BCIS
Independent cost information for the built environment

Elemental Standard Form of Cost Analysis

Principles, Instructions, Elements and Definitions

4th (NRM) Edition

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Preface

The Government's construction strategy, published at the end of last year, calls for the implementation of cost-led procurement, benchmarking, life cycle costing and Building Information Modelling (BIM), all of which require cost information to be presented consistently in a standard format. At the early stage of a project, clearly defined elements provide the basis for early cost advice, benchmarking, performance specification and value engineering.

Therefore, publication of the new edition of the BCIS Elemental Standard Form of Cost Analysis (SFCA) based on common elemental definitions and cost breakdown structure with the RICS New Rules of Measurement for capital and maintenance cost planning (NRM1 and NRM3) could not be more timely.

The first edition of the SFCA was published in 1961 by the RICS Cost Research Panel. It defined an element as '…a major physical part of a building that fulfils a specific function or functions irrespective of its design, specification or construction'. The standardisation of the elements allowed the profession to store and exchange cost information. In the same year, RICS launched the Building Cost Information Service (BCIS) to exchange data in elemental form for the benefit of the profession. The growth of BCIS and its development into a thriving online service shows the continued relevance of elemental costs and elemental cost planning.

The second edition of the SFCA was published in December 1969 by BCIS. It was prepared jointly by JDM Robertson, on behalf of BCIS, and RS Mitchell (Ministry of Public Buildings and Works), on behalf of the Government. The principles and definitions were based upon the reports of two working parties lead by EH Wilson and AW Ovenden.

The third edition was published in 2008 and was prepared by Cosmas Kamasho and Ian Pegg of BCIS, and David Chelmick who redrafted the services elements. The revisions sought to clarify the definitions and expand the sub-elements in the light of modern construction techniques and to take into account questions of interpretation raised by users over the preceding 40 years.

This new edition of the SFCA has not sought to make radical changes to the elemental list, but to take account of some practical issues that have come to light in the drafting of measurement rules for designed elements and components for NRM1 and NRM3.

The Government's Construction Strategy focuses on delivering buildings to a known cost and on being able to track the reduction in costs that result from improvements in procurement. To do this requires the type of information BCIS provides at cost per m^2 of Gross Internal Floor Area for buildings and elements and cost per element unit quantity.

The development of Building Information Modelling (BIM) calls for information to be supplied from the BIM model at various stages along the project timeline so that the costs can be produced or validated. At the earliest stage of a project this information will be derived from a block model which will provide basic quantities from which element unit quantities can be derived. Clear rules for measuring the building and its elements need to be included in the employer's BIM requirements and/or in the Project BIM Execution Plan to ensure that appropriate cost information is used.

The changing procurement methods, the changing means of information management, the growing need for through life data, all reinforce the continued usefulness of elements and of the BCIS elemental cost data. The use of the common elemental definitions and cost breakdown structure with the New Rules of Measurement for capital and maintenance cost increases their usefulness to the profession and its clients.

In drafting this edition, I am grateful for the assistance of my colleagues Cosmas Kamasho, Ian Pegg and David Perestrelo, and of the NRM steering group, particularly the lead authors David Benge, John Davidson and Andy Green, and chairman Stuart Earl.

Joe Martin

BCIS Executive Director
2012

1 Introduction

This publication describes the rules for preparing an elemental cost analysis in standard BCIS format.

It sets out:

- the principles of analysis;
- instructions on the information required to complete a costs analysis;
- general definitions;
- definitions of the elements and sub-elements;
- element unit quantities.

It contains example analysis forms, describes the BCIS elemental XML schema and the BCIS analysis writer programme.

The purpose of cost analysis is to provide data that allows comparisons to be made between the costs of achieving various building functions in a project with those of achieving equivalent functions in other projects. It is the analysis of the cost of a building in terms of its elements. An element for cost analysis purposes is defined as a major physical part of a building that fulfils a specific function or functions irrespective of its design, specification or construction. The list of elements, however, is a compromise between this definition and what is considered practical.

The cost analysis allows for varying degrees of detail related to the design process; broad costs for building types are needed during the initial period and progressively more detail is required as the design is developed. The elemental costs are related to square metre of gross internal floor area and also to a parameter more closely identifiable with the elements function – the element unit quantity.

More detailed analysis relates costs of specific forms of construction within the element shown by 'All-in' unit rates.

Supporting information on contract, design/shape and market factors is defined so that the costs analysed can be fully understood.

The aim has been to produce standardisation of cost analyses and a single format for presentation.

Changes in the new edition

The main changes in the new edition are:

- Editorial changes to improve the definitions and descriptions.
- Expansion of the sub-elements.
- Amendment and clarification of Element Unit Quantities.
- To reflect practice, lintels and forming openings have been included with walls, rather than windows and doors, and drainage under the building is included in substructure rather than external works.
- Document Handling Systems have moved from Specialist Installations to Lifts and Conveyor Installations.
- Building Management Systems have moved from Specialist Installations to Communication, Security and Control Systems.
- Introduction of a new cost category for Prefabricated Building and Building Units. While this is not a functional element, it does allow the analysis of prefabricated buildings and buildings containing prefabricated pods or room units to be presented more clearly.
- Introduction of a new cost category for Work to Existing Buildings. Again, this is not an element but it will clarify the analysis of refurbishment and conversion schemes where the allocation of costs for general stripping out was problematic in the past.
- In External Works, the elements have been expanded to reflect the groupings of entities in the Standard Form of Civil Engineering Cost Analysis (SFCECA) outline data structure: pavements, landscaping, divisions, fixtures and services.
- Splitting out of Facilitating Works to cover work carried out to prepare the site for building works. This work will often form part of a separate project independent of the building project. Such projects should be analysed separately as Facilitating Works. Where some or all of this work is included in the building project, it should be included in the analysis.
- Adoption of a three level numeric referencing system. The new numbering and the equivalent old numeric/alpha/numeric references are given in Appendix 1: Summary of Elemental Definitions and Measurement.
- Cost analyses are normally prepared from contract documents at 'tender' stage (commit to construct) and therefore only reflect the cost of the construction work. NRM1 covers all the client's project costs and the SFCA has been expanded to facilitate the collection of this wider information where available.
    - Project/design fees
    - Other development/project costs
    - Client's risk

BCIS will continue to collect, analyse and publish costs derived from building contracts; the expansion of the standard form will allow clients to record their additional direct costs, although BCIS will be happy to record and publish these as well.

Backward compatibility

For most buildings, at the building element level the definitions are the same as the previous edition so that historic cost information can be used, with the major exceptions that:

- Where there is a significant amount of prefabrication, the pods would have been included in Sanitary Installation and other prefabricated units in Frame.
- On refurbishment and conversion schemes, the stripping out costs would have been spread among the elements on an ad hoc basis.
- For External Works, the new structure is significantly different so that comparisons can only be made by grouping the elements.
- The elements and their equivalent from the previous edition are given in Appendix 1: Summary of Elemental Definitions and Measurement.

The SFCA and the New Rules of Measurement: Order of cost estimating and cost planning for capital building works (NRM1)

The SFCA shares elemental definitions and data structure with the second edition of New Rules of Measurement for order of cost estimating and elemental cost planning for capital building works (NRM1), but they have different objectives:

- The SFCA provides rules for allocating cost to their functional elements.
- The detailed tabulated rules of measurement for costs planning in NRM1 provide rules for measuring designed elements and components.

The NRM tables are therefore expanded to cover various design solutions to the same functional element; this does not affect the definition and numbering of the elements and sub-elements, which are common to both documents.

There is one instance, Work to Existing Buildings, where the measurement rules in NRM1 have, for ease of pricing, been grouped to reflect their specification and procurement rather than their function. For cost analysis purposes, these costs should be allocated to the appropriate elements. When analysing refurbishment or conversion work, the cost of work to existing structure, fittings, finishes and services should be allocated to the appropriate functional element. General stripping out costs that cannot be allocated should be shown in Work to Existing Buildings– minor demolition and alteration works.

The SFCA and the New Rules of Measurement: Detailed measurement for building works (NRM2)

NRM2 provides rules of measurement for 'work results' arranged in Work Sections (Trades). This is a completely different, but complementary, way of describing and measuring a building to Elements. It classifies the parts of a building by how they are designed, specified and constructed. Elements describe what the parts of the building do – their function. Work Sections describe how they are constructed. Many Bills of Quantities are presented in Elemental format and measured in Work Section rules of measurement within each Element.

The SFCA and the New Rules of Measurement: Order of cost estimating and cost planning for building maintenance works (NRM3)

NRM3 uses the common elemental data structure, expanded to identify the maintainable assets that are included in each element. The Chartered Institute of Building Services Engineers (CIBSE), the Building & Engineering Services Association (BS&E) (formerly the HVCA), and BCIS have agreed to adopt the NRM3 expanded elemental data structure for their task schedules and life expectancy data. This allows the cost plan reporting and benchmarking of the maintenance life cycle costs to use a common format with the capital costs.

The SFCA and the BCIS/BSi Standardized Method of Life Cycle Costing for Construction Procurement (SMLCC)

The SMLCC references the SFCA elements for presenting the cost of Construction; Major Replacement; Refurbishment and Adaptation; Redecoration; Minor Replacement, Repairs and Maintenance, and Unscheduled Replacement, Repairs and Maintenance Costs.

2 Principles of Analysis

2.1 Analyses shall be for a single building.

2.2 Each building within a project shall be analysed separately. However, groups of buildings with the same function and similar form of construction on the same project can be combined and analysed together (e.g. housing estates). A terraced building should normally be analysed as a block. Where individual terraced units are analysed separately, this should be stated.

2.3 Refurbishment and new (extension) works within the same contract should be analysed separately.

2.4 Where a project is procured in separate contracts let at different dates, e.g. Facilitating Works, Building, Shell and Core, and Fit Out, each contract should be analysed separately.

2.5 The costs analysed shall be the agreed price for the works described. Normally, costs analysed will be the agreed price at 'commit to construct' (end of stage H in the RIBA plan of work), e.g. accepted tender contract sum, agreed target, etc. However, the rules for analysis can be applied at any stage during the project, but where this is not 'commit to construct', it should be clearly identified.

2.6 Where a building fulfils more than one user function (e.g. departments in a hospital), and it is desired to analyse the functions separately, the rules used for allocating the common elements shall be stated.

2.7 Where items of work that would normally be provided under a building contract have been excluded or supplied separately, this should be stated.

2.8 Where costs that would not normally form part of a building contract have been included, they should be omitted from the analysis and listed in the project details or market conditions as appropriate.

2.9 The levels of analysis are:

- ***Total building***
  - *Building*
  - *External works*
- ***Group elements (Concise)***
  - *Substructure*
  - *Superstructure*
  - *Internal finishes*
  - *Fittings and furnishings*
  - *Services*
  - *Prefabricated Buildings and Building Units*
  - *Work to Existing Building*
  - *External Works*
  - *Facilitating Works*
- ***Detailed elements (Detailed)***
  - *Elements as defined in Section 5*
- ***Sub-elements (Amplified)***
  - *Elements and sub-elements as defined in Section 5*

2.10 Analysis at each level of detail should equal the sum of the costs of the relevant group in the more detailed level. At any level of analysis, any significant cost items that are important to a proper and more useful understanding of the analysis shall be identified.

2.11 Cost categories that are not elements included in the contract such as Preliminaries; Main Contractor's Overheads and Profit; Contractor's Design Fees forming part of a Design and Build Contract; Client's Risk (contingency) sums to cover unforeseen expenditure; and Dayworks sums, shall be shown separately in the analysis.

2.12 Percentage and lump sum adjustments, e.g. allowance for contractor's commercial risk (contingencies), shall be spread as shown in the contract documents or, where they apply to the whole of the works, spread pro-rata among all elements of the building(s) and external works based on all work excluding Prime Cost and Provisional Sums contained within the elements.

2.13 Where client's costs for project/design fees, other development/project costs, and client's risk are available they should be shown separately.

2.14 In the UK, the principal cost unit for all elements of the building shall be expressed as Pounds Sterling (GBP) per square metre of Gross Internal Floor Area expressed to two decimal places. Where other currencies are used it shall be clearly stated.

2.15 A functional unit, or functional units, relating to the use of the building shall be given and clearly defined. See Appendix 2 for a list of recommended functional units.

2.16 Analyses shall be accompanied by details of the project, building, procurement and specification appropriate to the level of analysis.

2.17 Where tank rooms, housing and the like are included in the Gross Internal Floor Area, their component parts shall be analysed in detail under the appropriate elements. Where this is not the case, their costs should be included as 'Builder's Work in Connection'.

2.18 Glazing and ironmongery should be included in the elements containing the items to which they are fixed.

2.19 Decoration, except to fair-faced work, should be included with the surface to which it is applied; allocated to the appropriate element, and the costs shown separately. Painting and decorating to fair-faced work is to be treated as a 'Finishing'.

2.20 Chimneys and flues that are an integral part of the structure shall be included with the appropriate structural element.

2.21 Off-site manufactured buildings, room units and pods should be shown separately.

2.22 Other off-site manufactured components should be allocated to the appropriate elements.

2.23 The element costs should include all subcontractors' costs, e.g. preliminaries, design fees, overheads and profit, testing, commissioning, provision of operation and maintenance manuals, etc.

2.24 Main contractors' profit and attendance on services or other specialists should be included in the appropriate element and noted in the specification or market conditions text.

2.25 The definitions of terms for cost analysis are given in Section 4 'Definitions'.

2.26 Definitions of the elements for cost analysis are given in Section 5 'Element Definitions'.

3 Instructions

The following information should be provided:

Note: *The information requirements relate specifically to an analysis at the element level, however, they apply equally to building total, group element, element and sub-element analyses where appropriate.*

3.1 Ancillary information

3.1.1 Project Details

- ***Project title:*** Make the title descriptive of the building and meaningful to someone who does not know the project, e.g. 'Meat Packing Factory, St John's Estate' rather than 'St John's Estate Phase 2'.
- ***Building type:*** Defined by its user function (Uniclass Table D Facilities).
- ***Type of work:*** New build, horizontal extension, refurbishment, etc.
- ***Location:*** Site address including town, county and postcode (Note: the location of the project may be reported less precisely if the client so desires).
- ***Client:*** Name of client and/or the client type, e.g. local authority, private owner/occupier, property company, health trust, government department, etc.
- ***Dates:*** provide
    - *base date: the contractual date at which the pricing levels have been set;*
    - *date for receipt of tenders (where relevant);*
    - *date of acceptance (where relevant); and*
    - *date of possession of site.*
- ***Project descriptions:*** Brief description of the building, its function and the project as a whole, e.g. facilitating works, other buildings and external works. Include any special or unusual features affecting the overall costs that are not noted elsewhere.
- ***Site conditions:*** Description of the site conditions with regard to:
    - *topography, slope, contours;*
    - *ground conditions;*
    - *water table, running water;*
    - *details of the site prior to building, e.g. woodland, existing buildings, reclaimed brownfield, etc.;*
    - *working space, proximity of other buildings, infrastructure, etc.; and*
    - *access.*
- ***Accommodation, design features: Provide***
    - *general description of accommodation;*
    - *where a building incorporates more than one function (e.g. a block of offices with shops or car park deck), the gross internal floor areas of each should be shown separately;*
    - *a description of the building shape, or where drawings are not provided, a thumbnail sketch should be given showing overall dimensions and number of storeys in height;*
    - *any particular factors affecting design/cost relationship resulting from user requirements or dictates of the site; and*
    - *brief specification and construction details.*
- ***Complex contracts:*** A cost analysis must apply to a single building. In a complex contract (i.e. a contract which contains a requirement for the erection of more than one building), the size of the contract may have an important bearing on price levels obtained. If this situation occurs, it should be identified in the project details showing totals of:
    - *Building analysed*
    - *Building 2…*
    - *Building…n*
    - *External Works*
    - *Facilitating Works*
    - *Preliminaries*
    - *Main Contractor's overheads and profit*
    - *Total Contract costs*

3.1.2 Details of Building

- ***Floor areas***
  - *Gross internal floor area.*
  - *Area of basement floors*
  - *Ground floor area*
  - *Area of upper floors*
  - *Usable floor area*
  - *Circulation floor area*
  - *Ancillary floor area*
  - *Internal divisions floor area*
  - *Area of lowest floor*
  - *Area of floor spaces not enclosed*
- ***Internal cube:***
- ***Number of units:*** Where the analysis is for more than one building of the same type or for more than one unit in a block, e.g. terrace of industrial units or block of flats, state the total number of units covered by the analysis.
- ***Roof area (as built):***
- ***Area of vertical envelope (external wall area):*** The area of the vertical enclosure of the building measured on the internal face. This would normally be the sum of the external wall and windows element unit quantities.
- ***Site Area:***
- ***Number of storeys:*** provide:
  - *total number of floors including basement floors;*
  - *the number of basement floors, i.e. the number of floors below the ground floor;*
  - *where the parts of the building have different numbers of storeys, give the approximate percentage of building (based on Gross Internal Floor Area), having a different number of storeys, i.e. 20% single storey, 30% two storey, 50% three storey; and*
  - *exclude structures such as lift, plant or tank rooms and the like above main roof slab.*
- ***Storey height:*** Give average storey height for the building. Alternatively, give the differing heights and the floor areas to which they relate.
- ***Functional units:*** State any relevant functional units, e.g. numbers of bedrooms and bedspaces in housing, numbers of vehicle spaces in car parks, etc. (see Appendix 2 for recommended functional units).
- ***Building accreditation scores:*** Provide details of any quality, energy, sustainability, etc. rating. Give score and details of accreditation scheme and version.
- ***Carbon Emissions:*** Provide details of carbon equivalent emissions (CO_2), both operational and embodied. Give details of basis of calculation and result.

3.1.3 Procurement Details

- ***Project tender price index:*** State project index, indexing authority and base date.
- ***Type of contract:*** State name of contract, any option choice and edition.
- ***Cost fluctuations:*** Details of any provision for fluctuations (variation of price) in the contract.
- ***Contract period in weeks:*** Stipulated by client, offered by builder (if different), agreed.
- ***Contract pricing documentation:*** Details of contractual pricing documents, e.g. Employer's Requirements and Contract Sum Analysis, Bill of Quantities, Bill of Approximate Quantities, Schedule of Rates, Target Cost, Specification and Drawings, Schedule of Works, etc.
- ***Selection of contractor:*** Details of selection process, e.g. open or selected competition, two stage tenders, negotiated, serial contract, framework agreement, etc.
- ***Market conditions:*** Give details of market for construction affecting the project. Indicate level of current work, availability of labour and materials, keenness of competition, and any special contract requirements. State if project is part of a larger framework or partnering agreement. Give details of any pain gain/ share. If project tendered, give details of any amendments made prior to award and, where applicable, state reasons why lowest tender was not accepted.
- ***Number of tenders issued and received:*** Where appropriate.
- ***Competitive tender list:*** List tenders received in descending order of value.
- ***Basis of Analysis:*** State the document used to prepare the analysis, e.g. lowest tender, amended tender, agreed target cost, final account, etc. If a lowest tender was not accepted or was amended, state reason.
- ***Contract breakdown:*** Show make up of contract sum appropriate to the contract, e.g.:
  - *Measured work*
  - *Provisional Sums*

- *Prime Cost Sums*
- *Preliminaries*
- *Contingencies*
- *Contractor's design fees on a Design and Build contract*
- *Contract sum*

3.2 Cost analysis

3.2.1 Element Costs

Total costs should be provided for each element and sub-elements as appropriate. Costs should be shown separately where required in the elemental definitions and for different forms of construction.
The costs of sub-elements should total to the element costs. The cost of the elements should total to the contract sum less main contractor's profit, where identified; preliminaries; contingencies and, where appropriate, contractor's design fees.

The cost of each element and the items comprising it should correspond with the specification.

If no cost is attributed to an element a note should be made to that effect.

Where the costs of more than one element are grouped together, a note should be inserted against each of the affected elements explaining where the costs have been included. For example, if windows in curtain walling are included in 'External Walls' it should be so stated in the element 'Windows', and details of the cost and specification included with the element 'External Walls'.

Where various forms of construction or finish exist within one element, the net areas and costs of the various types of construction should be included separately in the specification notes.

3.2.2 Preliminaries

The cost of preliminaries for the building being analysed should be stated and expressed as a percentage of the contract sum excluding preliminaries, contingencies and, where appropriate, contractor's design fees.

3.2.3 Main Contractor's Overheads and Profit

The cost of overheads and profit, where identified separately, should be stated and expressed as a percentage of the contract sum excluding main contractor's overheads and profit, contingencies and where appropriate, contractors' design fees.

3.2.4 Contractor's Commercial Risk

Where contractor's commercial or other risk is included in a target cost, or the like, it shall be allocated across the elements and preliminaries or as shown in the contract.

3.2.5 Client's Risk (Contingencies)

The cost of contingencies for the building being analysed should be stated but does not form part of the building analysis.

3.2.6 Contractor's Design Fees

The cost of contractor's design fees for the building being analysed should be stated but does not form part of the building analysis.

3.2.7 Project Design Team Fees and Other Development/Project Costs

Where they are available, Project Design Team Fees and Other Development/Project Costs should be stated but they do not form part of the building cost analysis.

3.2.8 Cost of Building per m^2 or Functional Unit

Where the total building cost is expressed as £/m^2 floor area or £/functional unit, the cost of the building should be the sum of elements 1-7, with preliminaries and main contractor's overheads and profit percentages apportioned. Unless shown otherwise in the contract, the preliminaries and main contractor's overheads and profit shall be apportioned as shown in 3.2.2 and 3.2.3.

Note: The expression of cost of External Works and Facilitating Works related to Gross Internal Floor Area of the building is not particularly meaningful. It is used in the 'Summary of element costs' so that the totals agree arithmetically.

3.6.9 Cost of Element per m^2 or Functional Unit

Where the cost of an element is expressed as £/m^2 floor area or £/element unit quantity, it should be stated whether or not the costs include preliminaries and/or main contractor's overheads and profit.

3.6.10 Works Outside the Site

The costs and details of any work included in the contract that are outside the site should be shown separately.

3.3 Element unit quantities

The cost of the element should be expressed in units that relate solely to the quantity of the element itself – Element Unit Quantities (EUQ). Element unit quantities are specified in the element definitions.

3.3.1 Area for Element Unit Quantities

Floor areas for element unit quantities should be measured as for Gross Internal Floor Area (GIFA), i.e. to the internal face of the enclosing wall to the area treated or serviced.

3.3.2 Cubes for Element Unit Quantities, etc.

Cubes for air conditioning, etc. (treated volume), shall be the floor area, measured to the internal face of the enclosing walls of the treated space, multiplied by the height from the floor finish to the underside of the ceiling finish (abbreviated to Tm^3).

3.4 Specification and design criteria

Specification and design criteria relating to requirements, purpose and function of the element, should be given for each element.

The specification notes are considered to reflect designers' solutions to the conditions expressed by the design criteria and should indicate the quality of building achieved.

Specification notes should adequately describe the form of construction and quality of material sufficiently to explain the costs in the analysis.

The element definitions (Section 5) provide a checklist of the items that should be included with each element.

Include costs of any significant items.

Any work included that is not covered by the elemental definition should be noted.

3.5 Credits

Details of the client, consultants and contractor. Permission should be obtained before providing names.

3.6 Drawings

Sufficient drawings should accompany an analysis to aid understanding of the costs. Normally, elevations and a typical floor plan should suffice.

4 Definitions

Element: A major physical part of a building that fulfils a specific function, or functions, irrespective of its design, specification or construction.

Dates

Base date: The contractual date at which the pricing levels have been set. This is defined as 'Date of Tender' in editions of JCT contracts. Under formulae fluctuating contracts it is the base month.
Date for receipt of tenders: The deadline for the receipt of competitive tenders or the date of agreement of negotiated price.
Date of acceptance: The date the price was contractually agreed.
Date of possession of site: The date the site was available to the contractor.

Floor Areas

Gross Internal Floor Area (GIFA): Area of a building measured to the internal face of the perimeter walls at each floor level (see notes).

Includes

- Areas occupied by internal walls and partitions
- Columns, piers chimney breasts, stairwells, lift-wells, other internal projections, vertical ducts, and the like
- Atria and entrance halls with clear height above, measured at base level only
- Internal open sided balconies, walkways, and the like
- Structural, raked or stepped floors are treated as a level floor measured horizontally
- Horizontal floors with permanent access below structural, raked or stepped floors
- Corridors of a permanent essential nature (e.g. fire corridors, smoke lobbies, etc.)
- Mezzanine areas intended for use with permanent access
- Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above main roof level
- Service accommodation such as toilets, toilet lobbies, bathrooms, showers, changing rooms, cleaners' rooms and the like
- Projection rooms
- Voids over stairwells and lift shafts on upper floors
- Loading bays
- Areas with headroom of less than 1.5m
- Pavement vaults
- Garages
- Conservatories

Excludes

- Perimeter wall thickness and external projections
- External open-sided balconies, covered ways and fire escapes
- Canopies
- Voids over or under structural, raked or stepped floors
- Greenhouses, garden stores, fuel stores and the like in residential property

Notes:

1. The definition of Gross Internal Floor Area is taken from the RICS Code of Measuring Practice 6th Edition 2007, Definition of Gross Internal Area.
2. The GIFA excludes the thickness of perimeter walls, but includes the thickness of all internal walls. Therefore, it is necessary to identify what constitutes a separate building, e.g. the sum of the GIFA of a terrace of buildings, treated as separate buildings, will be different from the terrace treated as a single building.
3. Areas of open ground floors and the like should be excluded.
4. 'Internal face' means the structural wall or plaster coat applied to the structural wall, not the surface of internal linings installed by the occupier.
5. Lift rooms, etc. should be included if housed in a roofed structure having the appearance of permanence (e.g. made of brick or similar building material). Areas covered by enclosures designed solely to mask plant, rooflines, etc. should be excluded.

6. The presence of steps or changes in floor levels should be noted.
7. Attention is drawn to the exclusion of voids over atria at upper levels and the inclusion of voids over stairs, etc. Where an atrium-like space is formed to create an entrance feature, and this also accommodates a staircase, this does not become a stairwell but remains an atrium measurable at base level only.
8. Walkways across an atrium at upper levels should be included in the measurement of upper floors.
9. Areas in the roof space intended for use with permanent access should be included in the measurement of upper floors and measured to internal face of the enclosing wall or the roof at floor level.
10. Re-entrant balconies, i.e. open sided balconies within the predominant line of the external wall should be treated as open sided balconies and excluded.

Area of lowest floor:
Area of lowest floor measured to the internal face of the external wall (as for Gross Internal Floor Area) (m^2).

Basement floor area:
Area of all floors below ground floor measured as for Gross Internal Floor Area.

Note: This is not the same as the 'area of lowest floor'.

Ground floor area:
Area of the entrance floor nearest the predominant level of the outside ground measured as for Gross Internal Floor Area.

Upper floor area:
Area of all floors above ground floor measured as for Gross Internal Floor Area. Note: This is not the same as the 'area of upper floors'. See measurement rule for the element unit quantity in element 2.2 Upper Floors.

Note: The sum of Basement, Ground and Upper floor areas should equal the Gross Internal Floor Area.

Usable floor area:
Total area of all enclosed spaces fulfilling the main functional requirements of the building (e.g. office space, shop space, teaching space, etc). Where this is defined by the client, the definition should be stated.

Circulation floor area:
Total area of all enclosed spaces forming entrance halls, corridors, staircases, lift wells, connecting links and the like.

Ancillary floor area:
Total area of all enclosed spaces for lavatories, cloakrooms, cleaners' rooms, lift, plant and tank rooms and the like, supplementary to the main function of the building

Internal divisions floor area:
The area occupied by partitions, columns, chimney breasts, internal structural or party walls.

Note: The sum of the Usable, Circulation, Ancillary and Internal division floor areas should equal the Gross Internal Floor Area.

Net floor area:
Sum of Usable, Circulation and Ancillary floor areas. Note: This is not the same as the Net Internal Area defined in the RICS Code of Measuring Practice.

Floor spaces not enclosed:
Spaces fulfilling a requirement of the building, which are not enclosed spaces, such as open ground floors, open covered ways, open sided balconies and the like, should be shown separately and measured by notionally enclosing the open sides. Exclude eaves, overhangs, sun shading, awnings and the like.

Floor area of internal spaces:
Where the area of an internal space is given, e.g. to calculate treated area or volume for air conditioning, or to define the area of a department, it should be measured to the internal face of the bounding external and internal walls as for Gross Internal Floor Area. Note: This means that the sum of internal spaces will not be the same as the GIFA.

Roof area (as built):
Plan area of a designed roof measured across the eaves overhang or to the inner face of parapet walls. Includes area covered by rooflights. Sloping and pitched roofs should be measured on plan area. Note: This is not the same as the Element Unit Quantity for 2.3 Roof.

Area of vertical enclosure (external wall area):
The wall area of all the enclosed spaces fulfilling the functional requirements of the building, measured on the internal face of external walls and overall windows and doors, etc. This should equal the sum of the element unit quantities for 2.5 External Walls and 2.6 Windows and External Doors.

Wall to floor ratio:
Calculated by dividing the area of vertical enclosure by the Gross Internal Floor Area to three decimal places.

Element unit quantity:
The measurement of each element as given in the element definitions, Section 5.

Treated floor area, Floor area serviced:
The floor area intended to be covered by an installation or system, measured to the internal face of enclosing walls.

Element ratios:
Calculated by dividing the element unit quantity by the Gross Internal Floor Area to three decimal places.

Note: In the case of buildings, where only a part is treated or served by mechanical or electrical installations, indication of this is given by a ratio as follows:

$$\frac{Tm^2}{\text{Gross Internal Floor Area of the building}}$$

Where Tm^2 is the total area in square metres of the various compartments treated or served.

Storey height:
Height measured from floor finish to floor finish. For single-storey buildings and the top floor of multi-storied buildings, the height shall be measured from floor finish to underside of ceiling finish.

Internal cube:
All enclosed spaces fulfilling the requirements of the building. The cube should be measured as the Gross Internal Floor Area of each floor multiplied by its storey height. Exclude any spaces fulfilling a requirement of the building, which are not enclosed spaces, such as open ground floors, open covered ways and the like, which should be shown separately, giving the notional cubic content of each, ascertained by notionally enclosing the open top or sides.

Functional unit:
The functional unit(s) of the building shall be expressed as a number of units of accommodation (e.g. seats in churches, school places, persons per dwelling, etc.), or usable floor area of accommodation provided. Where the functional unit is defined by the client, the definition should be stated (see Appendix 2 for recommended functional units).

Site area: Total site area, excluding any areas used temporarily for the works that do not form part of the delivered site

Note: This is not the same as the Element Unit Quantity for 8 External Works.

5 Element Definitions

This section sets out, for each element:

- ◊ Definition: describing the work included in the element.
- ◊ Functional definition: describing the functional requirement of the building fulfilled by the element.
- ◊ Measurement: rule for measuring the Element Unit Quantity.
- ◊ Design criteria to be stated: design information to be included in the specification, where available.
- ◊ Sub-elements: details of the sub-elements included in the element.
- ◊ Includes/Excludes: list of parts of the building typically included in the element. These are for illustrative purposes only and are not intended to be exhaustive.

0 Facilitating Works

Definition: Work to provide a clear site for construction works.
Notes:

1. This work will often form part of a separate project independent of the building project. Such projects should be analysed into the following work categories. Where some or all of this work is included in the building project, it should be included in the analysis.
2. Stripping out included in a refurbishment or conversion contract is included in 7.1 Minor Demolition and Alteration Works.
3. Works associated with general site preparation and groundworks, minor demolition works, and permanent roads, paths and pavings are included in group-element 8 External Works
4. The provision of temporary roads and services is included in group-element 9 Main Contractor's Preliminaries.

0.1 Toxic/Hazardous/Contaminated Material Treatment

Definition: Removal of toxic or hazardous material.
Functional Definition: Note: Not a functional element; included to account for the cost of works in preparing the site.
Measurement: Site area (m^2).
Design Criteria to be stated: None.

0.1.1 Toxic/Hazardous Material Removal

Includes	Excludes
◊ Removal of toxic or hazardous parts of building fabric (e.g. asbestos) ◊ Removal of toxic or hazardous insulating materials or components from existing services installations, including storage tanks and vessels ◊ Removal of toxic or hazardous chemicals from existing services installations, storage tanks, etc. ◊ Safe disposal	◊ Asbestos survey fees and the like (see 11 Project/Design Team Fees)

0.1.2 Contaminated Land

Includes	Excludes
◊ Removal of contaminated ground material ◊ In-situ treatment of contaminated material	◊ Environmental audits and surveys, preparation of remedial strategy and supervision (see 11 Project/Design Team Fees)

0.1.3 Eradication of Plant Growth: Eradication of invasive plants.

Includes	Excludes
◊ Excavation and disposal ◊ Chemical treatment	◊ Site investigation surveys and supervision (see 11 Project/ Design Team Fees)

0.2 Major Demolition Work

Definition: Taking down to ground level and removing complete buildings/structures or parts of structures, including services, fittings and finishes.
Functional Definition: Note: Not a functional element; included to account for the cost of works in preparing the site.
Measurement: Gross Internal Floor Area of buildings demolished (m^2).
Also state floor area and number storeys for each building demolished. Where available, show cost for each building separately.
Design Criteria to be stated: None.

0.2.1 Demolition Works

Includes	Excludes
◊ Demolition of entire buildings and structures, including removing services installations ◊ Credits for materials arising from demolition works ◊ On-site recycling ◊ Disposal ◊ Disconnecting mains services ◊ Temporary supports to existing basement retaining walls	◊ Work in retaining facades to existing buildings (see 2.5 External Walls)

0.2.2 Soft Strip Works: Stripping out buildings prior to demolition or for tax purposes.

Includes	Excludes
◊ Stripping out of services, fittings, partitions, suspended ceilings, etc. ◊ Clearing rubbish ◊ Stripping out and capping off services	◊ Stripping out for refurbishment and conversion (see 7.1 Minor Demolition and Alteration Works)

0.3 Temporary Supports to Adjacent Structures

Definition: Works to support adjacent structures.
Functional Definition: Note: Not a functional element; included to account for the cost of works in preparing the site.
Measurement: The area walls supported (m^2).
Design Criteria to be stated: None.

Includes	Excludes
◊ Temporary support to adjacent structures including party walls	◊ Work in retaining facades to existing buildings (see 2.5 External Walls)

0.4 Specialist Groundworks

Definition: Works to prepare ground for building.
Functional Definition: Note: Not a functional element; included to account for the cost of works in preparing the site.
Measurement: Site area (m^2).
Design Criteria to be stated: None.

0.4.1 Site Dewatering and Pumping: Lowering level of ground water over the whole site.

Includes	Excludes
◊ Forming well points including filling and equipment ◊ Drain tubes and mains ◊ Sumps, pumps, etc. ◊ Off-site disposal of water ◊ Running cost, maintenance and removal	◊ Permanent land drainage (see 8.6 External Drainage)

0.4.2 Soil Stabilisation Measures: Stabilisation or improvement of bearing capacity or slip resistance of existing ground to facilitate construction.

Includes	Excludes
◊ Soil stabilisation measure including cement or chemical grouting, vibration, ground anchors, soil nailing, pressure grouting, compaction, etc.	◊ Consolidation and compaction of formation level to receive construction (see 1.1 Substructure)

0.4.3 Ground Gas Venting Measures: Systems to prevent accumulation of radon or landfill gases.

Includes	Excludes
◊ Gas proof membranes, collection pipes, radon sumps, vent pipes, fittings and accessories	◊ Gas proof membranes provided by damp proof membranes (see 1.1 Substructure) ◊ Granular venting layers provided by formation for substructure (see l.1 Substructure) ◊ Radon sumps, etc. formed in lowest floor (see 1.1 Substructure)

0.5 Temporary Diversion Works

Definition: Temporary diversion of existing drainage systems, services, rivers, streams and the like.
Functional Definition: Note: Not a functional element; included to account for the cost of works in preparing the site.
Measurement: Site area (m^2).
Design Criteria to be stated: None.

Includes	Excludes
◊ Diversion and reconnection of drains and services ◊ Connections to mains, etc.	

0.6 Extraordinary Site Investigation Works

Definition: Works required to comply with legislation before construction works commence.
Functional Definition: Note: Not a functional element; included to account for the cost of works in preparing the site.
Measurement: Site area (m^2).
Design Criteria to be stated: None.

0.6.1 Archaeological Investigation: Site based archaeological investigation work.

Includes	Excludes
◊ Excavation, screens, temporary works, etc. to facilitate archaeological work	◊ Archaeologist's fees (see 12 Other Development Project Costs)

0.6.2 Reptile/Wildlife Mitigation Measures: Site based work to assist reptile/wildlife removal and relocation.

Includes	Excludes
◊ Temporary fences, barriers and the like ◊ Trapping and relocation of wildlife	◊ Ecologist's fees (see 12 Other Development Project Costs)

0.6.3 Other Extraordinary Site Investigation Works;

Includes	Excludes
◊ Work carried out to facilitate other site investigation	◊ Specialist consultant's fees (see 12 Other Development Project Costs)

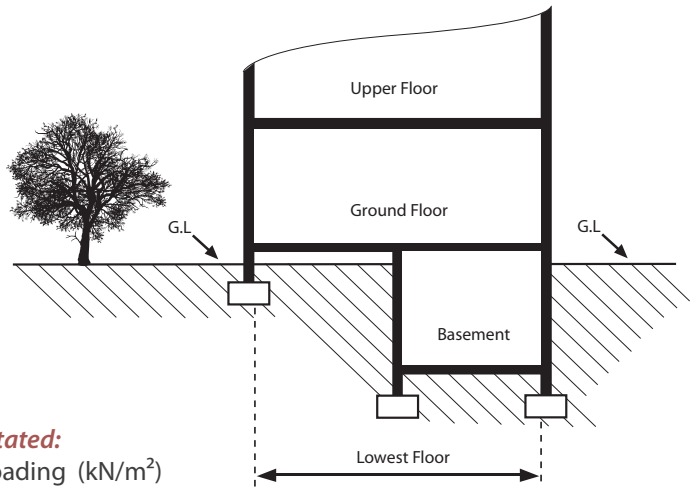
1 Substructure

1.1 Substructure

Definition: All work below underside of screed or, where no screed exists, to underside of lowest floor finishes including damp-proof membrane, together with relevant excavations and foundations (includes walls to basements designed as retaining walls).
Functional definition: To transfer the load of the building to the ground and to isolate it horizontally from the ground.
Measurement: Area of lowest floor measured to the internal face of the external wall (as for gross internal floor area) (m^2).

The cost and area of any lowest floor slab that extends beyond the external wall for a veranda and the like should be shown separately.

Cost and area of basement walls should be shown separately.



Design criteria to be stated:
◊ Permissible soil loading (kN/m^2)
◊ Nature of soil
◊ Bearing strata depth (m)
◊ Site levels: main gradients
◊ Water table depth (m)
◊ Design load (kN)
◊ Thermal requirements
◊ Average pile loading (kN)
◊ Volume of basement requiring excavation (m^3) measured to the internal face of the perimeter walls, i.e. volume of basement below ground level.

1.1.1 Standard Foundations: All standard foundations up to and including the damp-proof course.

Includes

- Wall and column foundations
- Foundation walls to underside of damp-proof course
- Pile caps
- Ground beams
- Insulation
- Damp-proof course
- All relevant excavation, dewatering, backfill, compaction and disposal for the above

Excludes

- Preparatory earth works to form new contours to site (see 8.1 Site Preparation Works)
- Columns and stanchions with relevant casing (see 2.1 Frame)

1.1.2 Specialist Foundations: All specialist foundations up to and including the damp-proof course.

Includes

- Piling
- Caissons
- Ground anchors
- Vibro-compacted columns
- Grouting
- Underpinning
- All relevant excavation, dewatering, backfill, compaction and disposal for the above

Excludes

- Vibro-compaction to the site in general (see 6.1 Site Preparation Works)

1.1.3 Lowest Floor Construction: The entire lowest floor assembly below the underside of screed or lowest floor finish.

Includes

- Beds, slabs, basement slabs
- Raft foundations
- Suspended floors
- Inclined and stepped slabs
- Retaining walls at changes in level
- Lowest floor surface where construction does not provide a platform (e.g. floor boarding to joisted floors)
- Lift pits, etc. below the lowest floor
- Ducts, etc. below the lowest floor slabs
- Swimming pool walls and the like
- Slab thickening for loadbearing walls, machine bases, etc.
- Structural screeds
- Drainage below or within the lowest floor up to the external face of the external wall; including gullies, floor outlets, manholes, etc.
- Sump pits, chambers and the like
- Damp proof membranes
- Insulation
- Membranes, clayboard, etc. beneath slab
- Expansion and contraction joints
- Ground water drainage below lowest floor
- Venting below building (e.g. for Radon)
- All relevant excavation, dewatering, backfill, compaction (including vibro-compaction) and disposal for the above
- Special filling beneath slab

Excludes

- Applied floor finish (see 3.2 Floor Finish)
- Non structural screeds (see 3.2 Floor Finish)
- Hardeners and sealers to slab (see 3.2 Floor Finish)
- Excludes venting to entire site (e.g. for methane) (see 0.1 Toxic/ Hazardous/Contaminated Materials Treatment)
- Basement walls (see 2.5 External Walls)
- Basement floors (see 2.2 Upper Floors)
- Basement roofs (see 2.3 Roof)
- Machine bases constructed on top of slab (see 5.14 Builder's Work in Connection with Services)

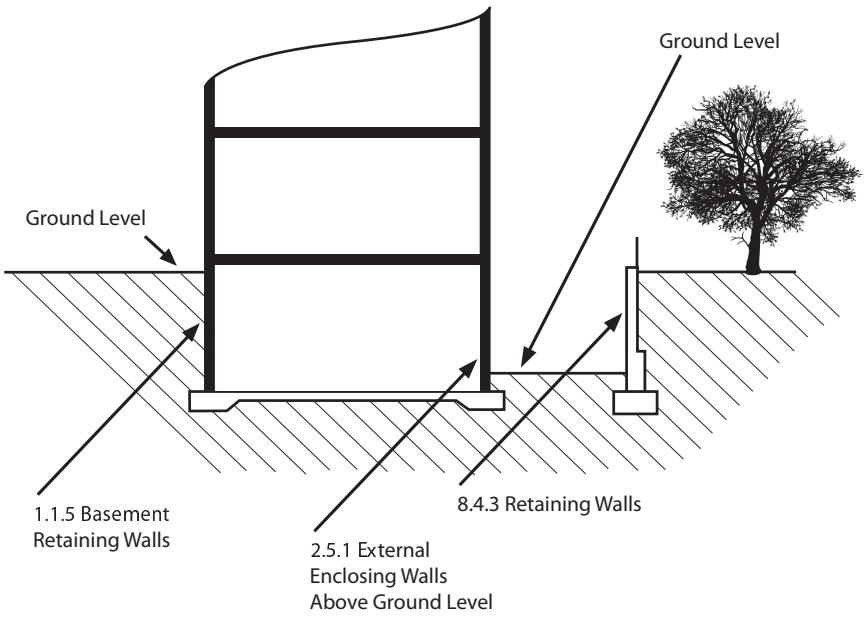
1.1.4 Basement Excavation: All work to basement excavation.

Includes	Excludes
◊ Excavation required for construction of floors below ground level ◊ Temporary support to the excavation (e.g. caissons, sheet piling, and the like) ◊ All relevant dewatering, backfill, compaction and disposal	◊ Preparatory earth works to form new contours to site (see 8.1 Site Preparation Works) ◊ Basement construction (see 2.1 Frame, 2.2 Upper Floors, 2.5 External Walls, etc.)

1.1.5 Basement Retaining Walls: Up to and including the damp proof course.

Includes	Excludes
◊ Basement walls in contact with earthwork ◊ Permanent support to the excavation (e.g. contiguous and secant piling, diaphragm walls, etc.) ◊ Tanking to walls ◊ Applied protection to external tanking ◊ Insulation, membranes, etc. ◊ Ground anchors to basement wall ◊ Ground water pressure relief drains connected to the drainage system	◊ Applied finishes to inner faces of external walls (see 3.1 Wall Finishes) ◊ Internal linings to retaining walls to basements (see 2.5 External Walls) ◊ Basement walls not in contact with earthwork (see 2.5 External Walls) ◊ Retaining walls not providing external walls to building (see 8.4 Fencing, Railings and Walls)

Retaining Walls



2 Superstructure

2.1 Frame

Definition: Loadbearing framework. Main floor and roof beams, ties and roof trusses of framed buildings; casing to stanchions and beams for structural or protective purposes.
Functional definition: To provide a full or partial system of structural support, where this is not provided by other elements.
Measurement: Area of floors related to the frame measured to internal face of external walls (as for Gross Internal Floor Area) (m^2). Include the lowest floor and all upper floors within the frame.
Note: For buildings with open ground floors and the like, exclude the open ground floor area, i.e. for a completely framed building this would equate to the Gross Internal Floor Area.

Design criteria to be stated:
◊ Grid pattern of main columns, give centres in both directions (m).

Includes

◊ Loadbearing framework
◊ Casing to stanchions and beams for structural or protective purposes including fire protection
◊ Site applied fire retarding paint
◊ Panel systems such as off-site manufactured panels; timber frame, light steel frame and structural insulated panels (SIPS) and the like
◊ Cellular constructions such as tunnel form

Excludes

◊ Structural walls that form an integral part of the loadbearing framework (include in 2.5 External Walls, 2.7 Internal Walls and Partitions as appropriate). Note: if the cost of these cannot be separated from the frame, this should be stated
◊ Beams which form an integral part of a floor or roof, which cannot be separated there from (include in 2.2 Upper Floors, 2.3 Roof as appropriate)
◊ Isolated columns and beams, etc. in unframed buildings (include in 2.2 Upper Floors, 2.3 Roof, 2.5 External Walls, 2.7 Internal Walls and Partitions as appropriate)
◊ Lintels (see 2.5 External Walls, 2.7 Internal Walls and Partitions as appropriate)
◊ Permanent formwork to upper floors or roofs (see 2.2 Upper Floors, 2.3 Roof as appropriate)
◊ Applied decorative finishes (See 3 Finishes)

2.2 Upper Floors

Definition: Upper floors including suspended floors over or in basements, service floors, balconies, sloping floors, walkways and top landings, where part of the floor rather than part of the staircase, e.g. in-situ floor slab and PCC stairs.
Functional Definition: To provide floor space on upper levels (i.e. above the lowest floor level).
Measurement: Total area of upper floor measured to the internal face of the external wall (as for Gross Internal Floor Area) (m^2).
Notes:
◊ Sloping surfaces such as galleries, tiered terraces and the like should be measured flat on plan.
◊ Where balconies are included, the area of the upper floors and the lowest floor will exceed the Gross Internal Floor Area.
◊ Area for balconies, galleries, tiered terraces, service floors, walkways, internal bridges, external links, roofs to internal buildings and the like, shall be shown separately.

Costs and measurement should be shown separately for:
◊ Sloping surfaces such as galleries, tiered terraces and the like
◊ Suspended floors over or in basements
◊ Service floors
◊ Balconies
◊ Walkways, internal bridges and external link bridges

Design criteria to be stated:
◊ Design loads (kN/m^2)
◊ Spans (m)
◊ Sound insulation (dB)
◊ Angle of slope (degrees) and area of incline (m^2) for sloping surfaces

2.2.1 Floors

Includes

- ◊ Suspended floors and decks
- ◊ Mezzanine floors
- ◊ Service floors
- ◊ Balconies formed by floor construction
- ◊ Suspended floors over or in basements
- ◊ Sloping surfaces such as galleries, tiered terraces
- ◊ Walkways, internal bridges and external link bridges that are included in the Gross Internal Floor Area
- ◊ Landings to stairs formed as part of the floor slab
- ◊ Beams which form an integral part of the floor in framed buildings
- ◊ Floor beams in unframed buildings
- ◊ Structural screeds
- ◊ Permanent formwork
- ◊ Floor surface where construction does not provide a platform (e.g. floor boarding to joisted floors)
- ◊ Expansion and contraction joints
- ◊ Roofs to internal buildings that are analysed as part of the enclosing building and that provide a platform that is included in the Gross Internal Floor Area

Excludes

- ◊ Floors provided by framing system such as off-site manufactured timber frames or tunnel form (see 2.1 Frame)
- ◊ Landings formed as part of the staircase (see 2.4 Stairs and Ramps)
- ◊ Applied floor finish (see 3.2 Floor Finish)
- ◊ Non structural screeds (see 3.2 Floor Finish)
- ◊ Hardeners and sealers to slab (see 3.2 Floor Finish)
- ◊ Basement roofs (see 2.3 Roof)
- ◊ Balustrades and handrails to internal balconies, atriums, etc. (see 2.7 Internal Walls and Partitions)
- ◊ Attached balconies, Juliet balconies and the like (see 2.5 External Walls)
- ◊ Raised access floors (see 3.2 Floor Finishes)
- ◊ Ceiling finishes (see 3.3 Ceiling Finishes)
- ◊ Suspended ceilings (see 3.3 Ceiling Finishes)
- ◊ Roofs to internal buildings that are analysed as part of the enclosing building and do not provide a platform that is included in the Gross Internal Floor Area (see 3.3 Ceiling Finishes)
- ◊ Roofs to internal buildings if they are the buildings being analysed (see 2.3 Roof)

2.2.2 Balconies: Internal and external balconies, which are not an integral part of the floor construction.

Includes

- ◊ Purpose made balconies, which are not an integral part of the upper floor construction. Comprising bolt-on frame, decking, soffit panels, integral drainage/drainage trays and balustrades/handrails.

Excludes

- ◊ Proprietary bolt-on balconies, Juliet balconies and the like (see 2.5 External Walls)

2.2.3 Drainage to balconies

Includes

- ◊ Outlets; gutters where not integral with the balcony construction
- ◊ Pipes, downpipes

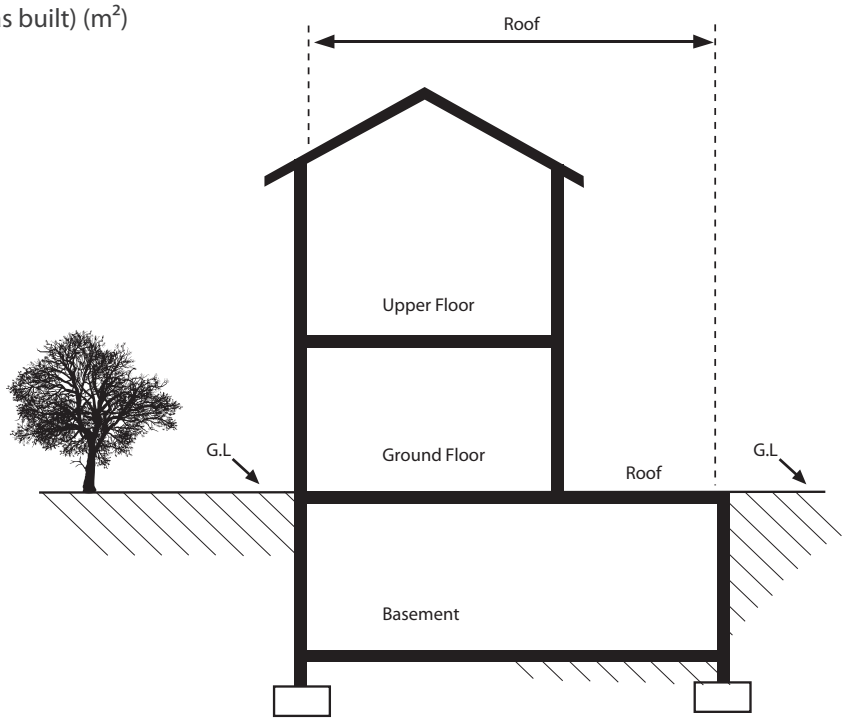
Excludes

- ◊ Outlets; gutters integral with the balcony construction

2.3 Roof

Definition: Roof structure, roof coverings, roof drainage, rooflights and roof features.
Functional Definition: To provide the horizontal component of the external enclosing envelope.
Measurement: Area on plan measured to the internal face of the external wall (m^2).

Design criteria to be stated:
- ◊ Design loads (kN/m^2)
- ◊ Spans (m)
- ◊ Angle of pitch of sloping roofs
- ◊ Area of roof surface
- ◊ Roof area (as built) (m^2)



2.3.1 Roof Structure: All components of the roof structure.

Includes
- ◊ Roof decks and slabs
- ◊ Trusses, purlins and rafters
- ◊ Roof boarding
- ◊ Beams, which form an integral part of the roof in framed buildings
- ◊ Eaves and verge structure
- ◊ Plates and ceiling joists
- ◊ Gable ends, internal walls above plate level formed as part of the roof construction
- ◊ Parapet walls formed as part of the roof construction
- ◊ Basement roofs
- ◊ Roofs to internal buildings if they are the buildings being analysed
- ◊ Roof beams in unframed buildings
- ◊ Structural screeds
- ◊ Permanent formwork
- ◊ Gutter support where integral with roof structures
- ◊ Dormer construction where formed as part of roof structure
- ◊ Prefabricated dormer windows

Excludes
- ◊ Roof platforms provided by framing system such as off-site manufactured timber frames or tunnel form (see 2.1 Frame)
- ◊ Gable ends formed as part of the external wall construction (see 2.5 External Walls)
- ◊ Internal walls in roof formed as part of the internal wall construction (see 2.7 Internal Walls and Partitions)
- ◊ Chimneys (see 2.5 External Walls and 2.7 Internal Walls and Partitions)
- ◊ Roofs to internal buildings (see 2.2 Upper Floors or 3.3 Ceiling Finishes as appropriate)
- ◊ Roof housings (e.g. lift motor and plant rooms) shall be broken down into the appropriate constituent elements
- ◊ Canopies to external areas (see 8.8 Minor Building Works and Ancillary Buildings)
- ◊ Canopies to external doors (see 2.6 Windows and External Doors)
- ◊ Horizontal rain/sun screening and the like providing protection to external walls (see 2.5 External Walls)

2.3.2 Roof Coverings: Protective covering to roof.

Includes

- ◊ Roof finish
- ◊ Roof screeds and finishing
- ◊ Battening, felt, slating, tiling and the like
- ◊ Metal sheeting, thatching, etc.
- ◊ Photovoltaic tiles, sheets, etc. forming an integral part of the roof covering
- ◊ Insulation
- ◊ Wearing surface, paving, etc. to areas and walkways
- ◊ Gutter linings where integral with the covering
- ◊ Flashings and trims
- ◊ Eaves and verge treatment
- ◊ Green roofs (e.g. sedum, etc.) including irrigation systems
- ◊ Covering to parapet walls where integral with the roof covering
- ◊ Covering to dormers where integral with the roof covering

Excludes

- ◊ Vertical cladding to walls where of the same construction as the roof (see 2.5 External Walls)
- ◊ Finishes to ceilings and suspended ceilings under roof structure (see 3.3 Ceiling Finishes)
- ◊ Solar heating panels (see 5.5 Heat Source)
- ◊ Photovoltaic tiles, panels and the like not forming part of the roof covering (see 5.8 Electrical Installations)
- ◊ Floor finishes to balconies (see 3.2 Floor Finishes)
- ◊ Planting for roof gardens (see 4.1 Fittings, Furnishings and Equipment)

2.3.3 Specialist Roof Systems

Includes

- ◊ Patent glazing
- ◊ Glazed/Perspex roof systems
- ◊ Tensile membrane roofs
- ◊ Roof components, flashings, drainage channels, edge treatments

Excludes

- ◊ Vertical cladding to walls where of the same construction as the roof (see 2.5 External Walls)

2.3.4 Roof Drainage: Rainwater disposal systems to roof.

Includes

- ◊ Gutters where not integral with roof or wall structure, rainwater heads and roof outlets
- ◊ Rainwater downpipes

Excludes

- ◊ Rainwater harvesting systems (see 5.4 Water Installations)
- ◊ Drainage to balconies (see 2.2 Upper Floors)

2.3.5 Roof Lights, Skylights and Openings: Roof lights and openings to roof.

Includes

- ◊ Roof lights, skylights, etc.
- ◊ Opening gear, frame, kerb and glazing
- ◊ Glazed roof areas
- ◊ Sun pipes/tubes
- ◊ Pavement lights
- ◊ Roof hatches
- ◊ Access hatches to roof areas
- ◊ Smoke vents

Excludes

- ◊ Access hatches in ceilings to roof voids (see 3.2 Ceiling Finishes)

2.3.6 Roof Features: Roof features not forming part of the main structure.

Includes	Excludes
◊ Turrets ◊ Wind vanes ◊ Finials ◊ Spires ◊ False chimneys ◊ Enclosures designed solely to mask plant, rooflines, etc. (complete structure including wall louvres) ◊ Fall arrest systems ◊ Access systems for cleaning roof ◊ Roof edge protection ◊ Balustrades, handrails and the like to roof edge and to walkways ◊ Service walkways in the roof voids	◊ Building Maintenance Units (BMU) (see 2.5 External Walls) ◊ Façade access systems (see 2.5 External Walls) ◊ Chimneys (see 2.5 External Walls, 2.7 Internal Walls and Partitions or 5.5 Heat Source) ◊ Wall mounted fall arrest systems (see 2.5 External Walls) ◊ Lightning protection, finials, conductor tapes, etc. (see 5.11 Fire and Lightning Protection) ◊ Roof mounted energy generation installations: wind turbines, photovoltaic panels, etc. (see 5.8 Electrical Installations) ◊ Roof mounted solar thermal panels, etc. (see 5.5 Heat source)

2.4 Stairs and Ramps

Definition: Construction of ramps, stairs, ladders, etc. connecting floors at different levels.
Functional Definition: To allow vertical circulation.
Measurement: Number of storey flights (Nr), i.e. the number of staircases multiplied by the number of floors served (excluding the lowest floor served in each case).

Costs and measurement should be shown separately for:
◊ External escape staircases
◊ Ladders
◊ Fire escape chutes/slides

Design criteria to be stated: The total vertical height of each staircase and its width between stringers (m).

2.4.1 Stair/Ramp Structures: Ramps, stairs and landings.

Includes	Excludes
◊ Stairs ◊ Ramps ◊ Landings between floor levels formed as part of the staircase/ramp ◊ Escape staircases	◊ Landings at floor levels formed as part of the floor slab (see 2.2 Upper Floors) ◊ Stairwells (see 2.7 Internal Walls and Partitions) ◊ Sloping floors (see 2.2 Upper Floors)

Note: If the cost of the staircase structure is included in the elements frame or upper floor, this should be stated.

2.4.2 Stair/Ramp Finishes: Finishes to stairs, ramps and landings.

Includes	Excludes
◊ Finishes to treads, risers ◊ Finishes to landings between floor levels ◊ Finishes to ramp surfaces ◊ Finishes to strings ◊ Finishes to the soffits of the staircases ◊ Nosing, trims, etc.	◊ Finishes to landings at floor levels (see (3.2 Floor Finishes or 3.3 Ceiling Finishes as appropriate) ◊ Finishes to stairwells (see 3.1 Wall Finishes)

2.4.3 Stair/Ramp Balustrades and Handrails: Balustrades and handrails to stairs, ramps and landings.

Includes	Excludes
◊ Balustrades and handrails to stairs ◊ Balustrades and handrails to landings between floor levels ◊ Balustrades and handrails to stairwells	◊ Balustrades and handrails to atriums, walkways, etc. (see 2.7 Internal Walls and Partitions)

2.4.4 Ladders/Chutes/Slides

Includes	Excludes
◊ Ladders ◊ Fire escape chutes/slides ◊ Loft ladders ◊ Hatch doors where an integral part of loft ladder	◊ Escape staircases

2.5 External Walls

Definition: External enclosing walls including walls to basements but excluding walls to basements designed as retaining walls and items included with 2.3 Roof and 2.6 Windows and External Doors.
Functional Definition: To provide the vertical component of the external enclosing envelope in conjunction with 2.6 Windows and External Doors.
Measurement: Area of external walls measured on the inner face (excluding openings measured as for 2.6 Windows and External Doors) (m^2). NB: The total of the area of 2.5 External Walls and 2.6 Windows and External Doors should equal the area of the vertical enclosure.

Costs and measurement should be shown separately for:
◊ Walls above ground level
◊ Basement walls
◊ Walls that form an integral part of the loadbearing framework
◊ Walls self finished on internal face
◊ Balcony walls and railings
◊ External wall finishes
◊ Vertical solar/rain screening
◊ Horizontal solar/rain screening

Design criteria to be stated:
◊ Design loads of loadbearing walls (kN/m^2)
◊ Thermal conductivity – U value (W/m^2K)
◊ Sound insulation (dB)
◊ Area of external walls above ground measured on inner face (excluding openings) (m^2)
◊ Area of basement walls measured on inner face (excluding openings) (m^2)

2.5.1 External Enclosing Walls above ground level

Includes

- ◊ External enclosing walls above ground level
- ◊ Parapet walls to roofs formed as part of the wall construction
- ◊ Gable walls formed as part of the wall construction
- ◊ Underside of returns in external walls formed as part of the wall construction
- ◊ Lintels, sills, window boards, cavity damp-proof courses and work to reveals of openings
- ◊ Chimney breasts and stacks forming part of external walls
- ◊ External stair access towers and lift shafts
- ◊ Curtain walling, Structural glazing and the like
- ◊ Sheet cladding incl. cladding rails
- ◊ Weather boarding, tile hanging, etc.
- ◊ Vertical cladding to walls where of the same construction as the roof
- ◊ In fill panels to a frame
- ◊ Planted 'green' walls including irrigation systems
- ◊ Photovoltaic cladding panels, etc. where integral with the cladding system
- ◊ Facade retention
- ◊ Columns and beams in unframed structures
- ◊ Insulation, membranes, etc.
- ◊ Mechanically fixed insulated external cladding systems
- ◊ Work in retaining facades to existing buildings
- ◊ Applied external finishes and decoration

Excludes

- ◊ Party walls in semi-detached or terraced buildings analysed as a block (see 2.7 Internal Walls and Partitions)
- ◊ Roof structures and cladding (see 2.3 Roof)
- ◊ Gable ends, internal walls and chimneys above plate level formed as part of the roof construction (see 2.3 Roof)
- ◊ Parapet walls and balustrades to roofs above plate level formed as part of the roof construction (see 2.3 Roof)
- ◊ Windows and doors (see 2.6 Windows and External Doors)
- ◊ Column and beams to framed structure (see 2.1 Frame)
- ◊ Applied finishes to inner faces of external walls (see 3.1 Wall Finishes)
- ◊ Basement retaining walls in contact with the earth (see 1.1.5 Basement Retaining Walls)
- ◊ Walls to roof enclosures designed solely to mask plant, tank rooms, etc. (see 2.3 Roof)
- ◊ Photovoltaic panels, etc. not integral with the cladding (see 5.8 Electrical Installations)
- ◊ Fireplaces (see 5.6 Space Heating and Air Conditioning)

2.5.2 External Enclosing Walls below ground level

Includes

- ◊ Internal linings to retaining walls in basements

Excludes

- ◊ Basement excavation (see 1.1 Substructure)
- ◊ Temporary or permanent support to the excavation (e.g. caissons, sheet piling, continuous piling, etc.) (see 1.1 Substructure)
- ◊ Basement walls in contact with earthwork (see 1.1 Substructure)
- ◊ Column and beams to framed structure (see 2.1 Frame)
- ◊ Applied finishes to inner faces of external walls (see 3.1 Wall Finishes)

2.5.3 Solar/Rain Screening: Cladding systems, etc. attached to the exterior of the building to protect the external walls.

Includes

- ◊ Vertical and horizontal exterior cladding systems
- ◊ Brise soleil

Excludes

- ◊ External shutters, integral blinds to windows, canopies and the like providing protection to windows and doors (see 2.6 Windows and External Doors)
- ◊ Internal blinds (see 4.1 Fittings, Furnishings and Equipment)

2.5.4 External Soffits

Includes

- ◊ External ceilings, false ceilings, demountable suspended ceilings, etc. to overhangs and returns in walls, and open ground floors and the like
- ◊ Insulation
- ◊ Applied finishes and decoration

Excludes

- ◊ Underside of returns in external walls formed as part of the wall construction

2.5.5 Subsidiary Walls, Balustrades and Proprietary Balconies

Includes	Excludes
◊ Walls, balustrades, railings, etc. to external walkways and balconies formed of the upper floor construction. ◊ Proprietary bolt-on balconies, Juliet balconies and the like	◊ Parapet walls and balustrades to roofs above plate level formed as part of the roof construction (see 2.3 Roof) ◊ Purpose made balconies, which are not an integral part of the upper floor construction. Comprising bolt-on frame, decking, soffit panels, integral drainage/drainage trays and balustrades/ handrails (see 2.2 Upper Floors)

2.5.6 Façade Access/Cleaning Systems

Includes	Excludes
◊ Window and façade cleaning cradles, etc. ◊ Combined façade and roof cleaning systems ◊ Building Maintenance Units (BMUs) ◊ Wall mounted fall arrest systems	◊ Separate access systems for cleaning the roof (see 2.3 Roof) ◊ Roof mounted fall arrest systems (see 2.3 Roof)

2.6 Windows and External Doors

Definition: Windows, doors and openings in external walls.
Functional Definition: To allow access through external walls for physical movement, natural ventilation and light and provide the vertical component of the external enclosing envelope in conjunction with 2.5 External Walls.
Measurement: Total area of windows and external doors measured over frames (m^2). NB: The total of the area of 2.5 External Walls and 2.6 Windows and External Doors should equal the area of the vertical enclosure.

Design criteria to be stated:
◊ Total window area (m^2)
◊ Area of opening lights to windows (m^2)
◊ External door area (m^2)

2.6.1 External Windows: Windows and openings in external walls for ventilation and light.

Includes	Excludes
◊ Windows – sashes, frames, linings and trims ◊ Windows in dormers ◊ Ironmongery and glazing ◊ Shop fronts ◊ Painting and decorations ◊ Roller and sliding shutters, grilles and the like ◊ External blinds, shutters and the like ◊ Fly screens and storm windows ◊ Integral blinds to windows ◊ Solar/rain screens to windows ◊ Canopies and the like providing protection to windows	◊ Glazing that forms an integral part of the cladding system, e.g. structural glazing, curtain walling, etc. (see 2.5 External Walls) ◊ Dormer construction and finish (see 2.3 Roof) ◊ Solar/rain screening to external walls (see 2.5 External Walls) ◊ Lintels, sills, window boards, cavity damp-proof courses and work to reveals of openings (see 2.5 External Walls)

2.6.2 External Doors: Doors and openings in external walls for physical movement.

Includes

- ◊ Doors
- ◊ Fanlights and sidelights
- ◊ Shop fronts
- ◊ Frames, linings and trims
- ◊ Ironmongery and glazing
- ◊ Fly screens and storm doors
- ◊ Roller and sliding shutters, grilles and the like
- ◊ External blinds, shutters and the like
- ◊ Integral blinds to doors
- ◊ Solar/rain screens to doors
- ◊ Canopies and the like providing protection to doors
- ◊ Painting and decorating

Excludes

- ◊ Enclosed porches shall be broken down into the appropriate constituent elements
- ◊ Canopies to external areas (see 8.8 Minor Building Works and Ancillary Buildings)
- ◊ Lintels, thresholds, cavity damp-proof courses and work to reveals of openings. (see 2.5 External Walls)

2.7 Internal Walls and Partitions

Definition: Internal walls, partitions, balustrades, moveable room dividers, cubicles and the like.
Functional Definition: To divide the floor space.
Measurement: Total area of internal walls and partitions measured on the centreline over door openings and the like.

Costs and measurement should be shown separately for:

- ◊ Walls that form an integral part of the loadbearing framework
- ◊ Structural walls in cross-wall construction
- ◊ Other structural and non structural walls and partitions
- ◊ Proprietary partitions
- ◊ Balustrades
- ◊ Moveable room dividers
- ◊ Cubicle partitions including doors

Design criteria to be stated:

- ◊ Sound insulation (dB)
- ◊ Number of WC cubicles (Nr)

2.7.1 Walls and Partitions: Internal walls and partitions.

Includes

- ◊ Internal walls
- ◊ Fixed partitions
- ◊ Demountable partitions
- ◊ Internal store fronts
- ◊ Columns and beams in unframed structures
- ◊ Internal walls in roof formed as part of the wall construction
- ◊ Lintels, thresholds and work to reveals of openings
- ◊ Chimney breasts and stacks, stairwells and lift shafts forming part of internal walls
- ◊ Borrowed lights, glazed screens and the like
- ◊ Insulation and membranes

Excludes

- ◊ Columns and beams to framed structure (see 2.1 Frame)
- ◊ Walls provided by framing system such as off-site manufactured timber frames or tunnel form (see 2.1 Frame)
- ◊ Applied wall finishes (see 3.1 Wall Finishes)
- ◊ Fireplaces (see 5.6 Space Heating and Air Conditioning)

2.7.2 Balustrades and Handrails: Internal balustrades, handrails and other fixed non-storey height divisions.

Includes	Excludes
◊ Balustrades ◊ Low level room dividers ◊ Handrails to atriums, walkways, galleries and the like ◊ Interior balcony fronts	◊ Handrails fixed to walls (see 4.1Fittings, Furnishings and Equipment) ◊ Balustrades and handrails to stairs and staircases (see 2.4 Stairs and Ramps)

2.7.3 Moveable Room Dividers: Moveable partitions intended to divide rooms into smaller spaces.

Includes	Excludes
◊ Sliding/folding partitions ◊ Integral doors ◊ Structural framing to carry the sliding/folding partitions	◊ Sliding/ folding doors in fixed partitions

2.7.4 Cubicles: Proprietary cubicle partitions and doors.

Includes	Excludes
◊ Proprietary WC cubicles and the like ◊ Doors provided with the cubicle partitions ◊ Ironmongery and fittings provided with the cubicle partitions	◊ Walls and partitions forming cubicles

2.8 Internal Doors

Definition: Doors, hatches and other openings in internal walls and partitions.
Functional Definition: To allow physical circulation between internally divided floor space.
Measurement: Number of doors (door openings) (Nr).

Design criteria to be stated:
◊ Number of doors by type and size
◊ Fire rating

Includes	Excludes
◊ Doors ◊ Fanlights and sidelights in conjunction with door ◊ Sliding and folding doors in fixed partitions ◊ Hatches ◊ Roller/sliding shutters and grilles ◊ Frames, linings and trims ◊ Ironmongery and glazing ◊ Painting and decorations	◊ Borrowed lights, glazed screens and the like (see 2.7 Internal Walls and Partitions) ◊ Sliding/ folding partitions (see 2.7 Internal Walls and Partitions) ◊ Doors provided with WC cubicles and the like (See 2.7 Internal Walls and Partitions)

3 Internal Finishes

3.1 Wall Finishes

Definition: Preparatory work and finishes to surfaces of walls and other vertical surfaces internally.
Functional Definition: To provide a functional and/or decorative finish to walls.
Measurement: Total area of finished walls (m^2), i.e. the area of wall to which the finish is applied.

Costs and measurement should be shown separately for:
◊ Finishes to internal walls and partitions
◊ Finishes to inside face of external walls

Design criteria to be stated: None.

Includes

◊ Applied finishes, in-situ and pre-formed including decorations
◊ Sterile and other special finishes
◊ Picture, dado and similar rails
◊ Proprietary impact and bumper guards, protection strips, and corner strips
◊ Insulation which provides a wall finish
◊ Finishes to columns
◊ Finishes to stairwells

Excludes

◊ Self finished surfaces, e.g. fair face work or self-finished partitions included in appropriate element
◊ External finishes to external walls (see 2.5 External Walls)
◊ Fire protection, etc. to frame (see 2.1 Frame)

3.2 Floor Finishes

Definition: Preparatory work and finishes to internal floor surfaces.
Functional Definition: To provide a functional and/or decorative finish to floors.
Measurement: Total area of finished floor, i.e. area of floor to which finish is applied (m^2).

Costs and measurement should be shown separately for:
◊ Finishes to floors
◊ Raised access floors

Design criteria to be stated: None.

3.2.1 Finishes to Floors: Preparatory work finishes applied to floor surfaces.

Includes

◊ Applied finishes, in-situ and preformed
◊ Floor finishes to balconies
◊ Fitted carpets
◊ Non-structural screeds and under screed damp proof membranes
◊ Sheet linings, fixed over floor surface as base for finish, e.g. plywood or similar
◊ Hardeners, sealers, markings and the like
◊ Skirtings
◊ Floating floors, sprung floors and the like special flooring
◊ Sterile and other special finishes
◊ Finishes to swimming pools including tanking
◊ Mat wells and mats thereto

Excludes

◊ Structural screeds (see 1.1 Substructure, 2.2 Upper Floors)
◊ Items included with 2.4 Stairs and Ramps
◊ Flooring surface where the floor construction does not otherwise provide a platform, e.g. if joisted floor, include floor boarding with floors (see 1.1.Substructure, 2.2 Upper Floors)
◊ Loose carpets and mats (see 4.1 Fittings, Furnishings and Equipment)
◊ Machine bases and the like (see 5.14 Builder's Work in Connection with Services)

3.2.2 Raised Access Floors: Construction and finishes of raised access floors.

Includes	Excludes
◊ Access floors ◊ Support systems, platform ◊ Fire and other barriers ◊ Access panels, trunking and outlet boxes supplied with the access floor system ◊ Finishes supplied with access floor system ◊ Skirtings supplied with access floor	◊ Floating floors ◊ Floors that principally provide a source of heating or cooling (see 5.6 Space Heating and Air Conditioning)

3.3 Ceiling Finishes

Definition: Preparatory work and finishes to internal ceiling surfaces.
Functional Definition: To provide a functional and/or decorative finish to ceilings.
Measurement: Total area of finished ceilings, i.e. area of ceiling to which finish is applied (m^2).

Costs and measurement should be shown separately for:
◊ Finishes to soffits of floors
◊ Finishes to soffits of roofs

Design criteria to be stated: None.

3.3.1 Finishes to Ceilings: Preparatory work finishes applied to ceiling surfaces.

Includes	Excludes
◊ Applied in-situ and preformed finishes to ceilings ◊ Decoration ◊ Insulation applied as part of finish ◊ Sides and soffits of beams, bulkheads, etc. not forming part of a wall surface ◊ Cornices, coves, etc. ◊ Sterile and other special finishes	◊ Finishes to soffits of stairs and landings between floors (see 2.4 Stairs and Ramps) ◊ Fire protection, etc. to frame (see 2.1 Frame) ◊ Ceilings to external soffits (see 2.5 External Walls)

3.3.2 False Ceilings

Includes	Excludes
◊ Constructed false ceilings ◊ Support structure ◊ Fire and other barriers ◊ Access hatches in ceiling ◊ Insulation ◊ Applied in-situ and preformed finishes ◊ Cornices, coves, etc. ◊ Roofs to internal buildings, which are analysed as part of the enclosing building and do not provide a platform that is included in the Gross Internal Floor Area	◊ Finishes to soffits of stairs and landings between floors (see 2.4 Stairs and Ramps) ◊ Fire protection, etc. to frame (see 2.1 Frame) ◊ Roofs to internal buildings if they are the buildings being analysed (see 2.3 Roof) ◊ Roofs to internal buildings that are analysed as part of the enclosing building and provide a platform that is included in the Gross Internal Floor Area (see 2.2 Upper Floors) ◊ Ceilings to external soffits (see 2.5 External Walls)

3.3.3 Demountable Suspended Ceilings: Construction and finishes of suspended ceilings.

Includes	Excludes
◊ Suspended ceiling systems ◊ Suspended slatted ceilings ◊ Suspension system ◊ Fire and other barriers ◊ Access hatches in ceiling ◊ Insulation ◊ Cornices, coves, etc.	◊ Finishes to soffits of stairs and landings between floors (see 2.4 Stairs and Ramps) ◊ Fire protection, etc. to frame (see 2.1 Frame) ◊ Ceilings that principally provide a source of heating or cooling (see 5.6 Space Heating and Air Conditioning) ◊ Ceilings to external soffits (see 2.5 External Walls)

4 Fittings Furnishings and Equipment

4.1 Fittings Furnishings and Equipment

Definition: Fittings, fixtures, furniture; works of art, and non-mechanical and electrical equipment. Note: Includes domestic kitchen equipment supplied with kitchen fittings.
Functional Definition: To provide functional and/or decorative items.
Measurement: Gross Internal Floor Area (m^2).

Design criteria to be stated: None.

4.1.1 General Fittings, Furnishings and Equipment

Includes	Excludes
◊ Fixed and loose fittings and furniture including cupboards, wardrobes and the like ◊ Shelving, benches, seating, counters and the like ◊ Bedroom and bathroom fittings ◊ Lockers, hat and coat rails and the like ◊ Blinds, blind boxes, curtains, wall hangings, curtain tracks and pelmets ◊ Mirrors ◊ Loose carpets, mats, etc. ◊ Fireplace surrounds, hearths, etc. ◊ Hand fire extinguishers, fire suppression blankets, water and sand buckets, etc. ◊ Vending machines ◊ Ironmongery to fittings	◊ External blinds and shutters (see 2.6 Windows and External Doors) ◊ Integral blinds to windows (see 2.6 Windows and External Doors) ◊ Ironmongery to doors and windows (see 2.6 Windows and External Doors, 2.8 Internal Doors) ◊ Ironmongery supplied with cubicles (see 2.7 Internal Walls and Partitions) ◊ Sanitary fittings (see 5.1 Sanitary Installations) ◊ Fittings in connection with sanitary installation, e.g. toilet roll holders (see 5.1 Sanitary Installations) ◊ Fitted carpets and mats supplied with matwells (see 3.2 Floor Finishes) ◊ Fire fighting installations (see 5.11 Fire and Lightning Protection)

4.1.2 Domestic Kitchen Fittings and Equipment: Fittings, equipment and appliances supplied with the kitchen.

Includes	Excludes
◊ Domestic kitchen units and equipment ◊ Kitchen cupboards ◊ Sinks, taps, traps, etc. ◊ Ovens, hobs, refrigerators, dishwashers, washing machines, etc. supplied with the kitchen	◊ Catering equipment (see 5.2 Services Equipment) ◊ Sinks, not supplied with the kitchen (see 5.1 Sanitary Installations) ◊ Washing machines not supplied with the kitchen (see 5.2 Services Equipment)

4.1.3 Special Purpose Fittings, Furnishings and Equipment

Includes

◊ Fittings, furnishing and non-mechanical and non-electrical equipment related to the function of the building, e.g. medical, dental, entertainment, sports, religious, education, scientific, etc.

Excludes

◊ Mechanical and electrical equipment (see 5.2 Services Equipment)
◊ Refuse disposal equipment (see 5.3 Disposal Installation)

4.1.4 Signs/Notices

Includes

◊ Directional signboards
◊ Blackboards, whiteboards, pin-up boards, notice boards
◊ Nameplates, lettering, numbering

Excludes

◊ Illuminated display signs (see 5.8 Electrical Installations)

4.1.5 Works of Art

Includes

◊ Works of art
◊ Decorative features

Excludes

◊ Applied or fixed decorative features included in finishes or other elements
◊ Water features (see 5.13 Special Installations/Systems)

4.1.6 Non-Mechanical and Non-Electrical Equipment

Includes

◊ Non-mechanical and non-electrical equipment
◊ Removable disabled access equipment
◊ Removable ladders and the like

Excludes

◊ Mechanical and electrical equipment (see 5.2 Services Equipment)
◊ Conveying systems (see 5.10 Lift and Conveyor Installations)
◊ Fixed ladders (see 2.4 Stairs and Ramps)

4.1.7 Internal Planting

Includes

◊ Internal planting and containers
◊ Planting and containers to roof gardens and the like

Excludes

◊ Plant containers formed by the building fabric (see appropriate fabric elements)
◊ Green roofs (see 2.3 Roof)

4.1.8 Bird and Vermin Control

Includes

◊ Wires, nets traps and the like
◊ Electronic and sonic systems
◊ Bird repellent coatings

Excludes

5 Services

5.1 Sanitary Installations

Definition: Baths, basins, sinks, WCs and the like.
Functional Definition: To provide sanitary appliances.
Measurement: Number of fittings (Nr).

Notes on measurement:
◊ Count sanitary fittings only, exclude ancillary items.
◊ Include the designed number of occupants for continuous urinals and the like.

Costs and measurement should be shown separately for:
◊ Domestic sanitary fittings
◊ Specialist sanitary fittings

Design criteria to be stated: None.

5.1.1 Sanitary Appliances: Sanitary appliances and fittings provided in connection therewith.

Includes
◊ Baths, basins, sinks, slop sinks, drinking fountains, etc.
◊ Jacuzzi baths, domestic saunas and the like
◊ WCs, urinals, showers and the like
◊ Special hygiene fittings such as medic baths, sluices, etc.
◊ Vanity units supplied with appliances
◊ Traps, waste fittings, overflows and taps as appropriate
◊ Integrated plumbing systems, booster pumps, water saving devices

Excludes
◊ Sinks supplied with domestic kitchen fittings (see 4.1 Fittings, Furnishings and Equipment)
◊ Sinks included with catering, medical equipment, etc. (see 5.2 Services Equipment)
◊ Commercial Jacuzzis, saunas and the like (see 5.13 Specialist Installations/Systems)
◊ Waste pipes (see 5.3 Disposal Installations)
◊ Hot and cold water distribution (see 5.4 Water Installations)
◊ Toilet/bathroom pods (see 6.1 Prefabricated Buildings and Building Units)

5.1.2 Sanitary Ancillaries

Includes
◊ Shower, bath cubicles, screens, curtains and rails
◊ Toilet-roll holders, towel rails, etc.
◊ Hand dryers, towel dispensers
◊ Sanitary incinerators, macerators

Excludes
◊ Proprietary WC cubicles and the like (see 2.7 Internal Walls and Partitions)

5.2 Services Equipment

Definition: Mechanical and electrical equipment.
Functional Definition: To provide serviced equipment.
Measurement: Number of fittings (Nr).
Notes on Measurement:
◊ Count fittings only: exclude ancillary items

Costs and measurement should be shown separately for:
◊ Domestic level fittings, e.g. fridge to office tea point
◊ Commercial level fittings, e.g. laundry equipment in commercial laundry
◊ Specialist fittings, e.g. health equipment in a hospital, clinic and the like

Design criteria to be stated: None.

Includes	Excludes
◊ Free standing or fixed mechanical and electrical equipment ◊ Mechanical and electrical equipment related to the function of the building, e.g. medical, dental, entertainment, sports, religious, education, scientific, etc. ◊ Kitchen (catering) equipment ◊ Laundry equipment ◊ Free standing non-ducted fume cupboards	◊ Non-mechanical and electrical equipment (see 4.1 Fittings, Furnishings and Equipment) ◊ Equipment supplied with domestic kitchen fittings (see 4.1 Fittings, Furnishings and Equipment) ◊ Drainage (see 5.3 Disposal Installations) ◊ Local incinerators (see 5.3 Disposal Installations) ◊ Water supply (see 5.4 Water Installations) ◊ Electrical power supply (see 5.8 Electrical Installations) ◊ Ducted fume cupboards and fume extraction systems (see 5.7 Ventilation) ◊ Sanitary incinerators, macerators (see 5.1 Sanitary Installations) ◊ Fuel supply (see 5.9 Fuel Installations)

5.3 Disposal Installations

Definition: Internal drainage, refuse disposal and chemical and industrial liquid waste disposal to the external face of the external walls.
Functional Definition: To remove liquid and solid waste from the building.
Measurement: Number of fittings serviced, i.e. total of items listed below (Nr).

Costs and measurement should be shown separately for:
◊ Foul drainage: Number of sanitary appliances (5.1) and services equipment fittings (5.2) (Nr).
◊ Chemical, toxic and industrial liquid waste entry points (Nr)
◊ Refuse disposal:
  ◊ *Number of self contained fittings (Nr)*
  ◊ *Number of entry points to rubbish chutes, etc. (Nr)*

Design criteria to be stated: None.

5.3.1 Foul Drainage above ground: Waste pipes to sanitary appliances, services. equipment, etc.

Includes	Excludes
◊ Waste pipes, traps and fittings ◊ Soil, anti-syphonage and ventilation pipes ◊ Floor channels, gratings and drains within buildings up to external face of external walls ◊ Sump pumps, etc.	◊ Rainwater gutters and downpipes (see 2.3 Roof) ◊ Drainage to balconies (see 2.2 Upper Floors) ◊ Collection pipework to rainwater/grey water harvesting systems (see 5.4 Water Installations) ◊ Drainage below or within lowest floor slab (see 1.1 Substructure)

5.3.2 Chemical, Toxic and Industrial Liquid Waste Drainage

Includes	Excludes
◊ Separate waste systems for chemical, industrial, process and toxic waste ◊ Storage and treatment tanks and equipment within the building	

5.3.3 Refuse Disposal: Refuse chutes, local incinerators and the like.

Includes	Excludes
◊ Refuse ducts, chutes and bins ◊ Waste disposal units including grinding, shredding, compaction, etc. units ◊ Local incinerators and flues thereto	◊ Water distribution (see 5.4 Water Installations) ◊ Electrical power supply (see 5.8 Electrical Installations) ◊ Central vacuum cleaning (see 5.13 Specialist Installations/ Systems)

5.4 Water Installations

Definition: Mains supply, hot and cold water services, steam and condensate services.
Functional Definition: To provide water and steam.
Measurement: Floor area serviced by water installation (m^2).

Costs and measurement should be shown separately for:
◊ Mains supply draw-off points
◊ Cold water draw-off points
◊ Hot water draw-off points
◊ Steam and condensate draw-off points

Design criteria to be stated: Total number of draw-off points (Nr).

5.4.1 Mains Water Supply: Incoming water main from external face of external wall at point of entry into buildings.

Includes
◊ Water main pipework
◊ Pipework fittings
◊ Valves
◊ Water meters
◊ Rising main to (but excluding) storage tanks
◊ Mains supply to fittings
◊ Insulation, trace heating, etc.

Excludes
◊ Water storage tanks
◊ Taps to sanitary fittings (see 5.1 Sanitary Installations)
◊ Taps and valves to services equipment (see 5.2 Services Equipment)

5.4.2 Cold Water Distribution: Cold water supply from storage tanks to appliances and equipment.

Includes
◊ Storage tanks
◊ Distribution pipework to sanitary appliances and to services equipment
◊ Pipework fittings
◊ Pumps, pressure boosters
◊ Valves and taps to pipework
◊ Insulation, trace heating, etc.
◊ Internal rainwater/grey water harvesting systems including collection pipework

Excludes
◊ Taps to sanitary fittings (see 5.1 Sanitary Installations)
◊ Taps and valves to services equipment (see 5.2 Services Equipment)
◊ Header tanks, cold water supplies, etc. for heating systems (see 5.5 Heat Source)
◊ External rainwater harvesting systems (see 8.7 External Services)

5.4.3 Hot Water Distribution: Hot water and/or mixed water supply from, and including, storage cylinders, etc. to appliances and equipment.

Includes
◊ Storage cylinders, calorifiers
◊ Distribution pipework to sanitary appliances and services equipment
◊ Pipework fittings
◊ Pumps, pressure boosters
◊ Valves and taps to pipework
◊ Insulation, trace heating, etc.

Excludes
◊ Taps to sanitary fittings (see 5.1 Sanitary Installations)
◊ Taps and valves to services equipment (see 5.2 Services Equipment)

5.4.4 Local Hot Water Distribution: Local hot water heaters.

Includes	Excludes
◊ Instantaneous water heaters and the like	

5.4.5 Steam and Condensate Distribution: Steam distribution and condensate return pipework to and from services equipment within the building.

Includes	Excludes
◊ Incoming steam heating main from external face of external wall to heat exchanger ◊ Steam distribution and condensate return pipework to and from services equipment ◊ Pipework fittings ◊ Valves and taps to pipework ◊ Insulation	◊ Taps and valves to services equipment (see 5.2 Services Equipment) ◊ Steam and condensate pipework installed in connection with space heating or the like (see 5.5 Heat Source or 5.6 Space Heating and Air Conditioning as appropriate) ◊ Locally generated steam equipment and installations (see 5.2 Services Equipment or 5.13 Special Installations/Systems)

5.5 Heat Source

Definition: Boilers and other sources of heat production for heating, hot water and power generation, including combined heat and power and ancillary installations.
Functional Definition: To provide a central source of heat.
Measurement: Rating in kilowatts (kW).
Costs and rating should be shown separately for each heat source.

Design criteria to be stated: None.

Includes	Excludes
◊ Boilers ◊ Combined heat and power (CHP) installations ◊ Step down/non-storage calorifiers connected to external heat source ◊ Heat extraction heat pumps on extract vents ◊ Solar heating panels ◊ Geothermal earth heat exchange systems and the like ◊ Water or steam mains, pumps, valves and other equipment from district heating systems ◊ Mounting ◊ Firing equipment, pressurising equipment ◊ Instrumentation and controls to heat source ◊ Forced draft fans ◊ Gantries ◊ Flues and chimneys including forced draft extract ◊ Fuel storage supplied in connection with heat source ◊ Fuel conveyors ◊ Cold and treated water supplies and tanks supplied in connection with the heat source ◊ Fuel storage pipework, etc. ◊ Insulation	◊ Heat distribution and delivery (see 5.6 Space Heating and Air Conditioning) ◊ Fuel storage not supplied in connection with heat source (see 5.9 Fuel Installations) ◊ Chimneys and flues, which are an integral part of the structure, shall be included with the appropriate structural element ◊ Local heat source (see 5.6 Space Heating and Air Conditioning) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems) ◊ Photovoltaic tiles, panels and the like (see 5.8 Electrical Installations) ◊ Other electricity generation plant that does not directly produce heat (see 5.8 Electrical Installations) ◊ Fuel storage tanks not supplied with the heat source (see 5.9 Fuel Installations) ◊ Fuel storage installations external to the buildings (see 8.7 External Services)

5.6 Space Heating and Air Conditioning

Definition: Heating, cooling and air conditioning systems and fixed equipment.
Functional Definition: To control the internal temperature and/or air quality.
Measurement: Treated floor area (m^2).
Costs and measurement should be shown separately for each system.

Costs should be shown separately for:
◊ Central plant
◊ Primary distribution
◊ Secondary distribution
◊ Heat emission units

Design criteria to be stated: Treated volume (m^3), i.e. the floor area of treated spaces multiplied by their storey height should also be stated. N***ote:*** Atriums, etc. should be measured full height.

5.6.1 Central Heating: Systems where heating is generated centrally or electric systems designed to service more than one space.

Includes
◊ Radiator systems
◊ Convection systems
◊ Fan assisted convection systems
◊ Plenum air heating systems
◊ Electric cable heating systems
◊ Electric heating system, including storage radiators
◊ Under floor systems
◊ Distribution pipework and pipe work fittings
◊ Heat emission units (radiators, pipe coils, etc.)
◊ Valves and fittings
◊ Ductwork
◊ Air handling equipment
◊ Grilles, fans, filters, etc.
◊ Cables
◊ Instrumentation and control to system
◊ Insulation

Excludes
◊ Heat source (see 5.5 Heat Source)
◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.6.2 Local Heating: Systems where heating is generated in or adjacent to the space to be treated.

Includes
◊ Fireplaces, radiant heaters, small electrical or gas appliances, etc.
◊ Chimneys and flues to local heating, which are not an integral part of the structure
◊ Instrumentation and controls
◊ Insulation

Excludes
◊ Fire place surrounds, hearths and the like (see 4.1 Fittings, Furnishings and Equipment)
◊ Chimneys and flues, which are an integral part of the structure, shall be included with the appropriate structural element (see 2.5 External Walls and 2.7 Internal Walls and Partitions)
◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.6.3 Central Cooling: Systems where cooling is performed at a central point and distributed to the space being treated.

Includes

- ◊ Chilled beams
- ◊ Fan coil systems for cooling only
- ◊ Air based systems – variable air volume (VAV) for cooling only
- ◊ Variable refrigerant volume (VRV) systems
- ◊ Chillers and central refrigeration plant
- ◊ Distribution pipework and pipework fittings
- ◊ Cold and treated water feeds
- ◊ Ductwork,
- ◊ Grilles, fans, filters, etc.
- ◊ Air handling units
- ◊ Valves and fittings
- ◊ Emission equipment incl. fan coil units, chilled beams, etc.
- ◊ Cooling towers
- ◊ Instrumentation and control to system
- ◊ Insulation

Excludes

- ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)
- ◊ External cooling towers (see 8.8 Minor Buildings Works and Ancillary Buildings)

5.6.4 Local Cooling: Systems where cooling is performed in or adjacent to the space to be treated.

Includes

- ◊ Local cooling units including those with remote condensers
- ◊ Distribution pipework and pipework fittings
- ◊ Ductwork,
- ◊ Grilles, fans, filters, etc.
- ◊ Valves and fittings
- ◊ Instrumentation and control to system
- ◊ Insulation

Excludes

- ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.6.5 Central Heating and Cooling: Combined systems where heating and cooling are performed at a central point and distributed to the space being treated.

Includes

- ◊ Fan coil systems for heating and cooling
- ◊ Air based systems – variable air volume (VAV) for heating and cooling
- ◊ Reverse cycle heat pump systems
- ◊ Chillers
- ◊ Distribution pipework and pipework fittings
- ◊ Ductwork
- ◊ Grilles, fans, filters, etc.
- ◊ Air handling units
- ◊ Valves and fittings
- ◊ Emission equipment including fan coil units, etc.
- ◊ Instrumentation and control to system
- ◊ Sound attenuators
- ◊ Insulation

Excludes

- ◊ Heat source (see 5.5 Heat Source)
- ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.6.6 Local Heating and Cooling: Combined systems where heating and cooling are performed in or adjacent to the space to be treated.

Includes

- Local heating and cooling units including those with remote condensers
- Distribution pipework and pipework fittings
- Ductwork
- Grilles, fans, filters, etc.
- Valves and fittings
- Instrumentation and control to system
- Insulation

Excludes

- Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.6.7 Central Air Conditioning: Combined systems where heating, cooling, dehumidification and other air treatments are performed at a central point and ducted to the space being treated. State the air treatments included in the systems, e.g.

- Heating
- Cooling
- Humidification/dehumidification
- Filtration
- Pressurisation

Includes

- Plenum air heating systems
- Air based systems – variable air volume (VAV) and constant volume systems
- Dual duct and induction systems
- Chillers
- Air handling units
- Emission equipment
- Distribution pipework and pipework fittings
- Ductwork
- Grilles, fans, filters, etc.
- Valves and fittings
- Instrumentation and control to system
- Sound attenuators
- Insulation

Excludes

- Heat source (see 5.5 Heat Source)
- Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.6.8 Local Air Conditioning: Combined systems where heating, cooling dehumidification and other air treatments are performed in or adjacent to the space to be treated. State the air treatments included in the systems, e.g.

- ◊ Heating
- ◊ Cooling
- ◊ Humidification/dehumidification
- ◊ Filtration
- ◊ Pressurisation

Includes

- ◊ Local air conditioning units including those with remote condensers
- ◊ Separate clean room or other local systems requiring air management
- ◊ Independent air curtains to entrances
- ◊ Distribution pipework and pipework fittings
- ◊ Ductwork
- ◊ Grilles, fans, filters, etc.
- ◊ Valves and fittings
- ◊ Instrumentation and control to system
- ◊ Insulation

Excludes

- ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.7 Ventilation Systems

Definition: Ventilating system not incorporating heating or cooling installations.
Functional Definition: To provide the movement of air.
Measurement: Treated floor area (m^2).

Costs and measurement should be shown separately for each system.

Design criteria to be stated: Treated volume (m^3), i.e. the floor area of treated spaces multiplied by their storey height should also be stated. ***Note:*** Atriums, etc. should be measured full height.

5.7.1 Central Ventilation: Systems where ventilation is performed at a central point and distributed to the space being treated.

Includes

- ◊ Extraction units
- ◊ Fan units
- ◊ Supply and extract ductwork including fittings, dampers, etc.
- ◊ Grilles, filters, etc.
- ◊ Fire dampers
- ◊ Valves and fittings
- ◊ Mounting
- ◊ Gantries
- ◊ Instrumentation and control to system
- ◊ Sound attenuators
- ◊ Insulation

Excludes

- ◊ Space heating and cooling installations (see 5.6 Space Heating and Air Conditioning)
- ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.7.2 Local and Special Ventilation: Systems where ventilation is performed in or adjacent to the space to be treated.

Includes	Excludes
◊ Toilet ventilation ◊ Kitchen ventilation ◊ Ducted fume cupboards and fume extraction systems ◊ Dust extraction systems ◊ Cyclone systems ◊ Unit extract fans ◊ Rotating ventilators ◊ Roof mounted ventilation units ◊ Ductwork, ◊ Grilles, fans, filters, etc. ◊ Valves and fittings ◊ Instrumentation and control to system ◊ Sound attenuators ◊ Insulation	◊ Space heating and cooling installations (see 5.6 Space Heating and Air Conditioning) ◊ Free standing non-ducted fume cupboards (see 5.2 Services Equipment) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.7.3 Smoke Extract/Control

Includes	Excludes
◊ Extraction units ◊ Fan units ◊ Supply and extract ductwork including fittings, dampers, etc. ◊ Grilles, filters, etc. ◊ Fire dampers ◊ Valves and fittings ◊ Mounting ◊ Gantries ◊ Instrumentation and control to system ◊ Sound attenuators ◊ Insulation	◊ Space heating and cooling installations (see 5.6 Space Heating and Air Conditioning) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.8 Electrical Installations

Definition: Electric source and mains, power distribution, electric lighting distribution and fittings.
Functional Definition: To provide electrical power, and to control the light levels (electrically).
Measurement: Floor area serviced by electrical installation (m^2).

Costs and measurement should be shown separately for each system.

Design criteria to be stated:
◊ Number of power outlet points and light fittings
◊ Total electric load (kVA)
◊ Illumination levels (lux)
◊ Total capacity of local electricity generation (percentage of total electric load)
◊ Total capacity for emergency generation (percentage of total electric load)
◊ Total capacity and period for uninterruptible power supply (percentage of total electric load and minutes of provision)

5.8.1 Electric Mains and Sub-mains Distribution: All work from external face of building (the supplier's meter), up to and including local distribution boards.

Note: Show high voltage and low voltage supplies separately.

Includes	Excludes
◊ Main switchgear ◊ Transformer equipment ◊ Main and sub-main cables ◊ Control gear, power factor correction equipment ◊ Conduits, trunking and trays; fittings and supports ◊ Earthing	◊ External electricity generation, photovoltaic panels, wind turbines, etc. (see 8.7 External Services)

5.8.2 Power Installations: (Small power) General purpose power supplies and supply to other services installations.

Includes	Excludes
◊ Wiring and cables from local distribution boards, etc. to and including outlet points ◊ General purpose socket outlets ◊ Other outlet points ◊ Uninterruptible power supply (UPS) systems and other rechargeable stand-by equipment ◊ Power to installations in other elements, e.g. heat source, lifts, etc. (Note: power supply to each installation should, where possible, be shown separately) ◊ Conduits, trunking and trays; fittings and supports ◊ Switches ◊ Earthing	◊ Electric heating installations (see 5.6 Space Heating and Air Conditioning) ◊ Final connections to installations and equipment in other elements carried out by supplier.

5.8.3 Lighting Installations: Electrical power supply to lighting.

Includes	Excludes
◊ Wiring and cables from local distribution boards and fittings to outlet points and switches ◊ Outlet points, standard fitments, roses, pendants and the like ◊ Light fittings, luminaires and lamps including fixing ◊ Switches ◊ Lighting fixed to the exterior of the building supplied as part of the interior system ◊ Emergency lighting ◊ Conduits, trunking and trays; fittings and supports ◊ Controls and sensors ◊ Earthing	◊ External lighting (see 8.7 External Services) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.8.4 Specialist Lighting Installations: Specialist lighting installations, e.g. display lighting, illuminated signs, stage lighting, studio lighting, operating theatre lighting and the like.

Includes	Excludes
◊ Wiring and cables from local distribution boards and fittings to outlet points and switches ◊ Outlet points ◊ Light fittings, luminaires and lamps including fixing ◊ Switches ◊ Conduits, trunking and trays; fittings and supports ◊ Controls and sensors ◊ Earthing	◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.8.5 Local Electricity Generation Systems: Local electric generation, emergency power supplies, etc.

Includes	Excludes
◊ Emergency power supply (EPS) generators ◊ Photovoltaic tiles, panels the like not forming part of the roof covering ◊ Wind turbines, etc. ◊ Fuel storage, pipework, etc. for generators ◊ Ancillary wiring, fittings, equipment and controls ◊ Earthing	◊ Central Heat and Power (CHP) boilers (see 5.5 Heat Source) ◊ Photovoltaic tiles, sheets, etc. forming an integral part of the roof covering (see 2.3 Roof) ◊ Solar heating panels (see 5.5 Heat Source) ◊ External electricity generation, photovoltaic panels, wind turbines, etc. (see 8.7 External Services) ◊ External fuel storage (see 8.7 External Services) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.8.6 Earthing and Bonding Systems: Separate earthing systems.

Includes	Excludes
◊ Tapes ◊ Earthing rods ◊ Cabling and connectors	◊ Earthing provided with individual systems

5.9 Fuel Installation/Systems

Definition: Fuel services from meter or from point of entry to appliances and equipment.
Functional Definition: To provide fuel as a source of energy.
Measurement: Floor area serviced by the systems using the fuel (m^2).
Different types of supply, e.g. gas, oil, petrol, diesel, liquefied petroleum gas (LPG), etc. should be shown separately.

Design criteria to be stated: Number of draw-off points (Nr).

5.9.1 Fuel Storage: Fuel storage tanks and vessels.

Includes	Excludes
◊ Fuel storage tanks not supplied with the heat source ◊ Solid fuel bunkers	◊ Medical and specialist gas supply (see 5.13 Special Installations/ Systems) ◊ Fuel storage supplied in connection with heat source (see 5.5 Heat Source) ◊ Fuel storage installations external to the building (see 8.7 External Services) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems) ◊ Fuel bunds (see 5.14 Builder's Work In Connection with Services)

5.9.2 Fuel Distribution Systems: From external face of building or point of mains connection within buildings up to user draw-off points.

Includes	Excludes
◊ Pipework, fittings, pumps, etc. ◊ Insulation ◊ Solid fuel conveyors and feed systems	◊ Fuel distribution systems and mains connections external to the building (see 8.7 External Services)

5.10 Lift and Conveyor Installations/Systems

Definition: Lifts, hoists, escalators, moving pavements, stair lifts, conveyors, cranes, document handling and the like.
Functional Definition: To provide vertical and horizontal mechanical transportation.
Measurement: Number of stops (Nr), i.e. the number of lifts multiplied by the number of floors served (excluding the lowest floor served in each case); include non-stopping floors of express lifts.

Also show
◊ Passenger lifts: Number of stops (Nr). Wall climbing and conventional lifts should be shown separately
◊ Goods lifts: (in enclosed shafts): Number of stops (Nr)
◊ Escalators: Number of storey flights (Nr), i.e. the number of escalators multiplied by the number of floors served (excluding the lowest floor served in each case)
◊ Travelators: length of travel (m)
◊ Hoists, cranes, etc. (not enclosed in shafts): Total rise (m)
◊ Conveyors: length of travel (m). People conveyors and goods conveying systems should be shown separately
◊ Dock levellers, scissor lifts: Total rise (m)

Costs and measurement should be shown separately for each type of lift, escalator, etc.

Design criteria to be stated:
◊ Lifts – peak passenger numbers and designed waiting times
◊ Lifts – number, capacity, speed, number of doors and height served
◊ Escalators – rise and travel of escalators (m)
◊ Conveyors – rise and travel of escalators (m)
◊ Goods lifts, hoists, cranes, dock levellers, scissor lifts, etc. – designed load (kN)

5.10.1 Lifts and Enclosed Hoists: Passenger and goods lifts and hoists enclosed in shafts.

Includes	Excludes
◊ The complete lift installation ◊ Wall climbing lifts ◊ Dumbwaiters and other enclosed vertical goods delivery systems ◊ Gantries, trolleys, blocks, hooks and ropes, downshop leads, pendants, etc. ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Shafts formed by the building structure ◊ General purpose power supplies (see 5.8 Electrical Installations) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.10.2 Escalators: Escalators, travelators, stair lifts, etc. for the movement of people.

Includes	Excludes
◊ Escalator installation ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.10.3 Moving Pavements: Moving pavements, travelators for the movement of people.

Includes	Excludes
◊ Moving pavements, travelators and the like ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.10.4 Powered Stairlifts: Stairlifts for the movement of people.

Includes	Excludes
◊ Stairlifts ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.10.5 Conveyors: Conveyors, etc. for movement of materials and goods.

Includes	Excludes
◊ Complete conveyor systems ◊ Specialist systems, e.g. baggage handling systems and the like ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

5.10.6 Dock Levellers and Scissor Lifts: Localised lifting systems for goods and people.

Includes	Excludes
◊ Dock levellers ◊ Scissor lifts ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.10.7 Cranes and Unenclosed Hoists: Moveable lifting systems primarily for goods.

Includes	Excludes
◊ Cranes ◊ Travelling cranes ◊ Hoists and other lifting systems for materials and goods ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.10.8 Car Lifts, Car Stacking Systems, Turntables and the like: Vehicle lifting and moving systems.

Includes	Excludes
◊ Car lifts, car stacking systems, etc ◊ Vehicle turntables ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.10.9 Document Handling Systems: Systems for the delivery of documents and commodities.

Includes	Excludes
◊ Document handling/delivery systems ◊ Warehouse picking systems ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.10.10 Other Lift and Conveyor Installations: Systems for movement of people and goods not covered elsewhere.

Includes	Excludes
◊ Powered hoists for moving people with a disability ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.11 Fire and Lightning Protection

Definition: Fire suppression systems, fire fighting and lightning protection installations.
Functional Definition: To protect the building and its inhabitants from hazards.
Measurement: Floor area serviced (protected) (m^2).
Costs and measurement should be shown separately for each installation.

Design criteria to be stated: None.

5.11.1 Fire fighting Systems: Services and equipment for manual fire fighting.

Includes	Excludes
◊ Hose-reels ◊ Foam inlets ◊ Dry risers ◊ Wet risers where only serving fire fighting equipment ◊ Pipework, valves, etc. ◊ Insulation	◊ Water supply (see 5.4 Water Installations) ◊ Hand extinguishers, fire suppression blankets, water and sand buckets (see 4.1 Fittings, Furnishings and Equipment)

5.11.2 Fire Suppression Systems: Sprinkler, dry chemical, foam and inert gas extinguishing installations and the like.

Includes	Excludes
◊ Sprinkler and deluge installation ◊ Dry chemical, foam and inert gas extinguishing systems ◊ Tanks, control mechanism, pipework, discharge heads, etc. ◊ Insulation ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Water supply (see 5.4 Water Installations) ◊ Fire detection and alarm systems (see 5.12 Communication, Security and Control Systems) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems) ◊ General purpose power supplies (see 5.8 Electrical Installations)

5.11.3 Lightning Protection: Lightning protection installations

Includes	Excludes
◊ Bonded steel frame and other tape based systems ◊ Finials ◊ Conductor tapes ◊ Grounding/earthing	◊ Earthing systems (see 5.8 Electrical Installations)

5.12 Communication, Security and Control Systems

Definition: Communication, warning, access and building control installations.
Functional Definition: To provide systems for communication to and between inhabitants for information and security.
Measurement: Floor area serviced (m^2).
Costs and measurement should be shown separately for each installation.

Design criteria to be stated: None.

5.12.1 Communication Systems: Communications, fire and other emergency warning systems.

Includes	Excludes
◊ Telephone systems ◊ Data cabling installations ◊ Public address and piped music ◊ Radio, television including cable and satellite ◊ Projection systems ◊ Fire/smoke/water detection and alarm systems ◊ Nurse call system ◊ Door entry systems ◊ Timed signals ◊ Call signals ◊ Clocks including timers ◊ Induction loops ◊ Pneumatic or mechanical message systems ◊ Power supply where supplied as part of installation independent of the general power supply ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Radio and television studio installations (see 5.13 Specialist Installations/Systems) ◊ General purpose power supplies (see 5.8 Electrical Installations)

5.12.2 Security Systems: Observation and access control installations and the like.

Includes	Excludes
◊ Burglar and security alarms ◊ CCTV ◊ Access control systems ◊ Panic and attack alarms ◊ Metal detection systems, etc. ◊ Power supply where supplied as part of installation independent of the general power supply	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.12.3 Central Control/Building Management Systems: Central and remote control and management systems for mechanical, electrical, and other building services systems.

Includes	Excludes
◊ Central control panels for mechanical and electrical installations ◊ Building management systems including central and satellite computer terminals and software ◊ Controlling terminal units and switches ◊ Control cabling and containment	◊ Separate controls to individual heating, air conditioning installations, etc. to be included with appropriate element

5.13 Specialist Installations

Definition: All other mechanical and/or electrical installations (separately identifiable), related to the user function of the building, which have not been included elsewhere.
Functional Definition: To provide electrical and mechanical systems related to the user function of the building, not included elsewhere.
Measurement: Floor area serviced (m^2).
Costs and measurement should be shown separately for each installation.

Design criteria to be stated: None.

5.13.1 Specialist Piped Supply Installations: Piped installations not covered elsewhere.

Includes	Excludes
◊ Medical and specialist gas supply ◊ Centralised vacuum cleaning systems ◊ Treated water ◊ Swimming pool treatment, filtration, etc. ◊ Compressed air systems ◊ Compressed air and vacuum operated control systems ◊ Pipes, ducts, ancillaries and fittings ◊ Insulation ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Specialist document delivery systems, warehouse picking systems and the like (see 5.10 Lift and Conveyor Installations) ◊ Free standing or fixed equipment (see 5.2 Services Equipment) ◊ Baggage handling systems and the like (see 5.10 Lift and Conveyor Installations) ◊ Pneumatic or mechanical messaging systems (see 5.12 Communications, Security and Control Systems)

5.13.2 Specialist Refrigeration Systems

Includes	Excludes
◊ Refrigeration ◊ Cold rooms ◊ Ice pads ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Central refrigeration plant and chillers (see 5.6 Space Heating and Air Conditioning) ◊ Cooling towers (see 5.6 Space Heating and Air Conditioning) ◊ General purpose power supplies (see 5.8 Electrical Installations)

5.13.3 Specialist Mechanical Installations

Includes	Excludes
◊ Wave machines ◊ Jacuzzi, sauna and the like ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Domestic Jacuzzi baths, saunas and the like (see 5.1 Sanitary Installations) ◊ Water supply (see 5.4 Water Installations) ◊ General purpose power supplies (see 5.8 Electrical Installations)

5.13.4 Specialist Electrical/Electronic Installations

Includes	Excludes
◊ Radio and television studio installations ◊ Theatre performance and sound systems ◊ Cinema projection and display systems ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ General purpose power supplies (see 5.8 Electrical Installations)

5.13.5 Water Features

Includes	Excludes
◊ Fountains, water falls and the like ◊ Pumps, filtration, etc. ◊ Controls and electrical work from and including isolator where supplied with the installation	◊ Water supply (see 5.4 Water Installations) ◊ General purpose power supplies (see 5.8 Electrical Installations) ◊ Drinking fountains (see 5.1 Sanitary Installations)

5.14 Builder's Work in Connection with Services

Definition: Work carried out solely to facilitate the provision of services installations not provided by other elements.
Functional Definition: To provide builder's work for services.
Measurement: Gross internal floor area (m^2).
Costs and measurement should be shown separately for each installation.

Design criteria to be stated: None.

Includes	Excludes
◊ Tank rooms not included in the Gross Internal Floor Area ◊ Machine bases ◊ Tank supports ◊ Fuel bunds ◊ Holes, chases and ducts ◊ Fire stopping, fire proofing	◊ Tank rooms included in the Gross Internal Floor Area (analyse into elements)

6 Prefabricated Buildings and Building Units

6.1 Prefabricated Buildings and Building Units

Definition: Prefabricated complete building and room units.
Functional definition: To provide enclosed usable floor area installed as a prefabricated unit. Note: Not a building element, included to account for general works that cannot be allocated to elements.
Measurement: Floor area measured as for Gross Internal Floor Area for each unit (m^2)
Cost and area of different units to be stated separately.

Design criteria to be stated: None.

6.1.1 Complete Buildings: Complete or substantially complete building superstructures.

Includes	Excludes
◊ Supply and installation of prefabricated buildings ◊ Internal connections of prefabricated services	◊ Substructure (see 1.1 Substructure) ◊ Superstructure, finishes and fittings supplied and installed or applied on site, e.g. external brick skin, roof covering, finishes, etc. allocate to appropriate elements ◊ Services supplied and installed on site, allocate to appropriate elements ◊ Service connections to the building (see 8.7 External Services)

6.1.2 Building Units: Building units supplied as completed or substantially complete units.

Includes	Excludes
◊ Supply and installation of prefabricated units including: hotel rooms, kitchens, boiler rooms and the like ◊ Internal connections of prefabricated services	◊ Waste pipes external to the unit (see 5.3 Disposal Installations) ◊ Hot and cold water distribution external to the unit (see 5.4 Water Installations) ◊ Electricity supply external to the unit (see 5.8 Electrical Installations)

6.1.3 Pods: Pods supplied as completed or substantially complete units.

Includes	Excludes
◊ Supply and installation of prefabricated pods including: bathrooms, toilets, shower rooms and the like ◊ Internal connections of prefabricated services	◊ Waste pipes external to the unit (see 5.3 Disposal Installations) ◊ Hot and cold water distribution external to the unit (see 5.4 Water Installations) ◊ Electricity supply external to the unit (see 5.8 Electrical Installations)

7 Work to Existing Building

Notes:
1. Includes work to the building being analysed only, work to other buildings should be included in 8.8 Minor Building Works and Ancillary Buildings
2. Where possible, the work to the existing building on refurbishment or conversion schemes should be allocated to the elements.

7.1 Minor Demolition and Alteration Works

Definition: Minor demolition and stripping out for refurbishment or conversion that cannot be allocated to elements.
Functional Definition: Note: Not a functional element; included to account for the cost of general works that cannot be allocated to elements.
Measurement: Floor area of building subject to stripping out.

Design criteria to be stated: None

Includes	Excludes
◊ Minor demolition works and alterations ◊ Stripping out of services, fittings, partitions, suspended ceilings, etc. ◊ Capping off services ◊ Clearing rubbish	◊ Work and alterations to individual elements, which should be included in the appropriate element

7.2 Repairs to Existing Services

Allocate to services elements 5.1 to 5.13 as appropriate

7.3 Damp-Proof Courses/Fungus and Beetle Eradication

Work to damp proof courses to be allocated to appropriate Substructure elements.
Where possible, fungus and beetle eradication work to be allocated to appropriate Substructure and Superstructure elements.

7.4 Façade Retention

Include in 2.5 External Walls.

7.5 Cleaning Existing Surfaces

Where possible, allocate to appropriate Superstructure and Finish elements.

7.6 Renovation Works

Where possible, allocate to appropriate Superstructure and Finish elements.

8 External Works

Note: Show cost of work outside the site separately.

8.1 Site Preparation Works

Definition: Site preparation.
Functional Definition: To prepare the site for building.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.

Design criteria to be stated: None.

8.1.1 Site Clearance: Preparatory work required to clear the site.

Includes	Excludes
◊ Clearing vegetation ◊ Removing trees ◊ Demolition of minor buildings and structures ◊ Applying herbicides ◊ Disposal	◊ Removal of toxic or hazardous materials and contaminated land, eradication of plant growth (see 0.1 Toxic/Hazardous/ Contaminated Material Removal) ◊ Major demolition (see 0.2 Major Demolition Works)

8.1.2 Preparatory Groundworks: Preparatory earthworks to form new contours.

Includes	Excludes
◊ Excavation and earthworks ◊ Breaking out and grubbing up of substructures, underground structures, pipework and other obstructions ◊ Breaking up existing paving ◊ Disposal	◊ Removal of toxic or hazardous materials and contaminated land; eradication of plant growth (see 0.1 Toxic/Hazardous/ Contaminated Material Removal) ◊ Major demolition (see 0.2 Major Demolition Works) ◊ Site dewatering, soil stabilisation and ground gas venting (see 0.4 Specialist Groundworks) ◊ Temporary diversion of drains, services, waterways and the like (see 0.5 Temporary Diversion Works) ◊ Cultivating and grading for seeding, planting, etc. (see 8.3 Soft Landscaping, Planting and Irrigation Systems) ◊ Excavation and earthwork associated with substructures (see 1.1 Substructure)

8.2 Roads, Paths, Pavings and Surfacings

Definition: Roads, paths, pavings and other hard surfaces.
Functional Definition: To provide unenclosed usable hard surfaces.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.
Costs and measurement should be shown separately for each type of pavement.

Design Criteria to be stated: None.

8.2.1 Roads, Paths and Pavings: Preparation and completion of unenclosed usable surfaces within the site.

Includes

- ◊ Roads and associated footways
- ◊ Vehicle parks and hardstandings including open cell grass concrete blocks
- ◊ Paths and paved areas
- ◊ Non specialist paving to playgrounds, games courts
- ◊ Edge treatment, kerbs, edgings, vehicle protection barriers and the like
- ◊ Steps and ramps including balustrades and handrails
- ◊ Markings, paving accessories, embedded fittings supplied with paving
- ◊ Associated excavation and disposal

Excludes

- ◊ Temporary roads and hardstandings and the like (see 9 Main Contractor's Preliminaries)
- ◊ Street furniture (see 8.5 External Fixtures)
- ◊ Surface water drainage (see 8.6 External Drainage)
- ◊ Natural grass and planted surfaces (see 8.3 Soft Landscaping, Planting and Irrigation Systems)

8.2.2 Special Surfacing and Pavings: Preparation and completion of unenclosed surfaces for special use.

Includes

- ◊ Special surfaces for athletics, field sports, skiing and the like
- ◊ Edge treatment
- ◊ Markings, paving accessories, embedded fittings supplied with paving
- ◊ Associated excavation and disposal

Excludes

- ◊ Surface water drainage (see 8.6 External Drainage)
- ◊ Natural grass and planted surfaces for sport (see 8.3 Soft Landscaping, Planting and Irrigation Systems)

8.3 Soft Landscaping, Planting and Irrigation Systems

Definition: Soft landscaping and planting.
Functional Definition: To provide unenclosed usable soft surfaces and decorative and usable planting.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.
Costs and measurement should be shown separately for each type of landscaping.

Design Criteria to be stated: None.

8.3.1 Seeding and Turfing

Includes

- ◊ Grassed areas and other planted surfaces
- ◊ Forming contours for planting
- ◊ Edge treatment
- ◊ Top soil, cultivation, herbicides, fertilisers, etc.
- ◊ Associate soil reinforcement, geotextiles and membranes
- ◊ Associated excavation and disposal

Excludes

- ◊ Clearing site and forming new site contours (see 8.1 Site Preparation Works)
- ◊ Open cell concrete grass blocks (see 8.2 Roads, Paths, Pavings and Surfacings)

8.3.2 External Planting

Includes

- ◊ Planting including plants, crops, shrubs, hedges, trees and the like
- ◊ Forming contours for planting
- ◊ Planting containers, retaining, edging and support structures and equipment
- ◊ Top soil, cultivation, herbicides, fertilisers, etc.
- ◊ Associate soil reinforcement, geotextiles and membranes
- ◊ Associated excavation and disposal

Excludes

- ◊ Clearing site and forming new site contours (see 8.1 Site Preparation Works)
- ◊ Internal planting (see 4.1 Fittings, Furnishings and Equipment)
- ◊ Planting and containers to roof gardens and the like (see 4.1 Fittings, Furnishings and Equipment)

8.3.3 Irrigation Systems: Watering systems to planted areas.

Includes	Excludes
◊ Irrigation systems ◊ Sprinklers and the like ◊ Pipelines, fittings, pumps, tanks and ancillaries	◊ Mains water supply (see 8.7 External Services) ◊ Electric power supply (see 8.7 External Services) ◊ Water features and the like (see 8.5 External Fixtures)

8.4 Fencing, Railings and Walls

Definition: Fences, railings and walls.
Functional Definition: To enclose and divide the site.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.
Costs and measurement should be shown separately for each type of fence and wall.

Design Criteria to be stated: Length and height for each type of fence and wall.

8.4.1 Fencing and Railings

Includes	Excludes
◊ Fences, rails, light screening ◊ Opening and gates ◊ Ancillaries	◊ Balustrades and rails to external stairs and ramps (see 8.2 Roads, Paths and Pavings and Surfacings) ◊ Hedges (see 8.3 Soft Landscaping, Planting and Irrigation Systems)

8.4.2 Walls and Screens

Includes	Excludes
◊ Walls and heavy screening ◊ Openings and gates ◊ Copings and other ancillaries	

8.4.3 Retaining Walls

Includes	Excludes
◊ Retaining walls ◊ Excavation, earthwork and disposal ◊ Copings, rails and other ancillaries	◊ Retaining walls which form an integral part of the building (see 1.1 Substructures) ◊ Earth embankments (see 8.1 Site Preparation Works and/or 8.3 Soft landscaping, Planting and Irrigation Systems as appropriate)

8.4.4 Barriers and Guardrails

Includes	Excludes
◊ Vehicle and pedestrian barriers and guard rails ◊ Openings and gates ◊ Ancillaries	◊ Vehicle protection barriers and the like provided with roads (see 8.2 Roads, Paths, Pavings and Surfacings)

8.5 External Fixtures

Definition: Site, street, park and play furniture, equipment and ornamental features.
Functional Definition: To provide fittings required to make the site usable.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.
Costs and measurement should be shown separately for fixture.

Design Criteria to be stated: None.

8.5.1 Site/Street Furniture and Equipment

Includes

- ◊ Site, street, park, play, and sport furniture, equipment and the like
- ◊ Signs, notice boards, etc.
- ◊ Photovoltaic panels supplied with signs and equipment
- ◊ Prefabricated and minor shelters, storage facilities and the like
- ◊ Sculptures, flagpoles and the like
- ◊ Builder's work in connection

Excludes

- ◊ Fencing, railings, walls and screens (see 8.4 Fencing, Railings and Walls)

8.5.2 Ornamental Features

Includes

- ◊ Water features
- ◊ Other ornamental features

Excludes

- ◊ Mains water supply (see 8.7 External Services)
- ◊ Electric power supply (see 8.7 External Services)
- ◊ Irrigation systems to planted areas (see 8.3 Soft Landscaping, Planting and Irrigation Systems)

8.6 External Drainage

Definition: Drainage from the building and the site, on-site waste water treatment, etc.
Functional Definition: To remove liquid waste from the building and the site.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.
Costs and measurement should be shown separately for each installation.

Design criteria to be stated: None.

8.6.1 Surface Water and Foul Water Drainage

Includes

- ◊ Surface water drainage from building
- ◊ Surface water drainage from site
- ◊ Piping, ditches and streams
- ◊ Foul drainage from the building
- ◊ Manholes, interceptors, soakaways and the like
- ◊ Cesspools and septic tanks
- ◊ Pumps and packaged pumping stations
- ◊ Sewer connections
- ◊ Surveys, testing and repairs to existing drainage
- ◊ Builder's work in connection

Excludes

- ◊ Site dewatering, soil stabilisation and ground gas venting (see 0.4 Specialist Groundworks)
- ◊ Temporary diversion of drains, services, waterways and the like (see 0.5 Temporary Diversion Works)
- ◊ Electric power supply (see 8.7 External Services)

8.6.2 Ancillary Drainage Systems

Includes	Excludes
◊ Pumping stations ◊ Retention tanks ◊ On-site waste water or sewage treatment ◊ Sustainable urban drainage schemes (SUDS) ◊ Sewer connections and outfalls ◊ Builder's work in connection	◊ Electric power supply (see 8.7 External Services)

8.6.3 External Chemical, Toxic and Industrial Liquid Waste Drainage

Includes	Excludes
◊ Separate waste systems for chemical, industrial, process and toxic waste ◊ Storage and treatment tanks, pumps and equipment ◊ Sewer connections and outfalls ◊ Builder's work in connection	◊ Electric power supply (see 8.7 External Services)

8.6.4 Land Drainage: Permanent systems for drainage of waterlogged ground.

Includes	Excludes
◊ Interceptor and collecting drains ◊ Disposal drains ◊ Membranes, geotextiles and granular filling ◊ Tanks, soakaways, silt traps and the like ◊ Ditches ◊ Outfalls and connections ◊ Disposal ◊ Builder's work in connection	◊ Ground water pressure relief drains connected to the drainage system (see 1.1 Substructure) ◊ Site dewatering, soil stabilisation and ground gas venting (see 0.4 Specialist Groundworks) ◊ Temporary diversion of drains, services, waterways and the like (see 0.5 Temporary Diversion Works)

8.7 External Services

Definition: Service supplies to the building and services to external works.
Functional Definition: To provide services to the building and the site.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.
Costs and measurement should be shown separately for each installation.

Design criteria to be stated: None.

8.7.1 Water Mains Supply: Mains from existing supply up to external face of building and to external systems and equipment.

Includes	Excludes
◊ Supply to building ◊ Supply to external systems, plant, fittings and equipment ◊ Fire mains and hydrants ◊ Rainwater harvesting and grey water recycling systems external to the building ◊ Insulation, trace heating, etc.	◊ Rainwater/grey water harvesting systems including collection pipework to the building (see 5.4 Water Installations)

8.7.2 Electricity Mains Supply: Mains from existing supply up to external face of building and external main switchgear.

Includes	Excludes
◊ Supply to building ◊ Supply to external sub-distribution boards ◊ Transformer substations ◊ Emergency generation plant ◊ Draw pits and the like	◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

8.7.3 External Transformation Devices: Renewable electricity and heat generating equipment and systems.

Includes	Excludes
◊ Wind turbines ◊ Photovoltaic panels ◊ Solar collectors ◊ Ancillary generators, transformers, cables, pipes, etc.	◊ Geothermal earth heat exchange systems and the like (see 5.5 Heat Source) ◊ Wind turbines, photovoltaic panels and solar collectors attached to the building (see 5.5 Heat Source) ◊ Photovoltaic panels and the like; supplied with signs, signals, equipment and the like (see 8.5 External Fixtures) ◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

8.7.4 Electricity Distribution to External Plant and Equipment: Power supply from main switchgear to external plant and equipment.

Includes	Excludes
◊ Switchgear and distribution boards, cables, ducts, etc. ◊ Drawpits and the like ◊ Uninterruptible power supply ◊ Earthing and bonding ◊ Final connections not carried out by specialist system installer	◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

8.7.5 Gas Mains Supply: Mains and Liquid Petroleum Gas (LPG) supply up to external face of building.

Includes	Excludes
◊ Connection to mains gas supply ◊ Supply pipework, etc. ◊ LPG storage, pipework, etc.	◊ Fuel Installation within the building (see 5.9 Fuel Installations)

8.7.6 Telecommunications and other Communication System Connections: From existing supply up to external face of building.

Includes	Excludes
◊ Connection to provider's supply ◊ Telephone, television, data and other communication distribution ◊ Cables, ducts, drawpits, etc.	◊ Building Management Systems (see 5.12 Communication, Security and Control Systems)

8.7.7 External Fuel Storage and Piped Distribution Systems: Supply up to external face of building.

Includes

- Storage tanks and vessels for oil, petrol, diesel, etc.
- Pipelines, valves, pumps and ancillaries
- Insulation
- Solid fuel storage, bunkers and the like

Excludes

- Fuel Installation within the building (see 5.9 Fuel Installations)

8.7.8 External Security Systems: External observation and access control installations.

Includes

- Surveillance equipment, CCTV and the like
- Security detection and alarm equipment
- Access control systems
- Security lighting

Excludes

- Surveillance and access control to the building (see 5.12 Communication and Security Systems)
- Security gates including with fencing (see 8.4 Fencing, Railings and Walls)
- Building Management Systems (see 5.12 Communication, Security and Control Systems)

8.7.9 External/Street Lighting Systems: Lighting to pedestrian areas, paths and roads.

Includes

- Lighting columns, poles, bollards, masts and the like
- Floodlighting to external surfaces and to building
- Luminaires, lamps, cables, and ancillaries
- Drawpits, ducts, etc.

Excludes

- Lighting fixed to the exterior of the building supplied as part of the interior lighting installation (see 5.8 Electrical Installations)

8.7.10 Local/District Heating Installation: Heating installations external to the building including heat source where appropriate.

Includes

- Externally located heat source
- Instrumentation and controls
- Heat mains and distribution pipelines from heat source, or existing supply to point of entry into the building or
- Connection to existing supply
- Valves, pumps, fittings and ancillaries
- Ducts, inspection chambers, etc.

Excludes

- Heat source where included in analysis of boiler house as a separate building
- Boiler houses and the like. Either analyse as a separate building or include in 8.8 Minor Building Works and Ancillary Buildings

8.7.11 Builder's Work In Connection With External Services: Builder's work not provided by service provider.

Includes

- Ducts, access chambers and the like
- Supports for external tanks and vessels
- Fuel bunds
- Protective compounds, fencing, storage racks
- Bases for equipment
- Cutting holes, mortices, chases and the like, providing sleeves, etc.
- Stopping up

Excludes

- Work carried out by individual service providers, see appropriate sub-element

8.8 Minor Building Works and Ancillary Buildings

Definition: Ancillary buildings; alterations to existing buildings, other buildings, and work included in the contract.
Functional Definition: To provide buildings required by external services and minor buildings to support the function of the building. Also includes other building works included in the contract although these are not an element but included for accounting purposes.
Measurement: Area of external works (m^2), i.e. site area excluding the building footprint. Exclude any areas used temporarily for the works that do not form part of the delivered project.

Costs and gross internal floor area of the buildings (m^2) should be shown separately for each building.

Design criteria to be stated: None.

8.8.1 Minor Building Works: Works to existing buildings and works on or adjacent to the site included in the project.

Includes

- Refurbishment to existing buildings and works
- Alterations and minor additions to adjacent buildings

Excludes

- Work to the building analysed: work to existing foundations, walls, retained facades, services, etc. that will be incorporated in the new building, shall be allocated to the appropriate building elements
- Work to external works allocated to appropriate elements
- Shoring and support to adjacent buildings (see 0.2 Major Demolition Work)

8.8.2 Ancillary Buildings and Structures: Separate buildings provided as part of project.

Includes

- Boiler houses, sub-stations, fuel storage buildings and the like
- External cooling towers
- Bin stores, bicycle stores
- Horticultural buildings
- Gatehouses
- Covered walkways and canopies

Excludes

- Buildings analysed as separate buildings
- Prefabricated and minor shelters, storage facilities and the like (see 8.5 External Fixtures)
- Supports, bases, fuel bunds, compounds and other builder's work in connection with services (see 8.7 External Services)

8.8.3 Underpinning to External Site Boundary Walls

Includes

- Underpinning to site boundary walls

Excludes

- Underpinning to walls that are an integral part of the building being analysed (see 1.1 Substructure)

9 Main Contractor's Preliminaries

Definition: Priced items in Preliminaries and Summary but excluding contractor's price adjustments, profit and overheads.
Functional Definition: Not a functional element, included for accounting purposes.
Measurement: Preliminaries should be expressed as a percentage of the contract sum excluding preliminaries, contingencies (risk) and, where appropriate, contractor's design fees.

9.1 Employer's Requirements

Includes:
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

Includes:
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

10 Main Contractor's Overheads and Profit

Definition: Contractor's price adjustments, overheads and profit.
Functional Definition: Not a functional element; included for accounting purposes.
Measurement: Main contractor's overheads and profit should be expressed as a percentage of the contract sum excluding contingencies (risk) and, where appropriate, contractor's design fees.

Includes:
10.1 Main Contractor's Overheads
10.2 Main Contractor's Profit

Excludes: Sub-contractor's overheads and profit; see the appropriate element.

11 Project/Design Team Fees

Definition: Cost of design including consultant's fees and contractor's design fees.
Functional Definition: Not a functional element; included for accounting purposes.
Measurement: Total fees should be stated and expressed as a percentage of the contract sum excluding contingencies (risk) and, where appropriate, contractor's design fees.

11.1 Consultant's Fees

Includes:
11.1.1 Project/Design Team Consultant's Fees
11.1.2 Other Consultant's Fees
11.1.3 Site Investigation Fees
11.1.4 Specialist Support Consultant's Fees

11.2 Main Contractor's Pre-Construction Fees

Includes:
11.2.1 Management and Staff
11.2.2 Specialist Support Services Fees
11.2.3 Temporary Accommodation Services and Facilities Charges
11.2.4 Main Contractor's Overheads and Profit

11.3 Main Contractor's Design Fees

Includes:
11.3.1 Main Contractor's Design Fees: Design fees on a design and build contract, design and project management fees on contractor lead framework contracts and the like.

12 Other Development/Project Costs

12.1 Other Development/Project Costs

Includes:
12.1.1 Land Acquisition Costs
12.1.2 Employer Finance Costs
12.1.3 Fees
12.1.4 Charges
12.1.5 Planning Contributions
12.1.6 Insurances
12.1.7 Archaeological Fieldworks
12.1.8 Other Specialist Fieldworks
12.1.9 Decanting and Relocation Costs
12.1.10 Fittings, Furnishings and Equipment
12.1.11 Tenant's Costs/Contributions
12.1.12 Marketing Costs
12.1.13 Other Employer Costs

13 Risk (Client's Contingencies)

Definition: Allowance for client's risks of unforeseen costs.
Functional Definition: Not a functional element, included for accounting purposes.
Measurement: Total cost of contingencies.

Includes :
13.1 Design Development Risks
13.2 Construction Risks
13.3 Employer Change Risks
13.4 Employer Other Risks
Excludes:
◊ Contractor's commercial and other risk on framework, target contracts, etc. to be spread across elements and preliminaries.

6 Levels of Analyses

Analyses can be prepared at four levels:

- *Total building*
- *Group Elemental (Concise)*
- *Elemental (Detailed)*
- *Sub-elemental (Amplified)*

6.1 Total building analysis

Present the costs as follows:

- *Building (Sum of Elements 1-7)*
- *External Works (Element 8)*
- *Preliminaries (Element 9)*
- *Design Fees (Element 11)*
- *Contingencies (Element 13)*

6.2 Group element analysis

Present the costs as follows:

- *Substructure (Sum of Elements 1)*
- *Superstructure (Sum of Elements 2)*
- *Finishes (Sum of Elements 3)*
- *Fittings (Sum of Elements 4)*
- *Services (Sum of Elements 5)*
- *Prefabricated Building (Sum of Elements 6)*
- *Work to Existing Building (stripping out) (Element 7)*
- *External Works (Sum of Element 8)*
- *Preliminaries (Element 9)*
- *Design Fees (Element11)*
- *Contingencies (Element 13)*

6.3 Element analysis

Present the costs for each element separately. See Appendix 1: Summary of Element Definitions and Measurement.

6.4 Sub-element analysis

Present the costs for each sub-element separately. Where there is more than one specification for a single sub-element, the costs should be shown separately. See Appendix 1: Summary of Element Definitions and Measurement.

6.5 Project Design Team Fees and Other Development/Project Costs

Where they are available, Project Design Team Fees and Other Development/Project Costs should be stated but not form part of the building cost analysis.

6.6 Ancillary information

The principles of analysis are the same for all levels of analysis.

The ancillary information should match the level of detail in the cost analysis.

The specification should match the level of detail in the cost analysis.

7 Analysis Forms

Elemental Cost Analysis

See Section 3 for instructions on completing this form

PROJECT TITLE:

Building type:	Type of work:
Location:	Client:
Date for receipt:	Date of acceptance:
Date for tender/ Base month:	Date of site possession:

PROJECT DESCRIPTION

SITE CONDITIONS

ACCOMMODATION AND DESIGN

CREDITS

Client:	
Architect:	
Quantity Surveyor:	
CDM Coordinator:	
Mechanical Engineer:	
Electrical Engineer:	
Structural Engineer:	
General Contractor:	

DETAILS OF BUILDING

Floor Areas			
Basement floors: Ground floor Upper floors Total (Gross Internal Floor Area)	m^2 m^2 m^2 m^2	Usable Area Circulation Area Ancillary Areas Internal Divisions	m^2 m^2 m^2 m^2
Spaces not enclosed:	m^2	Total (Gross Internal Floor Area)	m^2
Internal cube:	m^3	Area of lowest floor:	m^2
Site area:	m^2	Number of units:	m^2
Storeys			
Nr of storeys		**Average storey height**	
Nr of storeys (Primary):	Nr	Below ground floor(s):	m
Nr of storeys (Secondary):	Nr	Ground floor:	m
Basement storeys included above:	Nr	Above ground floor(s):	m
External vertical envelope: (Ext. walls, windows & doors)			m^2

PERCENTAGE OF GROSS FLOOR AREA

Below ground floor:	%	____ storey construction:	%
Single storey construction:	%	____ storey construction:	%
Two storey construction:	%	____ storey construction:	%

FUNCTIONAL UNITS

Quantity	**Unit**	**Quantity**	**Unit**
1.		**2.**	

BUILDING ACCREDITATION SCORE(S)

Scheme:		**Scheme:**	
Version:		**Version:**	
Score:		**Score:**	
Carbon Emissions:			
Basis of calculation:		**Result:**	

PROCUREMENT DETAILS

Contract Pricing Documentation:			
Selection of Contractor:			
Type of Contract:			
Cost Fluctuation:			
Contract period	Stipulated by Client:		Weeks
	Offered by contractor:		Weeks
	Agreed:		Weeks

MARKET CONDITION

	Tender Price Index	
	Project Index:	
	Index Series:	
	Base:	

TENDERS

Number of tenders issued:		Number of tenders received:	
Competitive tender list (where appropriate)			
1.	£	6.	£
2.	£	7.	£
3.	£	8.	£
4.	£	9.	£
5.	£	10.	£
Adjustment on accepted tender (where applicable):			
Basis of analysis:			

BREAKDOWN OF COST

Contract:	**Analysed building (where different)**
Measured work	Measured work
Prime cost sums	Prime cost sums
Provisional sums	Provisional sums
Preliminaries	Preliminaries
Overheads and profit	Overheads and profit
Design fees	Design fees
Risk (client's contingencies)	Risk (client's contingencies)
Contract sum	Contract sum

Detailed (Elemental) Cost Analysis

	ELEMENT	Element				
		Total Cost £	Cost per m^2 GIFA	Unit Quantity		Unit Rate
1	SUBSTRUCTURE				m^2	
2	SUPERSTRUCTURE					
2.1	Frame				m^2	
2.2	Upper Floors				m^2	
2.3	Roof				m^2	
2.4	Stairs and Ramps				Nr	
2.5	External Walls				m^2	
2.6	Windows and External Doors				m^2	
2.7	Internal Walls and Partitions				m^2	
2.8	Internal Doors				Nr	
	Total Superstructure					
3	INTERNAL FINISHES					
3.1	Wall Finishes				m^2	
3.2	Floor Finishes				m^2	
3.3	Ceiling Finishes				m^2	
	Total Internal Finishes					
4	FITTINGS, FURNISHINGS AND EQUIPMENT				m^2	
5	SERVICES					
5.1	Sanitary Installations				Nr	
5.2	Services Equipment				Nr	
5.3	Disposal Installations				Nr	
5.4	Water Installations				m^2	
5.5	Heat Source				kW	
5.6	Space Heating and Air Conditioning				m^2	
5.7	Ventilation Systems				m^2	
5.8	Electrical Installations				m^2	
5.9	Fuel Installations				m^2	
5.10	Lift and Conveyor Installations				Nr	
5.11	Fire and Lightning Protection				m^2	
5.12	Communication, Security and Control Installations				m^2	
5.13	Specialist Installations				m^2	
5.14	Builder's Work in Connection with Services				m^2	
	Total Services					
6	PREFABRICATED BUILDING AND BUILDING UNITS				m^2	
7	WORK TO EXISTING BUILDING					
7.1	Minor Demolition and Alteration Works				m^2	
	Total Work to Existing Building					

	ELEMENT	Element				
		Total Cost £	Cost per m^2 GIFA	Unit Quantity		Unit Rate
	BUILDING SUB-TOTAL					
8	EXTERNAL WORKS					
8.1	Site Preparation Works				m^2	
8.2	Roads, Paths, Pavings and Surfacings				m^2	
8.3	Soft Landscaping, Planting and Irrigation Systems				m^2	
8.4	Fencing, Railings and Walls				m^2	
8.5	External Fixtures				m^2	
8.6	External Drainage				m^2	
8.7	External Services				m^2	
8.8	Minor Building Works and Ancillary Buildings				m^2	
	Total External Works					
0	FACILITATING WORKS					
0.1	Toxic/Hazardous/Contaminated Material Treatment				m^2	
0.2	Major Demolition Works				m^2	
0.3	Temporary Support to Adjacent Structures				m^2	
0.4	Specialist Ground Works				m^2	
0.5	Temporary Diversion Works				m^2	
0.6	Extraordinary Site Investigation				m^2	
	Total Faciltating Work					
9	MAIN CONTRACTOR'S PRELIMINARIES					
10	MAIN CONTRACTOR'S OVERHEAD & PROFIT					
	CONTRACT TOTAL (excluding contingencies and fees)					
11	PROJECT/DESIGN TEAM FEES					
12	OTHER DEVELOPMENT/PROJECT COSTS					
13	RISK (CLIENT'S CONTINGENCIES)					
	TOTAL CONTRACT/PROJECT COST*					

* Where the costs analysed are based on a building contract this will be the total contract sum including any employer's contingencies and contractor's design fees. Where other client costs are included these should be identified and the total will be the project cost.

Amplified (Sub-Elemental) Cost Analysis

	ELEMENT		Sub-Element			Element				
			Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity		Unit Rate
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								
		Substructure							m^2	
2	**SUPERSTRUCTURE**									
2.1	Frame									
	2.1.1	Frame								
		Frame							m^2	
2.2	Upper Floors									
	2.2.1	Floors								
	2.2.2	Balconies								
	2.2.3	Drainage to Balconies								
		Upper Floors							m^2	
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								
		Roof							m^2	
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								
		Stairs							Nr	

	ELEMENT		Sub-Element			Element				
			Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity		Unit Rate
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	Façade Access/Cleaning Systems.								
	Include Façade Retention Works									
	External Walls								m^2	
2.6	Windows and External Doors									
	2.6.1	External Windows								
	2.6.2	External Doors								
	Windows and External Doors								m^2	
2.7	Internal Walls and Partitions									
	2.7.1	Walls and Partitions								
	2.7.2	Balustrades and Handrails								
	2.7.3	Moveable Room Dividers								
	2.7.4	Cubicles								
	Internal Walls and Partitions								m^2	
2.8	Internal Doors									
	2.8.1	Internal Doors								
	Internal Doors								Nr	

3 INTERNAL FINISHES

3.1	Wall Finishes									
	3.1.1	Wall Finishes								
	Wall Finishes								m^2	
3.2	Floor Finishes									
	3.2.1	Finishes to Floors								
	3.2.2	Raised Access Floors								
	Floor Finishes								m^2	
3.3	Ceiling Finishes									
	3.3.1	Finishes to Ceilings								
	3.3.2	False Ceilings								
	3.3.3	Demountable Suspended Ceilings								
	Ceiling Finishes								m^2	

	ELEMENT	Sub-Element			Element			
		Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity	Unit Rate

4 FITTINGS, FURNISHINGS AND EQUIPMENT

4.1	Fittings, Furnishings and Equipment									
	4.1.1	General Fittings, Furnishings and Equipment								
	4.1.2	Domestic Kitchen Fittings and Equipment								
	4.1.3	Special Purpose Fittings, Furnishings and Equipment								
	4.1.4	Signs/Notices								
	4.1.5	Works of Art								
	4.1.6	Non-Mechanical and Non-Electrical Equipment								
	4.1.7	Internal Planting								
	4.1.8	Bird and Vermin Control								
		Fittings							m^2	

5 SERVICES

5.1	Sanitary Installations									
	5.1.1	Sanitary Appliances								
	5.1.2	Sanitary Ancillaries								
		Sanitary Installations							Nr	

5.2	Services Equipment									
	5.2.1	Services Equipment								
		Services Equipment							Nr	

5.3	Disposal Installations									
	5.3.1	Foul Drainage above ground								
	5.3.2	Chemical, Toxic and Industrial Liquid Waste Disposal								
	5.3.3	Refuse Disposal								
		Disposal Installations							Nr	

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								
		Water Installations							m^2	

5.5	Heat Source									
	5.5.1	Heat Source								
		Heat Source							kW	

	ELEMENT		Sub-Element			Element				
			Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity		Unit Rate
5.6	Space Heating and Air Conditioning									
	5.6.1	Central Heating								
	5.6.2	Local Heating								
	5.6.3	Central Cooling								
	5.6.4	Local Cooling								
	5.6.5	Central Heating and Cooling								
	5.6.6	Local Heating and Cooling								
	5.6.7	Central Air Conditioning								
	5.6.8	Local Air Conditioning								
	Space Heating and Air Conditioning								m^2	
5.7	Ventilation Systems									
	5.7.1	Central Ventilation								
	5.7.2	Local and Special Ventilation								
	5.7.3	Smoke Extract/Control								
	Ventilating Systems								m^2	
5.8	Electrical Installations									
	5.8.1	Electric 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								
	Electrical Installations								m^2	
5.9	Fuel Installations									
	5.9.1	Fuel Storage								
	5.9.2	Fuel Distribution Systems								
	Fuel Installations								m^2	
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 and the like								
	5.10.9	Document Handling Systems								
	5.10.10	Other Lift and Conveyor Installations								
	Lift and Conveyor Installations								Nr	

	ELEMENT		Sub-Element			Element			
			Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity	Unit Rate
5.11	Fire and Lightning Protection								
	5.11.1	Fire fighting Systems							
	5.11.2	Fire Suppression Systems							
	5.11.3	Lightning Protection							
	Fire and Lightning Protection							m^2	
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							
	Communication, Security and Control Systems							m^2	
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							
	Specialist Installations							m^2	
5.14	Builder's Work in Connection with Services (BWIC)								
	5.14.1	Builder's Work in Connection with Services							
	Builder's Work in Connection with Services							m^2	

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							
	Prefabricated Buildings and Building Units							m^2	

7 WORK TO EXISTING BUILDING

7.1	Minor Demolitions and Alterations								
	7.1.1	Minor Demolitions and Alterations							
	Minor Demolitions and Alterations							m^2	

	ELEMENT	Sub-Element			Element			
		Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity	Unit Rate

BUILDING SUB-TOTAL

8 EXTERNAL WORKS

8.1	Site Preparation Works								
	8.1.1	Site Clearance							
	8.1.2	Preparatory Groundworks							
		Site Preparation Works						m^2	

8.2	Roads, Paths, Pavings and Surfacings								
	8.2.1	Roads, Paths and Pavings							
	8.2.2	Special Surfacing and Pavings							
		Roads, Paths, Pavings and Surfacings						m^2	

8.3.	Soft Landscaping, Planting and Irrigation Systems								
	8.3.1	Seeding and Turfing							
	8.3.2	External Planting							
	8.3.3	Irrigation Systems							
		Soft Landscaping, Planting and Irrigation Systems						m^2	

8.4	Fencing, Railings and Walls								
	8.4.1	Fencing and Railings							
	8.4.2	Walls and Screens							
	8.4.3	Retaining Walls							
	8.4.4	Barriers and Guardrails							
		Fencing, Railings and Walls						m^2	

8.5	External Fixtures								
	8.5.1	Site/Street Furniture and Equipment							
	8.5.2	Ornamental Features							
		External Fixtures						m^2	

8.6	External Drainage								
	8.6.1	Surface Water and Foul Water Drainage							
	8.6.2	Ancillary Drainage Systems							
	8.6.3	External Chemical, Toxic and Industrial Liquid Waste Drainage							
	8.6.4	Land Drainage							
		External Drainage						m^2	

	ELEMENT		Sub-Element			Element			
			Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity	Unit Rate
8.7	External Services								
	8.7.1	Water Mains Supply							
	8.7.2	Electricity Mains Supply							
	8.7.3	External Transformation Devices							
	8.7.4	Electricity Distribution to External Plant and Equipment							
	8.7.5	Gas Mains Supply							
	8.7.6	Telecommunications and Other Communication System Connections							
	8.7.7	External Fuel Storage and Piped Distribution Systems							
	8.7.8	External Security Systems							
	8.7.9	External/Street Lighting Systems							
	8.7.10	Local/District Heating Installations							
	8.7.11	Builder's Work in Connection with External Services							
		External Services						m^2	
8.8	Minor Building Works and Ancillary Buildings								
	8.8.1	Minor Building Works							
	8.8.2	Ancillary Buildings and Structures							
	8.8.3	Underpinning to External Site Boundary Walls							
		Minor Building Works and Ancillary Buildings						m^2	

0 FACILITATING WORKS

0.1	Toxic/Hazardous/Contaminated Material Treatment								
	0.1.1	Toxic/Hazardous Material Removal							
	0.1.2	Contaminated Land							
	0.1.3	Eradication of Plant Growth							
		Toxic/Hazardous/Contaminated Material Treatment						m^2	
0.2	Major Demolition Works								
	0.2.1	Demolition Works							
	0.2.2	Soft Strip Works							
		Major Demolition Works						m^2	
0.3	Temporary Support to Adjacent Structures								
	0.3.1	Temporary Support to Adjacent Structures							
		Temporary Support to Adjacent Structures						m^2	

	ELEMENT		Sub-Element			Element				
			Quantity	Unit	Total Cost	Total Cost	Cost per m^2	Unit Quantity		Unit Rate
0.4	Specialist Groundworks									
	0.4.1	Site Dewatering and Pumping								
	0.4.2	Soil Stabilisation Measures								
	0.4.3	Ground Gas Venting Measures								
		Specialist Ground Works							m^2	
0.5	Temporary Diversion Works									
	0.5.1	Temporary Diversion Works								
		Temporary Diversion Works							m^2	
0.6	Extraordinary Site Investigation									
	0.6.1	Archaeological Investigation								
	0.6.2	Reptile/Wildlife MitigationMeasures								
	0.6.3	Other Extraordinary Site Investigation								
		Extraordinary Site Investigation							m^2	

9 MAIN CONTRACTOR'S PRELIMINARIES

9.1	Employer's Requirements									
9.2	Main Contractor's Cost Items									
	Preliminaries								m^2	

10 MAIN CONTRACTOR'S OVERHEADS and PROFIT

10.1	Main Contractor's Overheads									
10.2	Main Contractor's Profit									
	Overheads and Profit									

TOTAL CONTRACT SUM (Excluding Contingencies and Contractor's Design Fees)

11 PROJECT/DESIGN TEAM FEES

11.1	Consultant's Fees									
11.2	Main Contractor's Pre-Construction Design Fees									
11.3	Main Contractor's Design Fees									
	Project/Design Team Fees									

12 OTHER DEVELOPMENT/PROJECT COSTS

12.1	Other Development/Project Costs									
	Other Development/Project Costs									

13 RISK (CLIENT'S CONTINGENCIES)

13.1	Design Development Risks									
13.1	Construction Risks									
13.1	Employer Change Risk									
13.1	Employer Other Risk									
	Risk (Contingencies)									
	TOTAL CONTRACT/PROJECT COST*									

* Where the costs analysed are based on a building contract this will be the total contract sum including any employer's contingencies and contractor's design fees. Where other client costs are included these should be identified and the total will be the project cost.

Specification and Design Notes

	ELEMENT AND DESIGN CRITERIA			SPECIFICATION NOTES		
1	**SUBSTRUCTURE**					
1.1	Substructure			1.1.1	Standard Foundations	
	Nature of soil			1.1.2	Special Foundations	
	Permissible soil loading		kN/m^2	1.1.3	Lowest Floor Construction	
	Bearing strata depth		m	1.1.4	Basement Excavation	
	Site levels: main gradients		m	1.1.5	Basement Retaining Walls	
	Water table depth		m			
	Average pile loading		kN			
	Volume of basement		m^3			
2	**SUPERSTRUCTURE**					
2.1	**Frame**			2.1.1	Frame	
	Grid pattern of main columns					
2.2	**Upper Floors**			2.2.1	Floors	
	Design loads		kN/m^2	2.2.2	Balconies	
	Spans		m	2.2.3	Drainage to Balconies	
	Sound insulation		dB			
	Angle of slope		deg			
	Area of incline for sloping surfaces		m^2			
2.3	**Roof**			2.3.1	Roof Structure	
	Design loads		kN/m^2	2.3.2	Roof Coverings	
	Spans		m	2.3.3	Specialist Roof Systems	
	Angle of pitch of sloping roofs		deg	2.3.4	Roof Drainage	
	Area of roof surface		m^2	2.3.5	Rooflights, Skylights and Openings	
	Area of roof (as built) (on plan)		m^2	2.3.6	Roof Features	

	ELEMENT AND DESIGN CRITERIA			SPECIFICATION NOTES		
2.4	**Stairs and Ramps**			2.4.1	Stair/Ramp Structures	
	Total vertical height of each staircase and width between strings		m	2.4.2	Stair/Ramp Finishes	
				2.4.3	Stair/Ramp Balustrades and Handrails	
				2.4.4	Ladders/Chutes/Slides	
2.5	**External Walls**			2.6.1	External Enclosing Walls above ground level	
	Design loads of loadbearing walls		kN/m^2	2.6.2	External Enclosing Walls below ground level	
	Thermal conductivity – U value		W/m^2K	2.5.3	Solar/Rain Screening	
	Sound insulation		dB	2.5.4	External Soffits	
	Area of external walls above ground		m^2	2.5.5	Subsidiary Walls, Balustrades, and Proprietary Balconies	
	Area of basement walls		m^2	2.5.6	Façade Access/Cleaning Systems	
	Details of Façade retention work		m^2		Façade Retention	
2.6	**Windows and External Doors**			2.6.1	External Windows	
	Total window area		m^2	2.6.2	External Doors	
	Area of opening lights to windows		m^2			
	External door area		m^2			
2.7	**Internal Walls and Partitions**			2.7.1	Walls and Partitions	
	Sound insulation		dB	2.7.2	Balustrades and Handrails	
	Number of WC cubicles		Nr	2.7.3	Moveable Room Dividers	
				2.7.4	Cubicles	
2.8	**Internal Doors**			2.8.1	Internal Doors	
	Number of doors by type and size		Nr			
	Fire rating		Hr			

3 INTERNAL FINISHES

3.1	**Wall Finishes**			3.1.1	Wall Finishes	
3.2	**Floor Finishes**			3.2.1	Finishes to Floors	
				3.2.2	Raised Access Floors	

	ELEMENT AND DESIGN CRITERIA				SPECIFICATION NOTES	
3.3	**Ceiling Finishes**			3.3.1	Finishes to Ceilings	
				3.3.2	False Ceilings	
				3.3.3	Demountable Suspended Ceilings	

4 FITTINGS, FURNISHINGS AND EQUIPMENT

4.1	**Fittings, Furnishings and Equipment**			4.1.1	General Fittings, Furnishings and Equipment	
				4.1.2	Domestic Kitchen Fittings and Equipment	
				4.1.3	Special Purpose Fittings, Furnishings and Equipment	
				4.1.4	Sign/Notices	
				4.1.5	Works of Art	
				4.1.6	Non-Mechanical and Non-Electrical Equipment	
				4.1.7	Internal Planting	
				4.1.8	Bird and Vermin Control	

5 SERVICES

5.1	**Sanitary Installations**			5.1.1	Sanitary Appliances	
				5.1.2	Sanitary Ancillaries	
5.2	**Services Equipment**			5.2.1	Services Equipment	
5.3	**Disposal Installations**			5.3.1	Foul Drainage above ground	
				5.3.2	Chemical Toxic and Industrial Liquid Waste Disposal	
				5.3.3	Refuse Disposal	
5.4	**Water Installations**			5.4.1	Mains Supply	
	Total number of draw-off points		Nr	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	
	Rating in kW		kW			

	ELEMENT AND DESIGN CRITERIA			SPECIFICATION NOTES		
5.6	**Space Heating and Air Conditioning**			5.6.1	Central Heating	
	Volume of treated space		m^3	5.6.2	Local Heating	
				5.6.3	Central Cooling	
				5.6.4	Local Cooling	
				5.6.5	Central Heating and Cooling	
				5.6.6	Local Heating and Cooling	
				5.6.7	Central Air Conditioning	
				5.6.8	Local Air Conditioning	
5.7	**Ventilating Systems**			5.7.1	Central Ventilation	
	Volume of treated space		m^3	5.7.2	Local and Special Ventilation	
				5.7.3	Smoke Extract/Control	
5.8	**Electrical Installations**			5.8.1	Electric Mains and Sub-mains Distribution	
	Total electric load		kVA	5.8.2	Power Installations	
	Illumination levels		lux	5.8.3	Lighting Installations	
	Capacity of local electricity generation		%	5.8.4	Specialist Lighting Installations	
	Capacity for emergency generation		%	5.8.5	Local Electrictiy Generation System	
	Capacity for uninterruptible power supply		%	5.8.6	Earthing and Bonding System	
	Period for uninterruptible power supply		min			
5.9	**Fuel Installations**			5.9.1	Fuel Storage	
	Total number of draw off points		Nr	5.9.2	Fuel Distribution System	
5.10	**Lift and Conveyor Installations**			5.10.1	Lifts and Enclosed Hoists	
	Lifts – peak passenger numbers and designed waiting times			5.10.2	Escalators	
	Lifts – number, capacity, speed, number of doors and height served			5.10.3	Moving Pavement	
	Escalators - rise and travel			5.10.4	Powered Stairlifts	
	Conveyors - rise and travel			5.10.5	Conveyors	
	Goods lifts, hoists, cranes, dock levellers, scissor lifts, etc - designed load		kN	5.10.6	Dock Levellers and Scissor Lifts	
				5.10.7	Cranes and Unenclosed Hoists	
				5.10.8	Car Lifts, Car Stacking Systems, Turntables and the Like	
				5.10.9	Document Handling Systems	
				5.10.10	Other Lift and Conveyor Installations	

	ELEMENT AND DESIGN CRITERIA				SPECIFICATION NOTES	
5.11	**Fire and Lightning Protection**			5.11.1	Fire fighting Systems	
	Details of each installation			5.11.2	Fire Suppression Systems	
				5.11.3	Lightning Protection	
5.12	**Communications and Security Installations**			5.12.1	Communication Systems	
	Details of each installation			5.12.2	Security Systems	
				5.12.3	Central Control/ Building Management Systems	
5.13	**Special Installations**			5.13.1	Specialist Piped Supply Installations	
	Details of each installation			5.13.2	Specialist Refrigeration Systems	
				5.13.3	Specialist Mechanical Installations	
				5.13.4	Specialist Electrical/Electronic Installations/Systems	
				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	**REFABRICATED BUILDINGS AND BUILDING UNITS**					
6.1	**Prefabricated Buildings and Building Units**			6.1.1	Complete buildings	
	Floor area of each unit or floor area and a number of each type of unit			6.1.2	Building Units	
				6.1.3	Pods	
7	**WORK TO EXISTING BUILDING**					
7.1	**Minor Demolitions and Alterations**			7.1.1	Minor Demolitions and Alterations	
8	**EXTERNAL WORKS**					
8.1	**Site Preparation Works**			8.1.1	Site Clearance	
				8.1.2	Preparatory Groundworks	
8.2	**Roads, Paths, Pavings and Surfacings**			8.2.1	Roads, Paths and Pavings	
				8.2.2	Special Surfacing and Pavings	

	ELEMENT AND DESIGN CRITERIA			SPECIFICATION NOTES		
8.3	**Soft Landscaping, Planting, and Irrigation Systems**			8.3.1	Seeding and Turfing	
				8.3.2	External Planting	
				8.3.3	Irrigation Systems	
8.4	**Fencing, Railings and Walls**			8.4.1	Fencing and Railings	
				8.4.2	Walls and Screens	
				8.4.3	Retaining Walls	
				8.4.4	Barriers and Guardrails	
8.5	**External Fixtures**			8.5.1	Site/Street Furniture and Equipment	
				8.5.2	Ornamental Features	
8.6	**External Drainage**			8.6.1	Surface Water and Foul Water Drainage	
				8.6.2	Ancillary Drainage Systems	
				8.6.3	External Chemical, Toxic and Industrial Liquid Waste Drainage	
				8.6.4	Land Drainage	
8.7	**External Services**			8.7.1	Water Mains Supply	
				8.7.2	Electricity Mains Supply	
				8.7.3	External Transformation Devices	
				8.7.4	Electricity Distribution to External Plant and Equipment	
				8.7.5	Gas Mains Supply	
				8.7.6	Telecommunications and Other Communication System Connections	
				8.7.7	External Fuel Storage and Piped Distribution Systems	
				8.7.8	External Security Systems	
				8.7.9	External/Street Lighting Systems	
				8.7.10	Local/District Heating Installations	
				8.7.11	Builder's Work in Connection with External Services	
8.8	**Minor Building Works and Ancillary Buildings**			8.8.1	Minor Building Works	
				8.8.2	Ancillary Buildings and Structures	
				8.8.3	Underpinning to External Site Boundary Walls	

	ELEMENT AND DESIGN CRITERIA			SPECIFICATION NOTES		
0	**FACILITATING WORKS**					
0.1	**Toxic/Hazardous/ Contaminated Material Treatment**			0.1.1	Toxic/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 to Adjacent Structures**			0.3.1	Temporary Support to 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**			0.6.1	Archaeological Investigation	
				0.6.2	Reptile/Wildlife MitigationMeasures	
				0.6.3	Other Extraordinary Site Investigation Works	
9	**MAIN CONTRACTOR'S PRELIMINARIES**					
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	

	ELEMENT AND DESIGN CRITERIA			SPECIFICATION NOTES		
10	**MAIN CONTRACTOR'S OVERHEADS AND PROFIT**					
10.1	**Main Contractor's Overheads**					
10.2	**Main Contractor's Profit**					
11	**PROJECT/DESIGN TEAM FEES**					
11.1	**Consultant's Fees**			11.1.1	Project/Design Team Consultant's Fees	
				11.1.2	Other Consultant's Fees	
				11.1.3	Site Investigation Fees	
				11.1.4	Specialist Support Consultant's Fees	
11.2	**Main Contractor's Pre-Construction Design Fees**			11.2.1	Management and Staff	
				11.2.2	Specialist Support Services Fees	
				11.2.3	Temporary Accommodation Services and Facilities Charges	
				11.2.4	Main Contractor's Overheads and Profit	
11.3	**Main Contractor's Design Fees**			11.3.1	Main Contractor's Design Consultant's fees	
12	**OTHER DEVELOPMENT/PROJECT COSTS**					
12.1	**Other Development/Project Costs**			12.1.1	Land Acquisition Costs	
				12.1.2	Employer Finance Costs	
				12.1.3	Fees	
				12.1.4	Charges	
				12.1.5	Planning Contributions	
				12.1.6	Insurances	
				12.1.7	Archaeological Fieldworks	
				12.1.8	Other Specialist Fieldworks	
				12.1.9	Decanting and Relocation Costs	
				12.1.10	Fittings, Furnishings and Equipment	
				12.1.11	Tenant's Costs/Contributions	
				12.1.12	Marketing Costs	
				12.1.13	Other Employer Costs	
13	**RISK (CLIENT'S CONTINGENCIES)**					
				13.1	Design Development Risks	
				13.2	Construction Risks	
				13.3	Employer Change Risk	
				13.4	Employer Other Risk	

8 BCIS XML Schema for Elemental Analyses

BCIS has developed an XML schema for elemental analyses to encourage the use and exchange of analyses. The schema is designed to enable analyses to be reliably transferred between applications and to provide a neutral format for analysis data.

XML is widely used within IT as a format for the exchange of information and standard software tools are available to help process XML files. XML itself is only a set of rules for encoding information: the XML schema is the definition of what data can be stored in a particular subject area and how it is ordered. BCIS developed the schema for elemental analyses in 2001 and issued a revised version in 2010.

An important function is to avoid ambiguity. This is most easily illustrated with dates, which can be represented in a variety of formats – many of which are ambiguous (01/10/18: January or October, 1918 or 2018?). The schema defines how dates must be represented.

The schema does not define the elements (that is the role of the SFCA), so the BCIS schema could be used with other element definitions.

Context is vital when using analyses and the schema includes the background information and notes (areas, dates, specifications, contractual arrangements, etc.) that would normally come with an analysis.

Various applications can read and/or write analyses in the BCIS analyses XML format. BCIS Online and the equivalent BCIS SOAP services deliver analyses in this format. Various leading third party budget estimating/cost planning systems can read analysis XML files, including CATO and RIPAC. The equivalent BQ packages can also export analyses in this format and BCIS has developed an application that can create and edit analyses stored as XML files. The schema itself is in the public domain at http://www.bcis.co.uk/xml/analyses_v11.xsd so that others can develop interfaces.

BCIS relies on subscribers submitting analyses and would like to see more data submitted electronically to save time and costs, and help further improve quality. To this end, the BCIS Analysis XML Writer was developed and is available for free download from http://download.bcis.co.uk. The application will allow you to create a BCIS Analyses XML file and edit such files to add or amend details. The application includes extensive checks so that common problems can be identified and corrected immediately.

An analyses XML file may contain one or several analyses. BCIS recommended practice is that each file should contain all analyses associated with one project ('complex contacts'), and that separate projects are held in separate XML files, but circumstances will vary and other practices will be appropriate at times.

XML files can be read as text files, but this is by no means easy. To make the BCIS Analyses XML files more useful and flexible, a style sheet has been developed which, when referenced in an appropriate web browser, will format the analysis in a layout suitable for display on the screen or printing.

Analyses can be prepared in many different ways depending on the procurement route as well as the software employed. Here are a few scenarios:

'Traditional Procurement' (BQ or priced schedule), prepared using a BQ package that supports XML export: items coded elementally when measured. Enter rates from tender when received. BQ package generates analysis and exports as XML file. BCIS Analysis XML Writer used to edit file and add additional information (specifications, element unit quantities, tender list, etc. where not supported by BQ package).

Design and Build Contract Sum Analysis: provided that the contract sum analysis was required in elemental form, the tender documents contain all that is needed. The BCIS Analysis XML writer can be used to create a new XML file and details added direct from the documents.

'Traditional Procurement' (BQ or priced schedule), prepared using a system that does not support XML export or where items were not coded elementally when measured: an Excel template is available from http://download.bcis.co.uk/elementalabstract/Introduction.html which can be used to abstract the items into elements. When this is complete, the data can be exported as XML and then the BCIS Analysis XML Writer can be used to add additional information (areas, specifications, element unit quantities, tender list, etc.).

At the end of each of these processes you will have an analysis in XML format that contains all the information needed to make use of the data in a format that can be imported into leading cost planning applications. It is also ready to be submitted to BCIS for publication.

Appendix 1: Summary of Elemental Definitions and Measurement

Element		Functional definition	Measurement*	3rd Edition reference
1.1	**Substructure**	To transfer the load of the building to the ground and to isolate it horizontally from the ground.	Area of lowest floor measured to the internal face of the external wall (as for Gross Internal Floor Area) (m^2).	1A
2.1	**Frame**	To provide a full or partial system of structural support, where this is not provided by other elements.	Area of floors related to the frame measured to internal face of external walls (as for Gross Internal Floor Area) (m^2).	2A
2.2	**Upper Floors**	To provide floor space on upper levels (i.e. above the lowest floor level).	Total area of upper floor measured to the internal face of the external wall (as for Gross Internal Floor Area) (m^2).	2B
2.3	**Roof**	To provide the horizontal component of the external enclosing envelope.	Area on plan measured to the internal face of the external wall (m^2).	2C
2.4	**Stairs and Ramps**	To allow vertical circulation.	Number of storey flights (Nr), i.e. the number of staircases multiplied by the number of floors served (excluding the lowest floor served in each case).	2D
2.5	**External Walls**	To provide the vertical component of the external enclosing envelope in conjunction with 2.6 Windows and External Doors.	Area of external walls measured on the inner face (excluding openings measured as for 2.6 Windows and External Doors) (m^2). NB: the total of the area of 2.5 External Walls and 2.6 Windows and External Doors should equal the area of the vertical enclosure.	2E
2.6	**Windows and External Doors**	To allow access through external walls for physical movement, natural ventilation and light, and to provide the vertical component of the external enclosing envelope in conjunction with 2.5 External Walls.	Total area of windows and external doors measured over frames (m^2). NB: the total of the area of 2.5 External Walls and 2.6 Windows and External Doors should equal the area of the vertical enclosure.	2F
2.7	**Internal Walls and Partitions**	To divide the floor space.	Total area of internal walls and partitions measured on the centreline over door openings and the like (m^2).	2G
2.8	**Internal Doors**	To allow physical circulation between internally divided floor space.	Number of doors (door openings) (Nr).	2H
3.1	**Wall Finishes**	To provide a functional and/or decorative finish to walls.	Total area of finished walls (m^2), i.e. the area of wall to which the finish is applied.	3A
3.2	**Floor Finishes**	To provide a functional and/or decorative finish to floors.	Total area of finished floor, i.e. area of floor to which finish is applied (m^2).	3B
3.3	**Ceiling Finishes**	To provide a functional and/or decorative finish to ceilings.	Total area of finished ceilings, i.e. area of ceiling to which finish is applied (m^2).	3C
4.1	**Fittings, Furnishings and Equipment**	To provide functional and/or decorative items.	Gross Internal Floor Area (m^2).	4A
5.1	**Sanitary Installations**	To provide sanitary appliances.	Number of fittings (Nr).	5A
5.2	**Services Equipment**	To provide serviced equipment.	Number of fittings (Nr).	5B
5.3	**Disposal Installations**	To remove liquid and solid waste from the building.	Number of fittings serviced (Nr).	5C
5.4	**Water Installations**	To provide water and steam.	Floor area serviced by water installation (m^2).	5D
5.5	**Heat Source**	To provide a central source of heat.	Rating in kilowatts (kW).	5E
5.6	**Space Heating and Air Conditioning**	To control the internal temperature and/or air quality.	Treated floor area (m^2).	5F
5.7	**Ventilation Systems**	To provide the movement of air.	Treated floor area (m^2).	5G
5.8	**Electrical Installations**	To provide electrical power, and to control the light levels (electrically).	Floor area serviced by electrical installation (m^2).	5H
5.9	**Fuel Installations**	To provide fuel as a source of energy.	Floor area serviced by the systems using the fuel (m^2).	5I

5.10	**Lift and Conveyor Installations**	To provide vertical and horizontal mechanical transportation.	Number of stops (Nr), i.e. the number of lifts multiplied by the number of floors served (excluding the lowest floor served in each case), include non-stopping floors of express lifts.	**5J**
5.11	**Fire and Lightning Protection**	To protect the building and its inhabitants from hazards.	Floor area serviced (protected) (m^2).	**5K**
5.12	**Communication, Security and Control Installations**	To provide systems for communication to and between inhabitants for information and security.	Floor area serviced (m^2).	**5L**
5.13	**Specialist Installations**	To provide electrical and mechanical systems related to the user function of the building, not included elsewhere.	Floor area serviced (m^2).	**5M**
5.14	**Builder's Work in Connection with Services**	To provide builder's work for services.	Gross internal floor area (m^2).	**5N**
6	**Prefabricated Buildings and Building Units**	To provide enclosed usable floor area installed as a prefabricated unit. Note: Not a building element; included to account for general works that cannot be allocated to elements.	Floor area measured as for gross internal floor area for each unit (m^2).	**Allocated to 2A**
7.1	**Minor Demolition and Alteration Works**	Not a functional element; included to account for the cost of general works that cannot be allocated to elements.	Floor area of building subject to stripping out (m^2).	**Allocated to elements**
8.1	**Site Preparation Works**	To prepare the site for building.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6A**
8.2	**Roads, Paths, Pavings and Surfacings**	To provide usable hard surfaces.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6A**
8.3	**Soft Landscaping, Planting and Irrigation Systems**	To provide usable soft surfaces and decorative and usable planting.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6A**
8.4	**Fencing, Railings and Walls**	To enclose and divide the site.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6A**
8.5	**External Fixtures**	To provide fittings required to make the site usable.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6A**
8.6	**External Drainage**	To remove liquid waste from the building and the site.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6B**
8.7	**External Services**	To provide services to the building and the site.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6C**
8.8	**Minor Building Works and Ancillary Buildings**	To provide buildings required by external services and minor buildings to support the function of the building.	Area of external works (m^2), i.e. site area excluding the building footprint.	**6D**
0.1	**Toxic/Hazardous/ Contaminated Material Treatment**	Not a functional element; included to account for the cost of works in preparing the site.	Site area (m^2).	**6A**
0.2	**Major Demolition Works**	Not a functional element; included to account for the cost of works in preparing the site.	Gross Internal Floor Area of buildings demolished (m^2).	**6A**
0.3	**Temporary Support to Adjacent Structures**	Not a functional element; included to account for the cost of works in preparing the site.	The area walls supported (m^2).	**6A**
0.4	**Specialist Ground Works**	Not a functional element; included to account for the cost of works in preparing the site.	Site area (m^2).	**6A**
0.5	**Temporary Diversion Works**	Not a functional element; included to account for the cost of works in preparing the site.	Site area (m^2).	**6A**
0.6	**Extraordinary Site Investigation**	Not a functional element; included to account for the cost of works in preparing the site.	Site area (m^2).	**6A**

*** See Section 5 Element definitions for further guidance on measurement.**

Appendix 2: Recommended Functional Units

Functional units represent the quantification of the use of the building.

Functional units are client specific as they reflect how they will use the building.

A list of commonly used functional units is given below, however their exact definition should be agreed with the client on each project

There is an industry standard definition for Net Internal Area (NIA); see the RICS Code of Measuring Practice, which is commonly used to define net lettable floor area and widely used for offices. Note: NIA is not the same as 'Usable floor area' defined in Section 4.

Net Internal Area

Net Internal Area is the usable area within a building measured to the internal face of the perimeter walls at each floor level.

Including

- Atria with clear height above, measured at base level only
- Entrance halls
- Notional lift lobbies and notional fire corridors
- Kitchens
- Built-in units, cupboards, and the like occupying usable areas
- Ramps, sloping areas and steps within usable areas
- Areas occupied by ventilation/ heating grilles
- Areas occupied by skirting and perimeter trunking
- Areas occupied by non-structural walls subdividing accommodation in sole occupancy
- Pavement vaults

Excluding

- Those parts of entrance halls, atria, landings and balconies used in common
- Toilets, toilet lobbies, bathrooms, cleaners' rooms, and the like
- Lift rooms, plant rooms, tank rooms (other than those of a trade process nature), fuel stores and the like
- Stairwells, lift-wells and permanent lift lobbies
- Corridors and other circulation areas where used in common with other occupiers
- Permanent circulation areas, corridors and thresholds/ recesses associated with access, but not those parts that are usable areas
- Areas under the control of service or other external authorities including meter cupboards and statutory service supply points
- Internal structural walls, walls enclosing excluded areas, columns, piers, chimney breasts, other projections, vertical ducts and the like
- The space occupied by permanent and continuous air-conditioning, heating or cooling apparatus, and ducting in so far as the space it occupies is rendered substantially unusable
- The space occupied by permanent, intermittent air-conditioning, heating or cooling apparatus protruding 0.25m or more into the usable area
- Areas with a headroom of less than 1.5m
- Areas rendered substantially unusable by virtue of having a dimension between opposite faces of less than 0.25m
- Vehicle parking areas (the number and type of spaces noted)

Commonly used functional units

More than one functional unit is given against some building types, either:

- *Because more than one functional unit is applicable to the building type, e.g. housing is normally described by both occupancy (Nr of persons) and number of bedrooms.*
- *There are alternative functional units depending on the nature of the individual facility, e.g. a communal residential facility may either provide individual bedrooms or communal sleeping areas.*

Functional Units

Transport

Coach and bus stations	Nr of vehicle spaces
Car parks	Nr of vehicle spaces
Garages	Nr of vehicle spaces

Industrial

Livestock buildings - farms (pig pens, milking parlours, etc.)	Nr animals
Factories	m^2 Net Internal Area
Warehouses/stores	m^2 Net Internal Area

Administrative, commercial, protective

Law courts	Nr of courtrooms
Offices	m^2 Net Internal Area
	Nr of persons
Retail warehouses	m^2 Retail Area
Shopping centres	m^2 Retail Area
Department stores	m^2 Retail Area
Shops	m^2 Retail Area
Fire stations	Nr of vehicle spaces
Ambulance stations	Nr of vehicle spaces
Prisons	Nr of bedspaces

Health and welfare

Hospitals	Nr of bedspaces
	Nr theatres/treatment rooms
	Nr practitioners' suites
Pharmacies, dispensaries	Nr population served
Outpatients/casualty unit	Nr population served
Health Centres, clinics, group practice surgeries	Nr practitioners' suites
	Nr population served
Dentists surgeries	Nr practitioners' suites
	Nr population served
Homes	Nr of persons
	Nr bedrooms
Day centres	Nr of persons
Veterinary hospitals	Nr of animals
Animal clinics	Nr of practitioners' suites
Animal rearing and living facilities	Nr of animals

Recreational facilities

Canteens, refectories	Nr of places
	Meals per hour
	Nr population served
Restaurants	Nr of places
Public houses, licensed premises	m^2 Retail Area
Dance halls, ballrooms, discothèques	Nr of places

Concert halls	Nr of persons
Theatres	Nr of places
Cinemas	Nr of places
	Nr of screens
Community Centres, General purpose halls, etc.	Nr of persons
Swimming pools	Nr of persons
	Nr population served
Boat houses (private and recreational)	Nr of vehicle spaces
Sports centres/recreational centres	Nr of persons
	Nr of sports courts
Squash courts, tennis courts, etc.	Nr of sports courts
Stadia,	Nr of places
	Nr of persons
Sports pavilions, club houses and changing rooms	Nr of persons

Religious

Churches, chapels, temples, mosques, etc.	Nr of persons

Education, scientific, information

Schools	Nr of places
Universities, colleges, etc.	Nr of places
Libraries	Thousand volumes
	Population served
	Nr of places
Record offices, archives, patent offices	Thousand volumes/records

Residential

Housing (houses and flats)	Nr of persons
	Nr of bedrooms
	Gross internal floor area of the units
Hotels, motels, guesthouses	Nr of bedrooms
Dormitories	Nr of bedrooms
	Nr of persons
Nurses residence, student's residence, halls of residence, etc.	Nr of bedrooms
	Nr of persons
Barracks, mess accommodation, section houses, etc.	Nr of bedrooms
	Nr of persons
Youth hostels	Nr of bedrooms
	Nr of persons
Short stay hostels for homeless, etc.	Nr of bedrooms
	Nr of persons

Common facilities, other facilities

Conference centres	Nr of places
Kitchens	Meals per hour
	Population served
Public conveniences, toilet blocks, utility blocks	Nr of places
Boiler houses	kW

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