	2 Product guarantees, insurance backed.		
<b>9.2.14.7</b> Warranties.	1 Collateral warranties.		
	2 Funder's warranties.		
	3 Purchaser's and tenant's warranties.		
	4 Other warranties.		

# Group element 10: Main contractor's overheads and profit

Group element 10 comprises the following elements:

**10.1** Main contractor's overheads

**10.2** Main contractor's profit

Element	Included	Unit	Excluded
<b>10.1</b> Main contractor's overheads.	<b>1</b> The costs of head office setup and administration proportioned to each contract by the main contractor (this is usually a commercially driven decision made by the main contractor).	%	<b>1</b> Visiting management and staff for which an allowance has been made within the main contractor's preliminaries (included in component 9.2.1.2).  <b>2</b> Extraordinary support costs for which an allowance has been made within the main contractor's preliminaries (included in component 9.2.1.3).
<b>10.2</b> Main contractor's profit.	<b>1</b> The amount of net profit that the main contractor needs to achieve.		

# Group element 11: Project and design team fees

Group element 11 comprises the following elements:

**11.1** Consultants' fees

**11.2** Main contractor's pre-construction fees

**11.3** Main contractor's design fees (only applicable where a main contractor-led design and build contract strategy is to be used)

**Note:** where the unit of measurement for a sub-element or a part of an item has been given as 'per week', a week should mean a period of seven calendar days irrespective of public holidays.

## Element 11.1: Consultants' fees

Sub-element	Included	Unit	Excluded
<p><b>11.1.1</b> Project team and design team consultants' fees.</p> <p><b>Note:</b> where design liability is to be transferred to the main contractor (i.e. where a design and build or other contractor-led design strategy is to be used) and all, or some, of the consultants in the design team are to be novated, the balance of the consultants' fees due after novation has occurred are to be transferred from element 11.1 to element 11.3. See element 11.3.</p>	<p><b>Note:</b> percentage applied to the works cost estimate (or item if actual fees known).</p> <ol style="list-style-type: none"> <li>1 Professional adviser.</li> <li>2 Project manager.</li> <li>3 Principal designer.</li> <li>4 Lead designer.</li> <li>5 Architect.</li> <li>6 Civil engineer.</li> <li>7 Structural engineer.</li> <li>8 Building services design engineer.</li> <li>9 Quantity surveyor/cost manager.</li> <li>10 Health and safety adviser.</li> <li>11 Sustainability consultant.</li> <li>12 BIM co-ordinator.</li> <li>13 BIM information manager.</li> <li>14 Programmer (construction/logistics/sequencing adviser).</li> <li>15 Contract administrator/employer's agent.</li> </ol>	<p>% or item</p>	<p>1 Consultant's fees in connection with risks (included in group element 13, as appropriate).</p>

Sub-element	Included	Unit	Excluded
11.1.2 Other consultants' fees.	<p><b>Note:</b> percentage applied to the works cost estimate (or item if actual fees known).</p> <p><b>1</b> Measuring surveyor to carry out topographical survey of site, and to verify ground levels/contours, physical features, existing boundaries, adjacent properties and site access.</p> <p><b>2</b> Drainage and utilities surveyor to trace and locate existing drainage and other services, both underground and aboveground, on or near the site, including water, electricity, telecommunications, data lines and oil/fuel pipelines, as well as advising on extent of existing utilities.</p> <p><b>3</b> Geotechnical engineer for trial pits, boreholes and borehole logs, geology of site (including underground workings), laboratory and soil tests, groundwater observation and pumping tests, and geophysical surveys.</p> <p><b>4</b> Environmental consultant for environmental audits; contamination surveys for asbestos, methane, toxic waste, chemical waste and radioactive substances; and preparation and management of remediation strategy/action plan.</p> <p><b>5</b> Ecologist.</p> <p><b>6</b> Arborist/arboriculturist (tree surgeon).</p> <p><b>7</b> Party wall surveyor to prepare party wall notices and awards/agreements.</p> <p><b>8</b> Rights of light surveyor for rights of light agreements.</p> <p><b>9</b> Asbestos consultant.</p> <p><b>10</b> Acoustics, noise and vibration consultant.</p> <p><b>11</b> Facade consultant.</p> <p><b>12</b> Facade access consultant.</p> <p><b>13</b> Lift consultant.</p>	%/item	<p><b>1</b> Additional consultant's fees in connection with risk (included in element 13, as appropriate).</p> <p><b>2</b> Physical archaeological investigation works (included in sub-element 0.6.1).</p> <p><b>3</b> Relocation of reptiles/wildlife, etc. (included in sub-element 0.6.2).</p> <p><b>4</b> Physical investigation works in search of unexploded devices (included in sub-element 0.6.3).</p> <p><b>5</b> Site investigations procured by main contractor as part of pre-construction services (included in element 11.2).</p> <p><b>6</b> Work arising out of party wall awards/agreements (included in sub-element 8.8.1, as appropriate).</p> <p><b>7</b> Intrusive investigations for toxic or hazardous materials, e.g. asbestos (included in sub-element 11.1.3).</p>

Sub-element	Included	Unit	Excluded
	<p><b>14</b> Fire consultant.</p> <p><b>15</b> Building control consultant.</p> <p><b>16</b> Traffic consultant planning to examine traffic records, take traffic count, advise on traffic patterns, carry out computer simulation of existing traffic flows, perform delay analysis and advise on noise levels.</p> <p><b>17</b> Invasive weeds specialist to survey the site (e.g. for Japanese knotweed).</p> <p><b>18</b> Construction lead/advisory services (including pre-construction advice).</p> <p><b>19</b> Archaeologist to examine existing records and archaeological remains – desktop study.</p> <p><b>20</b> Environmental assessment method assessor.</p> <p><b>21</b> Facilities manager to advise on operational and maintenance matters.</p> <p><b>22</b> Value engineering facilitator.</p> <p><b>23</b> Risk management facilitator.</p> <p><b>24</b> Building surveyor to carry out structural/dilapidations survey of adjoining buildings and carry out condition surveys.</p> <p><b>25</b> Unexploded devices consultant to research and advise on possibility of unexploded bombs on site.</p> <p><b>26</b> Photographer to carry out a photographic survey of the site.</p> <p><b>27</b> Specialist contractors/consultants (e.g. for early advice on viability of ground source heating).</p> <p><b>28</b> Boundary surveyor.</p> <p><b>29</b> Building regulations consultant.</p>	%/item	

Sub-element	Included	Unit	Excluded
	<ul style="list-style-type: none"> <li><b>30</b> Drainage engineer.</li> <li><b>31</b> Geo-environmental consultant.</li> <li><b>32</b> Infrastructure design consultant.</li> <li><b>33</b> Interior design consultant.</li> <li><b>34</b> Landscape design consultant.</li> <li><b>35</b> Space planning consultant.</li> <li><b>36</b> Supervisor/clerk of work/inspector.</li> <li><b>37</b> Testing laboratory.</li> <li><b>38</b> Temporary works engineer.</li> <li><b>39</b> Visual and/or thermal surveys consultant.</li> <li><b>40</b> Other specialist consultants (to be stated).</li> </ul>	%/item	
<b>11.1.3</b> Site investigation fees.	<ul style="list-style-type: none"> <li><b>1</b> Site investigation.</li> <li><b>2</b> Geotechnical investigation.</li> <li><b>3</b> Trial pits.</li> <li><b>4</b> Pile probing.</li> <li><b>5</b> Intrusive investigations for toxic or hazardous materials (e.g. for asbestos-containing materials).</li> <li><b>6</b> Other site investigations (to be stated).</li> </ul>	item	<b>1</b> Removal of toxic or hazardous materials, e.g. asbestos (included in sub-element 0.1.1).

Sub-element	Included	Unit	Excluded
<b>11.1.4</b> Specialist support consultants' fees.	<ol style="list-style-type: none"> <li><b>1</b> Planning consultant to advise on planning matters and facilitate planning process.</li> <li><b>2</b> Political consultants to assist with planning application.</li> <li><b>3</b> Letting agents (e.g. for advice on market needs, design proposals and selling).</li> <li><b>4</b> Legal advice regarding property to advise on ownership of site, restrictive covenants, easements, boundaries, party wall agreements, highway agreements, local authority agreements and air rights.</li> <li><b>5</b> Legal advice regarding construction to advise on construction contracts, warranties, financial protection measures, etc.</li> <li><b>6</b> Legal advice regarding environmental factors.</li> <li><b>7</b> Tax specialist to advise on VAT, availability and recovery of capital allowances, tax relief in respect of land remediation and other specialist tax matters.</li> <li><b>8</b> Grants advice, to advise on availability of grants for construction works.</li> <li><b>9</b> Other specialist support consultants (to be stated).</li> </ol>	item	

## Element 11.2: Main contractor's pre-construction fees

Sub-element	Included	Unit	Excluded
<b>11.2.1</b> Management and staff fees.	Management and staff, such as: <ol style="list-style-type: none"> <li><b>1</b> Project director.</li> <li><b>2</b> Project manager.</li> <li><b>3</b> Construction manager.</li> <li><b>4</b> Commercial manager.</li> <li><b>5</b> Quantity surveyors.</li> <li><b>6</b> Procurement manager.</li> <li><b>7</b> Planning/programming manager and staff.</li> <li><b>8</b> Design manager.</li> <li><b>9</b> Temporary works design engineers.</li> <li><b>10</b> Work package managers.</li> <li><b>11</b> Building services engineering managers/co-ordinators.</li> <li><b>12</b> Health and safety manager.</li> <li><b>13</b> Secretary/administrative support.</li> <li><b>14</b> Other pre-construction management and staff.</li> </ol>	per week (number of staff by number of man hours per week by number of weeks)	

Sub-element	Included	Unit	Excluded
11.2.2 Specialist support service fees.	<ol style="list-style-type: none"> <li>1 Legal advice (i.e. solicitors).</li> <li>2 Specialist subcontractor advice/participation.</li> <li>3 Geotechnical investigations procured by main contractor as part of pre-construction services.</li> <li>4 Site investigations procured by main contractor as part of pre-construction services.</li> <li>5 Other pre-construction support services.</li> </ol>	item	
11.2.3 Temporary accommodation, services and facilities charges.	<ol style="list-style-type: none"> <li>1 Offices, including rental of temporary office space.</li> <li>2 Service provider's charges for water, electricity and gas.</li> <li>3 Rates.</li> <li>4 Furniture and equipment, including workstations.</li> <li>5 Office equipment, including photocopiers.</li> <li>6 Telecommunications, including internet and intranet access.</li> <li>7 IT systems, including hardware, printers, plotters, etc.</li> <li>8 Office consumables.</li> <li>9 Cleaning.</li> <li>10 Other costs associated with the provision of pre-construction accommodation, services and facilities.</li> <li>11 Reinstating accommodation to original condition on completion of pre-construction services.</li> </ol>	per week	
11.2.4 Main contractor's overheads and profit.	<p>Main contractor's overheads and profit associated with pre-construction services.</p> <p><b>Note:</b> percentage applied to the total estimated cost of sub-elements 11.2.1, 11.2.2 and 11.2.3.</p>	%	

## Element 11.3: Main contractor's design fees

Sub-element	Included	Unit	Excluded
<p><b>11.3.1</b> Fees for main contractor's design consultants.</p> <p><b>Note:</b> where design liability is to be transferred to the main contractor (i.e. where a design and build or other main contractor-led design contract strategy is to be used) and all, or some, of the consultants in the design team are to be novated, the balance of the consultants' fees due after novation has occurred is to be transferred from element 11.1 to element 11.3.</p>	<p><b>Note:</b> percentage applied to the Building Works Estimate (or item if actual fees known).</p> <ul style="list-style-type: none"> <li><b>1</b> Architect.</li> <li><b>2</b> Building services engineer(s).</li> <li><b>3</b> Structural engineer.</li> <li><b>4</b> Interior designer.</li> <li><b>5</b> Landscape architect.</li> <li><b>6</b> Infrastructure engineer.</li> <li><b>7</b> Drainage engineer.</li> <li><b>8</b> Site investigation services (by specialist subcontractor or consultant).</li> <li><b>9</b> Other design consultants or specialist services.</li> </ul> <p><b>Note:</b> the gap between the design and consultancy services required by the contractor and those covered by the services of the novated design team need to be considered, with an allowance made for any gaps within (i.e. an allowance for the gap in design and consultancy services provision).</p>	<p>%/ item</p>	

# Group element 12: Other project costs

Group element 12 comprises the following elements:

## 12.1 Other project costs

Note: where the unit of measurement for a sub-element or part of an item has been given as 'per week', a week should mean a period of seven calendar days irrespective of public holidays.

## Element 12.1: Other project costs

Sub-element	Included	Unit	Excluded	
12.1.1 Land acquisition costs.	1 Costs in connection with land acquisition.	item		
12.1.2 Employer finance costs.	1 Costs in connection with funding of building project.			
12.1.3 Fees.	1 Planning fees.			1 Building control fees, where paid by the main contractor (included in sub-element 9.2.12).
	2 Building control fees, where not paid by the main contractor.			2 Oversailing fees, where paid by the main contractor (included in sub-element 9.2.12).
	3 Oversailing fees, where not paid by the main contractor.			3 Building scheme registration fees (e.g. NHBC Buildmark) or similar fees, where paid by the main contractor (included in sub-element 9.2.12).
	4 Fees in connection with party wall awards.			4 Considerate Constructors' Scheme fees (or alternative scheme operated by local authority), where paid by main contractor (included in sub-element 9.2.12).
	5 Fees in connection with rights of light agreements.			5 Other fees in connection with licences, permits and agreements, where paid by the main contractor (included in sub-element 9.2.12).
	6 Building scheme registration fees (e.g. NHBC Buildmark) or similar fees, where not paid by the main contractor.			
7 Fees in connection with other agreements between the employer and neighbours to facilitate the building project.				
8 Other fees in connection with licences, permits and agreements, where not paid by the main contractor.				

Sub-element	Included	Unit	Excluded
12.1.4 Charges.	1 Adoption charges in connection with highways.	item	
	2 Maintenance costs in connection with highways.	per week	
	3 Adoption charges in connection with services (e.g. sewers, water, electricity and gas).	item	
	4 Maintenance costs in connection with services.	per week	
12.1.5 Planning contributions.	1 Direct financial contributions in connection with planning consent (e.g. section 106 and section 278 contributions in the UK).	item	1 Building works subject to a planning contribution which forms an integral part of the building project (included in the appropriate group element, element or sub-element).
	2 Environmental improvement works.		
12.1.6 Insurances.	1 Insurance for works to existing buildings.		1 Insurance for works to new buildings, where insurance taken out by the main contractor (included in sub-element 9.2.14).
	2 Insurance for works to new buildings, where insurance taken out by the employer.		
	3 Other insurances in connection with the works.		
	4 Insurance premium tax (IPT).		
12.1.7 Archaeological fieldwork.	1 Fees and charges in connection with fieldwork carried out by an archaeologist.		1 Physical works in connection with extraordinary site investigations carried out by the main contractor for a specialist, including temporary works and attendance (included in sub-element 0.6.3).
12.1.8 Other specialist fieldwork.	1 Fees and charges in connection with fieldwork carried out by a specialist.		1 Physical works in connection with extraordinary site investigations carried out by the main contractor for a specialist, including temporary works and attendance (included in sub-element 0.6.3).
12.1.9 Decanting and relocation costs.	1 Temporary relocation costs.	per week	
	2 Fit-out of temporary accommodation.		
	3 Rent and other running costs.		

Sub-element	Included	Unit	Excluded
<b>12.1.10</b> Fittings, furnishings and equipment.	<b>1</b> Fittings, furnishings and equipment that do not form part of a building contract.	item	<b>1</b> Fittings, furniture and equipment that form part of a building contract (included in group element 4).
<b>12.1.11</b> Tenant's costs/contributions.	<b>1</b> Tenant's costs.	per week	
	<b>2</b> Tenant's contributions.		
<b>12.1.12</b> Marketing costs.	<b>1</b> Launch event.		
	<b>2</b> Site-based advertising (e.g. sales hoardings).		
	<b>3</b> Show unit/marketing suites (separate or within building to be built).		
	<b>4</b> Operating costs associated with show unit/marketing suites.		
	<b>5</b> Marketing literature.	item	
<b>12.1.13</b> Other employer costs.	<b>1</b> Other employer costs in connection with the building project (to be stated).		

# Group element 13: Risks

Group element 13 comprises the following elements:

- 13.1 Design development risks
- 13.2 Construction risks
- 13.3 Employer change risks
- 13.4 Employer other risks

**Note:** typical causes of risks that should be considered under these elements are listed in the following tables. The risks that might arise from these causes can then be identified and the cost implications to the project, should any of the risks materialise, can be estimated (i.e. the risk allowance required to manage and resolve each risk, should it materialise). The lists are not meant to be definitive or exhaustive but are merely a guide, and can be used to prompt the employer and other project team members.

## Element 13.1: Design development risks

- 1 Inadequate or unclear project brief.
- 2 Unclear design team responsibilities.
- 3 Unrealistic design programme.
- 4 Ineffective quality control procedures.
- 5 Inadequate site investigation.
- 6 Planning constraints/requirements.
- 7 Soundness of design data.
- 8 Appropriateness of design (construction ability).
- 9 Degree of novelty (i.e. design novelty).
- 10 Ineffective design co-ordination.
- 11 Reliability of area schedules.
- 12 Reliability of estimating data:
  - changes in labour, materials, equipment and plant costs and
  - inflation (i.e. differential inflation due to market factors and/or timing).
- 13 Use of provisional sums (i.e. do not give price certainty).

## Element 13.2: Construction risks

- 1 Inadequate site investigation.
- 2 Archaeological remains.
- 3 Underground obstructions.
- 4 Contaminated ground.
- 5 Adjacent structures (i.e. requiring special precautions).
- 6 Geotechnical problems (e.g. mining and subsidence).
- 7 Ground water.
- 8 Asbestos and other hazardous materials.
- 9 Invasive plant growth.
- 10 Tree preservation orders.
- 11 Ecological issues (e.g. presence of endangered species).
- 12 Environmental impact.
- 13 Physical access to site (i.e. restrictions and limitations).
- 14 Existing occupancies/users.
- 15 Restricted working hours/routines.
- 16 Maintaining access.
- 17 Maintaining existing services.
- 18 Additional infrastructure.
- 19 Existing services (availability, capacity, condition and location).
- 20 Location of existing services.
- 21 Relocation of existing services.
- 22 Performance of statutory undertakers.
- 23 Uncertainty over the sourcing and availability of materials.
- 24 Appropriateness of specifications.
- 25 Incomplete design.
- 26 Weather and seasonal implications.
- 27 Industrial relations.
- 28 Remoteness of site.
- 29 Competence of contractor and subcontractors.
- 30 Health and safety.
- 31 Ineffective quality management procedures.
- 32 Phasing requirements (e.g. occupation and decanting).
- 33 Ineffective handover procedures.
- 34 Disputes and claims.
- 35 Effect of changes/variations on construction programme.
- 36 Cumulative effect of numerous changes/variations on construction programme.
- 37 Defects.
- 38 Accidents/injury.

## Element 13.3: Employer change risks

- 1 Specific changes in requirements (i.e. in scope of works or project brief during design, pre-construction and construction stages).
- 2 Changes in quality (i.e. specification of materials and workmanship).
- 3 Changes in time.
- 4 Employer driven changes/variations introduced during the construction stage.
- 5 Effect on construction duration (i.e. impact on date for completion).
- 6 Cumulative effect of numerous changes.

## Element 13.4: Employer other risks

### 0 Project brief:

- end user requirements
- inadequate or unclear project brief
- employer's specific requirements (e.g. functional standards, site or establishment rules and regulations, and standing orders).

### 1 Timescales:

- unrealistic design and construction programmes
- unrealistic tender period(s)
- insufficient time allowed for tender evaluation
- contractual claims
- effects of phased completion requirements (e.g. sectional completion)
- acceleration of construction works
- effects of early handover requirements (e.g. requesting partial possession)
- postponement of pre-construction services or construction works
- timescales for decision making.

### 2 Financial:

- availability of funds
- unavailability of grants/grant refusal
- cash flow effects on timing
- existing liabilities (such as liquidated damages or premiums on other contracts due to late provision of accommodation)
- changing inflation
- changing interest rates
- changing exchange rates
- changes in taxation (e.g. VAT)
- unsuitable contract strategy
- incomplete design before construction commences
- unconventional contract strategy
- unconventional tender action
- amendments to standard contract conditions and/or supplementary contract conditions
- acceptance of the use of provisional sums, which do not give price certainty
- liquidation/insolvency of main contractor
- liquidation/insolvency of consultant
- delay in payment.

### 3 Management:

- unclear project organisation and management
- competence of project and design team
- unclear definition of project/team responsibilities
- inadequate or no risk management strategy
- ineffective or no cost control procedures
- inadequate or no design review procedures
- ineffective or no procedures for procurement
- ineffective or no time control procedures
- ineffective change control procedures (for both pre-construction and construction stages of building project)
- ineffective reporting systems
- phasing of decanting and occupation.

### 4 Third party:

- requirements relating to planning (e.g. public enquiries, listed building consent and conservation area consent)
- opposition by local councillors
- planning refusal
- legal agreements

- works arising out of party wall agreements
- requirements relating to existing rights of way, rights of light, way leaves and noise abatement
- requirements relating to listed buildings and/or conservation areas
- requirements relating to sites of scientific interest (SSI)
- requirements relating to environmental impact assessments
- requirements relating to social matters (e.g. pressure groups and local protests)
- public enquiries.

### 5 Other:

- insistence on use of local workers
- availability of labour, materials and plant
- statutory requirements
- market conditions
- political change
- legislation
- force majeure.

# Group element 14: Inflation

Group element 14 comprises the following elements:

**14.1** Tender inflation

**14.2** Construction inflation

Element	Included	Unit	Excluded
<b>14.1</b> Tender inflation.	<b>1</b> Inflationary price increases during the period from the estimate base date to the date of tender return.	%	<b>1</b> Unexpected price increases associated with particular materials or products, or the impact of major projects sapping resources (home and abroad); particular specialist, works, trade, work package and labour-only subcontractors; or other countries buying major quantities of raw materials (included in element 13.4).  <b>2</b> Unexpected changes in market conditions (included in element 13.4).
<b>14.2</b> Construction inflation.	<b>1</b> Inflationary price increases during the period from the date of tender return to the mid-point of the construction period.		

# Appendix A: Commonly used functional units and functional units of measurement

Function	Functional unit of measurement
<b>Car parking</b>	
Car parking	per car parking space
<b>Administrative facilities</b>	
Offices	per m <sup>2</sup> of NIA
<b>Commercial facilities</b>	
Shops	per m <sup>2</sup> of retail area (m <sup>2</sup> )
Department stores	per m <sup>2</sup> of retail area (m <sup>2</sup> )
Shopping centres	per m <sup>2</sup> of retail area (m <sup>2</sup> )
Retail warehouses	per m <sup>2</sup> of retail area (m <sup>2</sup> )
<b>Industrial facilities</b>	
Factories	per m <sup>2</sup> of NIA
Warehouses/stores	per m <sup>2</sup> of NIA
Livestock buildings – farms (pig pens, milking parlour, etc.)	per animal
<b>Residential facilities</b>	
Houses (private developer and affordable)	per house type (based on number of bedrooms)
Bungalows (private developer and affordable)	per bedroom
Apartments/flats (private developer and affordable)	per apartment/flat type (based on number of bedrooms)
Hotels/motels	per bedroom
Hotel furniture, fittings and equipment	per bedroom
Student accommodation	per bedroom
Youth hostels	per bedroom
<b>Religious</b>	
Churches, chapels, temples, mosques, etc.	per pew or per seat
<b>Education, scientific and information facilities</b>	
Schools	per child or per student

<b>Function</b>	<b>Functional unit of measurement</b>
Universities, colleges, etc.	per student
Conference centres	number of places
<b>Health and welfare facilities</b>	
Hospitals	per bed space
Nursing homes	per bed space
Doctors' surgeries	per doctor consulting room
Dentists' surgeries	per dentist workspace
<b>Protective facilities</b>	
Fire stations	per fire tender space
Ambulance stations	per ambulance vehicle space
Law courts	per courtroom
Prisons	per cell
<b>Recreational facilities</b>	
Theatre	per seat
Cinemas	per seat or per screen
Concert halls	per seat
Restaurants	per seat
Squash courts, tennis courts, etc.	per court
Football stadia	per seat

# Appendix B: Logic and arrangement of levels 1 to 3 for elemental cost planning

Level 1 Group element	Level 2 Element	Level 3 Sub-element
0 Facilitating works	0.1 Toxic/hazardous/ contaminated material treatment	0.1.1 Toxic or hazardous material removal
		0.1.2 Contaminated land
		0.1.3 Eradication of plant growth
	0.2 Major demolition works	0.2.1 Demolition works
		0.2.2 Soft strip works
	0.3 Temporary support for adjacent structures	0.3.1 Temporary support for adjacent structures
	0.4 Specialist groundworks	0.4.1 Site dewatering and pumping
		0.4.2 Soil stabilisation measures
		0.4.3 Ground gas venting measures
	0.5 Temporary diversion works	0.5.1 Temporary diversion works
	0.6 Extraordinary site investigation works	0.6.1 Archaeological investigation
		0.6.2 Reptile/wildlife harm mitigation measures
		0.6.3 Other extraordinary site investigation works
1 Substructure	1.1 Substructure	1.1.1 Standard foundations
		1.1.2 Specialist foundations
		1.1.3 Lowest floor construction
		1.1.4 Basement excavation
		1.1.5 Basement retaining walls

Level 1 Group element	Level 2 Element	Level 3 Sub-element
2 Superstructure	2.1 Frame	2.1.1 Steel frames
		2.1.2 Space frames/decks
		2.1.3 Concrete casings for steel frames
		2.1.4 Concrete frames
		2.1.5 Timber frames
		2.1.6 Specialist frames
	2.2 Upper floors	2.2.1 Floors
		2.2.2 Balconies
		2.2.3 Drainage for balconies
	2.3 Roof	2.3.1 Roof structure
		2.3.2 Roof coverings
		2.3.3 Specialist roof systems
		2.3.4 Roof drainage
		2.3.5 Rooflights, skylights and openings
		2.3.6 Roof features
	2.4 Stairs and ramps	2.4.1 Stair/ramp structures
		2.4.2 Stair/ramp finishes
		2.4.3 Stair/ramp balustrades and handrails
		2.4.4 Ladders/chutes/slides
	2.5 External walls	2.5.1 External enclosing walls above ground level
		2.5.2 External enclosing walls below ground level
		2.5.3 Solar/rain screening
		2.5.4 External soffits
2.5.5 Subsidiary walls, balustrades and proprietary balconies		
2.5.6 Facade access/cleaning systems		
2.6 Windows and external doors	2.6.1 External windows	
	2.6.2 External doors	

<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Group element</b>	<b>Element</b>	<b>Sub-element</b>
<b>2</b> Superstructure	<b>2.7</b> Internal walls and partitions	<b>2.7.1</b> Walls and partitions
		<b>2.7.2</b> Balustrades and handrails
		<b>2.7.3</b> Moveable room dividers
		<b>2.7.4</b> Cubicles
	<b>2.8</b> Internal doors	<b>2.8.1</b> Internal doors
<b>3</b> Internal finishes	<b>3.1</b> Wall finishes	<b>3.1.1</b> Wall finishes
	<b>3.2</b> Floor finishes	<b>3.2.1</b> Finishes to floors
		<b>3.2.2</b> Raised access floors
	<b>3.3</b> Ceiling finishes	<b>3.3.1</b> Finishes to ceilings
		<b>3.3.2</b> False ceilings
		<b>3.3.3</b> Demountable suspended ceilings
<b>4</b> Fittings, furnishings and equipment	<b>4.1</b> Fittings, furnishings and equipment	<b>4.1.1</b> General fittings, furnishings and equipment
		<b>4.1.2</b> Domestic kitchen fittings and equipment
		<b>4.1.3</b> Special-purpose fittings, furnishings and equipment
		<b>4.1.4</b> Signs/notices
		<b>4.1.5</b> Works of art
		<b>4.1.6</b> Non-mechanical and non-electrical equipment
		<b>4.1.7</b> Internal planting
		<b>4.1.8</b> Bird and vermin control
<b>5</b> Services	<b>5.1</b> Sanitary installations	<b>5.1.1</b> Sanitary appliances
		<b>5.1.2</b> Sanitary ancillaries
	<b>5.2</b> Services equipment	<b>5.2.1</b> Services equipment
	<b>5.3</b> Disposal installations	<b>5.3.1</b> Foul drainage above ground
		<b>5.3.2</b> Chemical, toxic and industrial liquid waste drainage
		<b>5.3.3</b> Refuse disposal

<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Group element</b>	<b>Element</b>	<b>Sub-element</b>
5 Services	5.4 Water installations	5.4.1 Mains water supply
		5.4.2 Cold water distribution
		5.4.3 Hot water distribution
		5.4.4 Local hot water distribution
		5.4.5 Steam and condensate distribution
	5.5 Heat source	5.5.1 Heat source
	5.6 Space heating and air conditioning systems	5.6.1 Central heating systems
		5.6.2 Local heating systems
		5.6.3 Central cooling systems
		5.6.4 Local cooling systems
		5.6.5 Central heating and cooling systems
		5.6.6 Local heating and cooling systems
		5.6.7 Central air conditioning systems
		5.6.8 Local air conditioning systems
	5.7 Ventilation systems	5.7.1 Central ventilation systems
		5.7.2 Local and special ventilation systems
		5.7.3 Smoke extraction/control systems
	5.8 Electrical installations	5.8.1 Electrical mains and sub-mains distribution
		5.8.2 Power installations
		5.8.3 Lighting installations
		5.8.4 Specialist lighting installations
5.8.5 Local electricity generation systems		
5.8.6 Earthing and bonding systems		
5.9 Fuel installations	5.9.1 Fuel storage	
	5.9.2 Fuel distribution systems	

Level 1 Group element	Level 2 Element	Level 3 Sub-element
5 Services	5.10 Lift and conveyor installations	5.10.1 Lifts and enclosed hoists
		5.10.2 Escalators
		5.10.3 Moving pavements
		5.10.4 Powered stairlifts
		5.10.5 Conveyors
		5.10.6 Dock levellers and scissor lifts
		5.10.7 Cranes and unenclosed hoists
		5.10.8 Car lifts, car stacking systems, turntables, etc.
		5.10.9 Document handling systems
		5.10.10 Other lift and conveyor installations
	5.11 Fire and lightning protection	5.11.1 Firefighting systems
		5.11.2 Fire suppression systems
		5.11.3 Lightning protection
	5.12 Communication, security and control systems	5.12.1 Communication systems
		5.12.2 Security systems
		5.12.3 Central control/building management systems
5.13 Specialist installations	5.13.1 Specialist piped supply installations	
	5.13.2 Specialist refrigeration systems	
	5.13.3 Specialist mechanical installations	
	5.13.4 Specialist electrical/electronic installations	
	5.13.5 Water features	
5.14 Builder's work in connection with services	5.14.1 Builder's work in connection with services	
6 Prefabricated buildings and building units	6.1 Prefabricated buildings and building units	6.1.1 Complete buildings
		6.1.2 Building units
		6.1.3 Pods

<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Group element</b>	<b>Element</b>	<b>Sub-element</b>
<b>7</b> Work to existing buildings	<b>7.1</b> Minor demolition and alteration works	<b>7.1.1</b> Minor demolition and alteration works
	<b>7.2</b> Repairs to existing services	<b>7.2.1</b> Repairs to existing services
	<b>7.3</b> Damp-proof courses/ fungus and beetle eradication	<b>7.3.1</b> Damp-proof courses
		<b>7.3.2</b> Fungus/beetle eradication
	<b>7.4</b> Facade retention	<b>7.4.1</b> Facade retention
	<b>7.5</b> Cleaning existing surfaces	<b>7.5.1</b> Cleaning
		<b>7.5.2</b> Protective coatings
	<b>7.6</b> Renovation works	<b>7.6.1</b> Masonry repairs
		<b>7.6.2</b> Concrete repairs
		<b>7.6.3</b> Metal repairs
		<b>7.6.4</b> Timber repairs
		<b>7.6.5</b> Plastics repairs
<b>8</b> External works	<b>8.1</b> Site preparation works	<b>8.1.1</b> Site clearance
		<b>8.1.2</b> Preparatory groundworks
	<b>8.2</b> Roads, paths, pavings and surfacings	<b>8.2.1</b> Roads, paths and pavings
		<b>8.2.2</b> Special surfacings and pavings
	<b>8.3</b> Soft landscaping, planting and irrigation systems	<b>8.3.1</b> Seeding and turfing
		<b>8.3.2</b> External planting
		<b>8.3.3</b> Irrigation systems
	<b>8.4</b> Fencing, railings and walls	<b>8.4.1</b> Fencing and railings
		<b>8.4.2</b> Walls and screens
		<b>8.4.3</b> Retaining walls
		<b>8.4.4</b> Barriers and guardrails
	<b>8.5</b> External fixtures	<b>8.5.1</b> Site/street furniture and equipment
		<b>8.5.2</b> Ornamental features
	<b>8.6</b> External drainage	<b>8.6.1</b> Surface water and foul water drainage
		<b>8.6.2</b> Ancillary drainage systems
		<b>8.6.3</b> External chemical, toxic and industrial liquid waste drainage
<b>8.6.4</b> Land drainage		

<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Group element</b>	<b>Element</b>	<b>Sub-element</b>
<b>8</b> External works	<b>8.7</b> External services	<b>8.7.1</b> Water mains supply
		<b>8.7.2</b> Electricity mains supply
		<b>8.7.3</b> External transformation devices
		<b>8.7.4</b> Electricity distribution to external plant and equipment
		<b>8.7.5</b> Gas mains supply
		<b>8.7.6</b> Telecommunications and other communication system connections
		<b>8.7.7</b> External fuel storage and piped distribution systems
		<b>8.7.8</b> External security systems
		<b>8.7.9</b> External street lighting systems
		<b>8.7.10</b> Local/district heating installations
		<b>8.7.11</b> Builders work in connection with external services
	<b>8.8</b> Minor building works and ancillary buildings	<b>8.8.1</b> Minor building works
		<b>8.8.2</b> Ancillary buildings and structures
		<b>8.8.3</b> Underpinning for external site boundary walls
<b>9</b> Main contractor's preliminaries	<b>9.1</b> Employer's requirements	<b>9.1.1</b> Site accommodation
		<b>9.1.2</b> Site records
		<b>9.1.3</b> Completion and post-completion requirements
	<b>9.2</b> Main contractor's cost items	<b>9.2.1</b> Management and staff
		<b>9.2.2</b> Site establishment
		<b>9.2.3</b> Temporary utilities
		<b>9.2.4</b> Security
		<b>9.2.5</b> Safety and environmental protection
		<b>9.2.6</b> Control and protection
		<b>9.2.7</b> Mechanical plant
		<b>9.2.8</b> Temporary works
<b>9.2.9</b> Site records		

<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Group element</b>	<b>Element</b>	<b>Sub-element</b>
<b>9</b> Main contractor's preliminaries	<b>9.2</b> Main contractor's cost items	<b>9.2.10</b> Completion and post-completion requirements
		<b>9.2.11</b> Cleaning
		<b>9.2.12</b> Fees and charges
		<b>9.2.13</b> Site services
		<b>9.2.14</b> Insurance, bonds, guarantees and warranties
<b>10</b> Main contractor's overheads and profit	<b>10.1</b> Main contractor's overheads	
	<b>10.2</b> Main contractor's profit	
<b>11</b> Project and design team fees	<b>11.1</b> Consultants' fees	<b>11.1.1</b> Project and design team consultants' fees
		<b>11.1.2</b> Other consultants' fees
		<b>11.1.3</b> Site investigation fees
		<b>11.1.4</b> Specialist support consultants' fees
	<b>11.2</b> Main contractor's pre-construction fees	<b>11.2.1</b> Management and staff fees
		<b>11.2.2</b> Specialist support services fees
		<b>11.2.3</b> Temporary accommodation, services and facilities charges
		<b>11.2.4</b> Main contractor's overheads and profit
	<b>11.3</b> Main contractor's design fees	<b>11.3.1</b> Fees for main contractor's design consultants

<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>
<b>Group element</b>	<b>Element</b>	<b>Sub-element</b>
<b>12</b> Other technical design project costs	<b>12.1</b> Other project costs	<b>12.1.1</b> Land acquisition costs
		<b>12.1.2</b> Employer finance costs
		<b>12.1.3</b> Fees
		<b>12.1.4</b> Charges
		<b>12.1.5</b> Planning contributions
		<b>12.1.6</b> Insurances
		<b>12.1.7</b> Archaeological fieldwork
		<b>12.1.8</b> Other specialist fieldwork
		<b>12.1.9</b> Decanting and relocation costs
		<b>12.1.10</b> Fittings, furnishings and equipment
		<b>12.1.11</b> Tenant's costs/contributions
		<b>12.1.12</b> Marketing costs
		<b>12.1.13</b> Other employer costs
<b>13</b> Risks	<b>13.1</b> Design development risks	
	<b>13.2</b> Construction risks	
	<b>13.3</b> Employer change risks	
	<b>13.4</b> Employer other risks	
<b>14</b> Inflation	<b>14.1</b> Tender inflation	
	<b>14.2</b> Construction inflation	

# Appendix C: Information requirements for formal cost plans

This appendix comprises a list of the key information required to enable preparation of formal cost plans.

## C1 Formal cost plan 1 – information requirements

To enable preparation of formal cost plan 1 (at RIBA Stage 2 or OGC Gateway 3A), the key information required is as follows.

### C1.1 From project manager/lead

From project manager/lead (or client, client team or project board if no project manager appointed)		
Item	Information required	Comments/notes
1	Authority to commence RIBA Stage 2: Concept Design or other comparative Stage or Gateway).	
2	Initial project brief.	Detailed requirements for the design and management of the project. Including: project outcomes, inclusive design strategy, sustainability outcomes, quality aspirations, spatial requirements and 'fit-out' requirements.
3	Responsibility matrix.	Summary project team Stage 2 tasks.
4	Site information/surveys.	Including: record drawings; health and safety file; topographical surveys, site investigation reports; water and ground investigation reports; and other site survey reports/information (e.g. archaeological assessments, ecology surveys, etc.).
5	Legislative constraints.	Summary of any legislative constraints (e.g. restrictive covenants).
6	Planning strategy.	From planning advisor.
7	Procurement strategy.	Including: tender strategy, contract strategy (for enabling works and construction contracts), terms and conditions of contract(s), phasing and decanting requirements, and temporary access requirements.

**From project manager/lead** (or client, client team or project board if no project manager appointed)

Item	Information required	Comments/notes
8	Project programme, including timetable of critical events (key project milestones).	Including: design, tender, construction start date(s), construction completion date(s) and required occupation dates.
9	Scope of facilitating works.	Including: demolition, decanting requirements, temporary works, preparatory site works and early infrastructure works (e.g. mains service connections and roadworks).
10	Conservation strategy.	
11	Cost strategy.	
12	Construction strategy.	Initial buildability issues, access and logistics.
13	Scope of facilitating works.	Including: demolition, preparatory site works and early infrastructure works (e.g. mains service connections and roadworks).
14	Fire safety strategy.	From fire safety advisor.
15	Health and safety strategy.	From health and safety advisor.
16	Pre-construction information.	Information in the client's, client team's or project board's possession or which is reasonably obtainable (e.g. the health and safety file)
17	Sustainability strategy.	From sustainability advisor
18	Handover strategy/take-over strategy.	
19	Maintenance and operational strategy.	Including details of any post-completion maintenance services.
20	Plan for use strategy.	Post completion requirements if not addressed in maintenance and operational strategy.  If whole life cost plan required, tasks to be undertaken to enable the effective running of a building or built asset (e.g. (facilities/building) maintenance plan.
21	Up-to-date project risk register.	

**From project manager/lead** (or client, client team or project board if no project manager appointed)

<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>22</b>	Cost limit (i.e. the project budget).	Where alternative cost options were reported to the client, client team or project board, confirmation of the preferred design/ development option and cost limit is required.
<b>23</b>	Client insurance requirements.	For example:  Amount of professional indemnity insurance cover. If considerable, it might attract additional costs, which the contract will wish to pass on to the client.  Specialist insurances (e.g. airside insurance).
<b>24</b>	Approach to dealing with project and design team fees.	Are project and design team fees to be included in the cost plan?
<b>25</b>	Approach to dealing with other project costs.	Indirect project costs (e.g. planning contributions, party wall works and decanting costs).  Are other project costs to be included in the cost plan?
<b>26</b>	Approach to dealing with planning contributions.	(If known) are planning contributions to be included in the cost plan?
<b>27</b>	Approach to dealing with employer's risks.	Are allowances for employer's risks to be included in the cost plan?
<b>28</b>	Approach to dealing with capital allowances.	Are enhanced capital allowances to be recovered?
<b>29</b>	Other considerations (e.g. land remediation allowances and grants).	

## C1.2 From architect

From architect		
Item	Information required	Comments/notes
1	Measured survey drawing(s).	Topographical survey.
2	Site constraints plan.	Site plan marked up to show any specific site constraints.
3	Coordinated architectural design drawings to a suitable scale, comprising:	
3.1	Floors, including basement levels, and roofs.	
3.2	General elevations (with materials clearly annotated).	
3.3	General sections.	
3.4	External landscaping – general arrangement plan(s).	
3.5	Plans of key building functions.	
3.6	Elevations (showing construction of external walls, roofs, ground floor).	
3.7	Construction and upper floor construction.	
3.8	Sketches showing key details/interfaces (e.g. interface between curtain walling system and structure, balconies, etc.).	
3.9	Spatial requirements.	
4	Outline architectural specification information, including:	
4.1	Specification/design intent for all main elements.	
4.2	Statement of required quality.	
4.3	Outline specification for building systems/ components and finishes.	
4.4	Acoustics/vibration requirements.	
4.5	Security requirements.	
4.6	Outline performance criteria for main building systems/components.	
4.7	Schedule of finishes.	For both internal and external locations.
4.8	Details of alternative specifications for building systems/components.	

From architect		
Item	Information required	Comments/notes
5	Area schedule.	Schedule of gross external floor areas (GEFA), gross internal floor areas (GIFA), net internal areas (NIA – i.e. usable area for shops, supermarkets and offices) and site area (SA).
6	Accommodation schedule.	Accommodation may be included in project brief.
7	Room data sheets.	
8	Schedules of key fixtures, fittings and equipment (FF&E) schedules.	
9	Design strategies, including:	
9.1	Access.	
9.2	Environmental/sustainability, including:	Prepared in conjunction with the building services engineer.
9.2.1	Measures to achieve required environmental rating.	
9.2.2	Building Regulations requirements.	
9.2.3	Sustainability requirements and assumptions.	
9.2.4	Renewable energy requirements and assumptions.	
9.2.5	Employer's specific requirements.	May be included within sustainability strategy.
9.3	Car parking, including motorcycles and bicycles.	
9.4	Vertical transportation.	Prepared in conjunction with the building services engineer.
9.5	Information technology (IT).	
9.6	Fire engineering.	
9.7	Acoustics.	
9.8	Security.	
9.9	Cleaning and maintenance strategy.	Cleaning and maintenance strategy be included in maintenance and operational strategy.
9.10	Refuse/waste disposal.	
9.11	Public art.	
10	Scoping survey/study/review reports.	

**From architect**

<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>11</b>	Proposed value engineering options.	
<b>12</b>	Architect's risk register.	

### C1.3 From building services engineer

From building services engineer		
Item	Information required	Comments/notes
<b>1</b>	Coordinated design drawings to a suitable scale, comprising:	
<b>1.1</b>	General arrangement for each main system.	
<b>1.2</b>	Schematic diagrams for each major system.	
<b>1.3</b>	Plant room layouts, including roof plant layout.	
<b>1.4</b>	Single line diagrams showing primary service routes.	
<b>1.5</b>	Typical layouts of landlord's areas, service areas and cores.	
<b>2</b>	Outline mechanical and electrical and public health (MEP) specification information, including:	
<b>2.1</b>	Mechanical services.	
<b>2.2</b>	Electrical services.	
<b>2.3</b>	Vertical transportation systems (e.g. lifts, hoists and escalators).	
<b>2.4</b>	Public health.	Structural engineer may prepare public health specification information.
<b>2.5</b>	Protective installations.	
<b>2.6</b>	Communication, security and control systems.	
<b>2.6</b>	Special installations.	
<b>2.6</b>	Plant/equipment schedule.	For primary plant/equipment.
<b>2.6</b>	Approximate duties, output, and sizes of primary plant/equipment.	
<b>2.7</b>	Schedule of cost-significant builders' work in connection with mechanical and electrical engineering services.	
<b>2.8</b>	Details of alternative specifications.	
<b>3</b>	Survey of above ground and below ground services.	
<b>4</b>	Project strategies, including:	
<b>4.1</b>	Environmental/sustainability (in conjunction with the architect), including:	
<b>4.1.1</b>	Measures to achieve required environmental rating.	
<b>4.1.2</b>	Building Regulations requirements.	
<b>4.1.3</b>	Sustainability requirements and assumptions.	

<b>From building services engineer</b>		
<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>4.1.4</b>	Renewable energy requirements and assumptions.	
<b>4.1.5</b>	Employer's specific requirements.	
<b>4.2</b>	Vertical movement.	Prepared in conjunction with the architect.
<b>4.3</b>	Removal/decommissioning of existing plant and or equipment.	
<b>5</b>	Scoping survey/study/review reports.	
<b>6</b>	Reports:	
<b>6.1</b>	Existing utilities: gas, electricity, communications cables (including telecommunications and networks), water, surface and foul drainage).	
<b>6.2</b>	Other existing building services impacting on design.	
<b>7</b>	Identification of requirements for any abnormal mechanical and electrical engineering services installations/systems.	
<b>8</b>	Details of statutory authority/public undertaker designs and cost proposals, including:	
<b>8.1</b>	Connections.	
<b>8.2</b>	Upgrading requirements.	
<b>8.3</b>	Diversions.	
<b>9</b>	Methodology for facilitating works (e.g. early provision of mains services to site).	
<b>10</b>	Proposed value engineering options.	
<b>11</b>	Building service engineer's risk register.	

## C1.4 From structural engineer

From structural engineer		
Item	Information required	Comments/notes
<b>1</b>	Reports based on desktop studies, including:	
<b>1.1</b>	Environmental contamination (Phase 1 audit to establish the nature of any sub-surface contaminated soil and/or groundwater).	
<b>1.2</b>	Geotechnical properties.	
<b>1.3</b>	Bombs.	
<b>2</b>	Scoping survey/study/review reports.	
<b>3</b>	Reports based on fieldwork, sampling and analysis (where commissioned by the client), including:	Fieldwork comprises trial pits, auger holes, window samplers, boreholes, probing, etc.
<b>3.1</b>	Environmental contamination (Phase 2 audit).	
<b>3.2</b>	Geotechnical properties.	
<b>4</b>	Reports, including:	
<b>4.1</b>	Water and ground investigation.	
<b>4.2</b>	Environmental risk assessment.	
<b>4.2</b>	Remediation strategy report.	
<b>5</b>	Advice on ground conditions.	
<b>6</b>	Coordinated design drawings to a suitable scale, comprising:	
<b>6.1</b>	General arrangement.	
<b>6.2</b>	Frame configuration.	
<b>6.3</b>	Layout of shear walls, core walls, columns and beams.	
<b>6.4</b>	Sections.	
<b>6.5</b>	Foundation layouts, including pile (and pile cap and ground beam) layouts.	
<b>6.6</b>	Sections, showing ground slab construction, basement wall construction, pile caps construction, etc.	
<b>6.7</b>	Indicative drainage solution.	
<b>7</b>	Formation and excavation levels.	
<b>8</b>	Outline structural, civil and public health specification information, including:	
<b>8.1</b>	Specification/design intent for all main elements/building systems and components.	

<b>From structural engineer</b>		
<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>8.2</b>	Outline specification for components and materials.	
<b>8.3</b>	Structural performance criteria (e.g. design loadings).	
<b>8.4</b>	Pile sizes, including indicative lengths.	
<b>8.5</b>	Statement on strategy for integration of mechanical and electrical engineering services with structural components.	
<b>8.6</b>	Details of alternative specifications.	
<b>9</b>	Estimates of reinforcement content for all reinforced concrete components.	
<b>10</b>	Mass of steelwork in framed structures.	
<b>11</b>	Developed design schedules and reports comprising:	
<b>11.1</b>	Water and ground investigation report.	
<b>11.2</b>	Remediation strategy report.	
<b>12</b>	Methodologies for:	
<b>12.1</b>	Demolition works.	
<b>12.2</b>	Preparatory site works.	
<b>12.3</b>	Ground stabilisation.	
<b>12.4</b>	Temporary works.	
<b>12.5</b>	Early infrastructure works.	
<b>12.6</b>	Drainage (indicative solution).	
<b>12.7</b>	Other facilitating works.	
<b>13</b>	Proposed value engineering options.	
<b>14</b>	Structural engineer's risk register.	

## C2 Formal cost plan 2 – information requirements

To enable preparation of formal cost plan 2 (at RIBA Stage 3 or OGC Gateway 3B), the key information required is as follows.

### C2.1 From project manager/lead

<b>From project manager/lead</b> (or client, client team or project board if no project manager appointed)		
<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>1</b>	Confirmation that formal cost plan 1 prepared at RIBA Stage 2 or OGC Gateway 3A is acceptable.	
<b>2</b>	Confirmation of any preferred alternatives given in the cost report for cost plan 1.	
<b>3</b>	Acceptance of any other matters within the cost report for cost plan 1.	Accepted value engineering options, for example.
<b>4</b>	Confirmation of cost limit (i.e. the project budget).	
<b>5</b>	Confirmation of the final project brief, including statement of quality and 'fit-out' requirements.	
<b>6</b>	Confirmation of project programme.	Including: timetable for design, construction start date, construction time, construction completion date and required occupation dates.
<b>7</b>	Confirmation of procurement strategy.	Including: tender strategy; contract strategy; terms and conditions of contract; and phasing of decanting requirements, temporary access requirements and construction works.
<b>8</b>	Confirmation of facilitating works.	Including: demolition, preparatory site works and early infrastructure works (e.g. mains service connections and roadworks).
<b>9</b>	Confirmation of treatment of project and design team fees.	
<b>10</b>	Confirmation of treatment of insurances.	
<b>11</b>	Confirmation of approach to dealing with other project costs.	Planning contributions, party wall works and decanting costs, for example.

**From project manager/lead** (or client, client team or project board if no project manager appointed)

Item	Information required	Comments/notes
12	Confirmation of planning contributions required to be incorporated into the building design and/or building works contract(s).	
13	Confirmation of treatment of employer's risks.	
14	Confirmation of treatment of inflation.	
15	Confirmation of approach to dealing with of Value Added Tax (VAT) and other tax liabilities.	
16	Confirmation of other considerations (e.g. approach to dealing with capital allowances, land remediation allowances and grants).	
17	Authority to commence the next Stage or proceed to the next Gateway (e.g. RIBA Stage 4: Technical Design or other comparative Project Gateway).	
18	RIBA Stage 3: Spatial; Coordination (or other comparative Project Stage or Gateway) report.	Architect may provide report.
19	Additional site information/surveys.	Copies of any additional information about the site procured during RIBA Stage 3.
20	Up-to-date responsibility matrix.	Summary project team Stage 3 tasks.
21	Up-to-date project strategies.	
22	Legislative constraints.	Details of any changes to information provided at RIBA Stage 2.
23	Details of changes to contract conditions.	Details of proposed amendments to standard contract; potential impact on cost due to liquidated damages and/or employer-specific contract provisions.
24	Up-to-date project risk register.	
25	Confirmation of post completion requirements.	If not addressed in maintenance and operational strategy.

## C2.2 From architect

From architect		
Item	Information required	Comments/notes
1	Coordinated design drawings to a suitable scale, comprising:	
1.1	General arrangement plans (for all floors, including basement levels, and roofs).	
1.2	General elevations (with materials clearly annotated).	
1.3	General sections.	
1.4	External landscaping – general arrangement plan(s).	
1.5	Plans of key building functions.	
1.6	Detailed elevations.	
1.7	Detailed sections, showing construction of external walls, roofs, ground floor construction and upper floor construction.	
1.8	Drawings showing key details/interfaces (e.g. interface between curtain walling system and structure, balconies, etc.).	
1.9	Detailed floor plans, showing the layout of rooms and common areas.	
2	Up-to-date site constraints plan.	
3	Up-to-date area schedule.	Schedule of gross external areas (GEFA), gross internal floor areas (GIFA), net internal areas (NIA, i.e. usable area for shops, supermarkets and offices) and site area (SA).
4	Up-to-date accommodation schedule.	Accommodation schedule may be included in project brief.
5	Up-to-date room data sheets.	
6	Up-to-date planning application drawings.	
7	Up-to-date outline architectural specification information, including:	
7.1	Specification/design intent for all main elements, building systems and components.	
7.2	Statement of required quality.	
7.3	Outline specification for components, materials and finishes.	

From architect		
Item	Information required	Comments/notes
7.4	Acoustics/vibration requirements.	
7.5	Outline performance criteria for main elements, building systems and components.	
7.6	Landscaping.	Prepared by landscape architect, if appointed.
8	Up-to-date schedules and reports comprising:	
8.1	Finishes schedule(s).	Internal and external.
8.2	Door schedule(s).	
8.3	Window schedule(s).	
8.4	Fixtures, fittings and equipment (FF&E) schedules.	
8.5	Schedule of builder's work in connection (BWIC) with mechanical, electrical and public health installations (MEP) (in conjunction with building services engineer and structural engineer).	
9	Up-to-date strategies, including:	
9.1	Access and egress.	
9.2	Environmental/sustainability (in conjunction with the building services engineer), including:	
9.2.1	Measures to achieve required environmental rating.	
9.2.2	Building Regulations requirements.	
9.2.3	Sustainability requirements and assumptions.	
9.2.4	Renewable energy requirements and assumptions.	
9.2.5	Employer's specific requirements.	May be included within sustainability strategy.
9.3	Car parking, including motorcycles and bicycles.	
9.4	Vertical transport (in conjunction with the building services engineer).	
9.5	Information technology (IT).	
9.6	Fire engineering.	
9.7	Acoustics.	
9.8	Security.	
9.9	Access.	

From architect		
Item	Information required	Comments/notes
9.10	Cleaning and maintenance strategy.	Cleaning and maintenance strategy may be included in maintenance and operational strategy.
9.11	Refuse/waste disposal.	
9.12	Public art.	
10	Proposed value engineering options.	
11	Up-to-date architect's risk register.	

## C2.3 From building services engineer

From building services engineer		
Item	Information required	Comments/notes
<b>1</b>	Coordinated developed design drawings to a suitable scale, comprising:	
<b>1.1</b>	General arrangement for each main system.	
<b>1.2</b>	Schematic diagrams for each major system.	
<b>1.3</b>	Plant room layouts, including roof plant layout.	
<b>1.4</b>	Single line diagrams showing primary service routes.	
<b>1.5</b>	Typical layouts of landlord's areas, service areas and cores.	
<b>2</b>	Up-to-date outline mechanical and electrical and public health (MEP) specification information, including:	
<b>2.1</b>	Mechanical engineering services.	
<b>2.2</b>	Electrical engineering services.	
<b>2.3</b>	Vertical transportation systems (e.g. lifts, hoists and escalators).	
<b>2.4</b>	Protective installations.	
<b>2.5</b>	Communication, security and control systems.	
<b>2.6</b>	Specialist installations.	
<b>2.7</b>	Vertical transportation systems (e.g. lifts, hoists and escalators).	
<b>2.8</b>	Protective installations.	
<b>2.9</b>	Electrical engineering services.	
<b>2.10</b>	Public health.	Structural engineer may prepare.
<b>3</b>	Schedule of builder's work in connection (BWIC) with mechanical, electrical and public health installations (MEP).	Prepared in conjunction with architect and structural engineer.
<b>4</b>	Up-to-date strategies, including:	
<b>4.1</b>	Environmental/sustainability, including:	Prepared in conjunction with the architect.
<b>4.1.1</b>	Measures to achieve required environmental rating.	
<b>4.1.2</b>	Building Regulations requirements.	
<b>4.1.3</b>	Sustainability requirements and assumptions.	
<b>4.1.4</b>	Renewable energy requirements and assumptions.	

<b>From building services engineer</b>		
<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>4.1.5</b>	Employer's specific requirements.	
<b>4.2</b>	Vertical movement (in conjunction with the architect).	
<b>4.3</b>	Removal/decommissioning of existing plant and or equipment.	
<b>5</b>	Survey of underground services.	
<b>6</b>	Identification of requirements for any abnormal mechanical and electrical engineering services installations/systems.	
<b>7</b>	Details of statutory authority/public undertaker designs and cost proposals, including:	
<b>7.1</b>	Connections.	
<b>7.2</b>	Upgrading requirements.	
<b>7.3</b>	Diversions.	
<b>8</b>	Quotations from statutory undertakers.	
<b>9</b>	Up-to-date methodology for facilitating works.	Early provision of mains services to site, for example.
<b>10</b>	Proposed value engineering options.	
<b>11</b>	Up-to-date building services engineer's risk register.	

## C2.4 From structural engineer

From structural engineer		
Item	Information required	Comments/notes
1	Reports based on fieldwork, sampling and analysis (where commissioned by the client), including:	Fieldwork comprises trial pits, auger holes, window samplers, boreholes, probing, etc.
1.1	Environmental contamination (Phase 2 audit).	
1.2	Geotechnical properties.	
2	Environmental risk assessment.	
3	Coordinated design drawings to a suitable scale, comprising:	
3.1	General arrangement.	
3.2	Frame configuration.	
3.3	Layout of shear walls, core walls, columns and beams.	
3.4	Sections.	
3.5	Foundation layouts, including pile (and pile cap and ground beam) layouts.	
3.6	Sections, showing ground slab construction, basement wall construction, pile caps construction, etc.	
3.7	Indicative drainage solution.	
4	Formation and excavation levels.	
5	Up-to-date outline structural, civil and public health specification information, including:	
5.1	Specification/design intent for all main elements.	
5.2	Outline specification for components and materials.	
5.3	Structural performance criteria.	Design loadings, for example.
5.4	Pile sizes.	Including indicative lengths.
5.5	Statement on strategy for integration of mechanical and electrical engineering.	
5.6	Services with structural components.	
5.7	Details of alternative specifications.	
6	Up-to-date estimates of reinforcement content for all reinforced concrete components.	
7	Up-to-date estimates of steelwork mass for steel framed structures.	

<b>From structural engineer</b>		
<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>8</b>	Coordinated design schedules and reports comprising:	
<b>8.1</b>	Water and ground investigation report.	
<b>8.2</b>	Remediation strategy report.	
<b>8.3</b>	Schedule of builder's work in connection (BWIC) with mechanical, electrical and public health installations (MEP).	Produced in conjunction with architect and building services engineer.
<b>9</b>	Methodologies for:	
<b>9.1</b>	Demolition works.	
<b>9.2</b>	Ground stabilisation.	And other preparatory groundworks.
<b>9.3</b>	Temporary works.	
<b>9.4</b>	Drainage.	
<b>9.5</b>	Roadworks.	
<b>9.6</b>	Other specialist works.	
<b>10</b>	Proposed value engineering options.	
<b>11</b>	Up-to-date structural engineer's risk register.	

## C2.5 From specialist design consultants

From specialist design consultants		
Item	Information required	Comments/notes
1	Coordinated design drawings to a suitable scale.	
2	Outline specification information.	
3	Proposed value engineering options.	
4	Specialist designer's risk register.	

## C3 Formal cost plan 3 – information requirements

To enable preparation of formal cost plan 3 (at RIBA Stage 4 and OGC Gateway 3B), the key information required is the following.

### C3.1 From project manager/lead

<b>From project manager/lead</b> (or client, client team or project board if no project manager appointed)		
<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
1	Confirmation that formal cost plan 2 prepared at RIBA Stage 3 or OGC Gateway 3B is acceptable.	
2	Confirmation of any preferred alternatives given in the cost report for cost plan 2.	
3	Acceptance of any other matters within the cost report for cost plan 1.	Accepted value engineering options, for example.
4	Confirmation of cost limit (i.e. the project budget).	
5	Confirmation of the final project brief, including statement of quality and 'fit-out' requirements.	
6	Confirmation of project programme.	Including: timetable for design, construction start date, construction time, construction completion date and required occupation dates.
7	Confirmation of procurement strategy.	Including: tender strategy; contract strategy; terms and conditions of contract; and phasing of decanting requirements, temporary access requirements and construction works.
8	Confirmation of facilitating works.	Including: demolition, preparatory site works and early infrastructure works (e.g. mains service connections and roadworks).
9	Confirmation of treatment of project and design team fees.	
10	Confirmation of treatment of insurances.	
11	Confirmation of approach to dealing with other project costs.	Planning contributions, party wall works and decanting costs, for example.
12	Confirmation of treatment of employer's risks.	
13	Confirmation of treatment of inflation.	

**From project manager/lead** (or client, client team or project board if no project manager appointed)

<b>Item</b>	<b>Information required</b>	<b>Comments/notes</b>
<b>14</b>	Confirmation of approach to dealing with of Value Added Tax (VAT) and other tax liabilities.	
<b>15</b>	Confirmation of other considerations (e.g. approach to dealing with capital allowances, land remediation allowances and grants).	
<b>16</b>	Authority to commence the next Stage or proceed to the next Gateway.	
<b>17</b>	RIBA Stage 3: Spatial; Coordination (or other comparative Project Stage or Gateway) report.	Architect may provide report.
<b>18</b>	Up-to-date project strategies.	
<b>19</b>	Up-to-date responsibility matrix.	Summary project team Stage 4 tasks.
<b>20</b>	Details of changes to contract conditions.	Details of proposed amendments to standard contract; potential impact on cost due to liquidated damages and/or employer-specific contract provisions.
<b>22</b>	Confirmation of post completion requirements.	If not addressed in maintenance and operational strategy.
<b>23</b>	Up-to-date project risk register.	

### C3.2 From architect

From architect		
Item	Information required	Comments/notes
<b>1</b>	Final coordinated technical design drawings to a suitable scale, comprising:	
<b>1.1</b>	Plans (for all floors, including basement levels, and roofs).	
<b>1.2</b>	Elevations (with materials clearly annotated).	
<b>1.3</b>	Sections.	
<b>1.4</b>	External landscaping – general arrangement plan(s).	
<b>1.5</b>	Plans of key building functions.	
<b>1.6</b>	Detailed elevations.	
<b>1.7</b>	Detailed sections, showing construction of external walls, roofs, ground floor construction and upper floor construction.	
<b>1.8</b>	Drawings showing key details/interfaces (e.g. interface between curtain walling system and structure, balconies, etc.).	
<b>1.9</b>	Detailed floor plans, showing the layout of rooms and common areas.	
<b>1.10</b>	Assembly drawings.	
<b>1.11</b>	Component drawings.	
<b>2</b>	Final site constraints plan.	
<b>3</b>	Final area schedule.	Schedule of gross external areas (GEFA), gross internal floor areas (GIFA), net internal areas (NIA, i.e. usable area for shops, supermarkets and offices) and site area (SA).
<b>4</b>	Final accommodation schedule.	Accommodation schedule may be included in project brief.
<b>5</b>	Final room data sheets.	
<b>6</b>	Final architectural specification information, including:	
<b>6.1</b>	Specification/design intent for all main elements, building systems and components.	
<b>6.2</b>	Statement of required quality.	

From architect		
Item	Information required	Comments/notes
6.3	Outline specification for components, materials and finishes.	
6.4	Acoustics/vibration requirements.	
6.5	Outline performance criteria for main elements, building systems and components.	
6.6	Landscaping.	Produced by landscape architect, if appointed.
7	Final schedules and reports comprising:	
7.1	Finishes schedule(s).	Internal and external.
7.2	Door schedule(s).	
7.3	Window schedule(s).	
7.4	Fixtures, fittings and equipment (FF&E) schedules.	
7.5	Schedule of builder's work in connection (BWIC) with mechanical, electrical and public health installations (MEP) (in conjunction with building services engineer and structural engineer).	
8	Final strategies, including:	
8.1	Access and egress.	
8.2	Environmental/sustainability (in conjunction with the building services engineer), including:	
8.2.1	Measures to achieve required environmental rating.	
8.2.2	Building Regulations requirements.	
8.2.3	Sustainability requirements and assumptions.	
8.2.4	Renewable energy requirements and assumptions.	
8.2.5	Employer's specific requirements.	May be included within sustainability strategy.
8.3	Car parking, including motorcycles and bicycles.	
8.4	Vertical transport.	Prepared in conjunction with building services engineer.

From architect		
Item	Information required	Comments/notes
8.5	Information technology (IT).	
8.6	Fire engineering.	
8.7	Acoustics.	
8.8	Security.	
8.9	Access.	
8.10	Cleaning and maintenance strategy.	Cleaning and maintenance strategy may be included in maintenance and operational strategy.
8.11	Refuse/waste disposal.	
8.12	Public art.	
9	Proposed value engineering options.	
10	Up-to-date architect's risk register.	

### C3.3 From building services engineer

From building services engineer		
Item	Information required	Comments/notes
1	Final coordinated technical design drawings to a suitable scale.	
2	Final mechanical and electrical and public health (MEP) specification information, including:	
2.1	Mechanical engineering services.	
2.2	Electrical engineering services.	
2.3	Protective installations.	
2.4	Communication, security and control systems.	
2.5	Specialist installations.	
2.6	Vertical transportation systems (e.g. lifts, hoists and escalators).	
2.7	Protective installations.	
2.8	Electrical engineering services.	
2.9	Public health.	Structural engineer may produce.
3	Final schedule of builder's work in connection (BWIC) with mechanical, electrical and public health installations (MEP).	Prepared in conjunction with architect and structural engineer.
4	Final strategies, including:	
4.1	Environmental/sustainability (in conjunction with the architect), including:	
4.1.1	Measures to achieve required environmental rating.	
4.1.2	Building Regulations requirements.	
4.1.3	Sustainability requirements and assumptions.	
4.1.4	Renewable energy requirements and assumptions.	
4.1.5	Employer's specific requirements.	
4.2	Vertical movement.	Prepared in conjunction with the architect.
4.3	Removal/decommissioning of existing plant and or equipment.	

From building services engineer		
Item	Information required	Comments/notes
5	Details of statutory authority/public undertaker designs and cost proposals, including:	
5.1	Connections.	
5.2	Upgrading requirements.	
5.3	Diversions.	
6	Quotations from statutory undertakers.	
7	Final methodology for facilitating works.	Early provision of mains services to site, for example.
8	Proposed value engineering options.	
9	Up-to-date building services engineer's risk register.	

### C3.4 From structural engineer

From structural engineer		
Item	Information required	Comments/notes
1	Final environmental risk assessment.	
2	Final coordinated technical design drawings to a suitable scale, including:	
2.1	General arrangement.	
2.2	Frame configuration.	
2.3	Layout of shear walls, core walls, columns and beams.	
2.4	Foundation layouts, including pile (and pile cap and ground beam) layouts.	
2.5	Sections, showing ground slab construction, basement wall construction, pile caps construction, etc.	
2.6	Final drainage solution.	
3	Formation and excavation levels.	
4	Final structural, civil and public health specification information, including:	
4.1	Specification/design elements.	
4.2	Specification for building systems and components and materials.	
4.3	Structural performance criteria.	Design loadings, for example.
4.4	Pile sizes.	Including indicative lengths.
4.5	Statement on strategy for integration of mechanical and electrical engineering.	
4.6	Services with structural components.	
4.7	Details of alternative specifications.	
5	Final estimates of reinforcement content for all reinforced concrete components.	Bar bending schedules, if structural engineer responsible for preparing.
6	Final estimates of steelwork mass for steel framed structures.	Sizes and weights of all structural steel components, if structural engineer responsible for detailed technical design.
7	Final coordinated design schedules and reports comprising:	
7.1	Water and ground investigation report.	
7.2	Remediation strategy report.	

From structural engineer		
Item	Information required	Comments/notes
7.3	Schedule of builder's work in connection with (BWIC) and mechanical, electrical and public health installations (MEP).	Produced in conjunction with architect and building services engineer.
8	Final methodologies for:	
8.1	Demolition works.	
8.2	Ground stabilisation.	And other preparatory groundworks.
8.3	Temporary works.	
8.4	Drainage.	
8.5	Roadworks.	
8.6	Other specialist works.	
9	Proposed value engineering options.	
10	Up-to-date structural engineer's risk register.	

### C3.5 From specialist design consultants

From specialist design consultants		
Item	Information required	Comments/notes
1	Final coordinated technical design drawings to a suitable scale.	
2	Final specification information.	
3	Proposed value engineering options.	
4	Specialist designer's risk register.	

# Appendix D: Template for elemental cost plan (condensed – based on level 1 codes)

Cost plan no.: ..... Project title: .....

GIFA: ..... m<sup>2</sup>

Cost centre	Group element/element	Cost/m <sup>2</sup> of GIFA	Total cost of element (target cost)
		£	£
<b>Facilitating works and building works</b>			
0	Facilitating works		
1	Substructure		
2	Superstructure		
3	Internal finishes		
4	Fittings, furnishings and equipment		
5	Services		
6	Prefabricated buildings and building units		
7	Work to existing buildings		
8	External works		
<b>Subtotal: facilitating works and building works (A)</b>			
9	Main contractor's preliminaries (B)		
<b>Subtotal: facilitating works and building works (including main contractor's preliminaries) (C)</b>			
<b>[C = A + B]</b>			
10	Main contractor's overheads and profit (D)		
<b>Total: works cost estimate (E)</b>			
<b>[E = C + D]</b>			
+11	Project and design team fees (F)		
12	Other project costs (G)		

Cost centre	Group element/element	Cost/m <sup>2</sup> of GIFA	Total cost of element (target cost)
	<b>Total: project and design team fees and other project costs estimate (H)</b> [H = F + G]		
	<b>Base cost estimate (I) [I = E + H]</b>		
<b>13</b>	<b>Total: risk allowance estimate (J)</b>		
	<b>Cost limit (excluding inflation) (K) [K = I + J]</b>		
<b>14</b>	<b>Total: inflation allowance (L)</b>		
	<b>Cost limit (excluding VAT assessment) (M)</b> [M = K + L]		
<b>16</b>	<b>VAT assessment</b>		<b>Excluded*</b>

\*VAT in relation to buildings is a complex area. Therefore, it is recommended that VAT is excluded from order of cost estimates. Specialist advice should be sought on VAT matters to ensure that the correct rates are applied to the various aspects of a building project.

- 1 Base date of cost plan: .....
- 2 All transfers should be to/from the risk allowance cost centres and balanced by an equal but opposite adjustment to the risk allowance cost centres.
- 3 Reference should be made to the cost classification system as set out in ICMS.

# Appendix E: Template for elemental cost plan (expanded – based on level 2 codes)

Cost plan no.: ..... Project title: .....

GIFA: ..... m<sup>2</sup>

Cost centre	Group element/element	Cost/m <sup>2</sup> of GIFA	Total cost of element (target cost)
		£	£
<b>Facilitating works and building works</b>			
<b>0</b>	<b>Facilitating works</b>		<b>[insert summation of all sub-elements]</b>
0.1	Toxic/hazardous/contaminated material removal		
0.2	Major demolition works		
0.3	Temporary support for adjacent structures		
0.4	Specialist groundworks		
0.5	Temporary diversion works		
0.6	Extraordinary site investigation works		
<b>1</b>	<b>Substructure</b>		<b>[insert summation of all sub-elements]</b>
1.1	Substructure		
<b>2</b>	<b>Superstructure</b>		<b>[insert summation of all sub-elements]</b>
2.1	Frame		
2.2	Upper floors		
2.3	Roof		
2.4	Stairs and ramps		
2.5	External walls		
2.6	Windows and external doors		
2.7	Internal walls and partitions		
2.8	Internal doors		

<b>Cost centre</b>	<b>Group element/element</b>	<b>Cost/m<sup>2</sup> of GIFA</b>	<b>Total cost of element (target cost)</b>
<b>3</b>	<b>Internal finishes</b>		<b>[insert summation of all sub-elements]</b>
3.1	Wall finishes		
3.2	Floor finishes		
3.3	Ceiling finishes		
<b>4</b>	<b>Fittings, furnishings and equipment</b>		<b>[insert summation of all sub-elements]</b>
4.1	Fittings, furnishings and equipment		
<b>5</b>	<b>Services</b>		<b>[insert summation of all sub-elements]</b>
5.1	Sanitary installations		
5.3	Disposal installations		
5.4	Water installations		
5.5	Heat source		
5.6	Space heating and air conditioning systems		
5.7	Ventilation systems		
5.8	Electrical installations		
5.9	Fuel installations		
5.10	Lift and conveyor installations		
5.11	Fire and lightning protection		
5.12	Communication, security and control systems		
5.13	Specialist installations		
5.14	Builders work in connection with services		
<b>6</b>	<b>Prefabricated buildings and building units</b>		<b>[insert summation of all sub-elements]</b>
6.1	Prefabricated buildings and units		

Cost centre	Group element/element	Cost/m <sup>2</sup> of GIFA	Total cost of element (target cost)
<b>7</b>	<b>Work to existing buildings</b>		[insert summation of all sub-elements]
7.1	Minor demolition and alteration works		
7.2	Repairs to existing services		
7.3	Damp-proof courses/fungus and beetle eradication		
7.4	Facade retention		
7.5	Cleaning existing surfaces		
7.6	Renovation works		
<b>8</b>	<b>External works</b>		[insert summation of all sub-elements]
8.1	Site preparation works		
8.2	Roads, paths, pavings and surfacings		
8.3	Soft landscaping, planting and irrigation systems		
8.4	Fencing, railings and walls		
8.5	External fixtures		
8.6	External drainage		
8.7	External services		
8.8	Minor building works and ancillary buildings		
<b>Subtotal: facilitating and building works (A)</b>			
<b>9</b>	<b>Main contractor's preliminaries (B)</b>		[insert summation of all sub-elements]
9.1	Employer's requirements		
9.2	Main contractor's cost items		
<b>Subtotal: facilitating and building works (including main contractor's preliminaries) (C)</b>			
<b>[C = A + B]</b>			
<b>10</b>	<b>Main contractor's overheads and profit (D)</b>		[insert summation of all sub-elements]
10.1	Main contractor's overheads		
10.2	Main contractor's profit		
<b>Total: building works estimate (E)</b>			
<b>[E = C + D]</b>			

Cost centre	Group element/element	Cost/m <sup>2</sup> of GIFA	Total cost of element (target cost)
<b>11</b>	<b>Project and design team fees (F)</b>		[insert summation of all sub-elements]
11.1	Consultants' fees		
11.2	Main contractor's pre-construction fees		
11.3	Main contractor's design fees		
<b>12</b>	<b>Other technical design project costs (G)</b>		[insert total cost of element]
12.1	Other project costs		
Total: project and design team fees and other project costs estimate (H)			
[H = F + G]			
<b>Base cost estimate (I) [I = E + H]</b>			
<b>13</b>	<b>Risks</b>		
13.1	Design development risks		
13.2	Construction risks		
13.3	Employer change risks		
13.4	Employer other risks		
<b>Total: risk allowance estimate (J)</b>			
<b>Cost limit (excluding inflation) (K) [K = I + J]</b>			
14	Inflation		
14.1	Tender inflation		
14.2	Construction inflation		
<b>Total: inflation allowance (L)</b>			
<b>Cost limit (excluding VAT assessment) (M) [M = K+ L]</b>			
<b>15</b>	<b>VAT assessment</b>		<b>Excluded*</b>

\*VAT in relation to buildings is a complex area. Therefore, it is recommended that VAT is excluded from order of cost estimates. It is recommended that specialist advice is sought on VAT matters to ensure that the correct rates are applied to the various aspects of a building project.

- 1 Base date of cost plan: .....
- 2 All transfers should be to/from the risk allowance cost centres and balanced by an equal but opposite adjustment to the risk allowance cost centres.
- 3 Reference should be made to the cost classification system as contained in ICMS.

## Delivering confidence

We are RICS. Everything we do is designed to effect positive change in the built and natural environments. Through our respected global standards, leading professional progression and our trusted data and insight, we promote and enforce the highest professional standards in the development and management of land, real estate, construction and infrastructure. Our work with others provides a foundation for confident markets, pioneers better places to live and work and is a force for positive social impact.

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