



# ICMS Explained

A user guide for the International  
Construction Measurement Standards

[rics.org/icmsexplained](https://rics.org/icmsexplained)

# Purpose of this user guide

## Explanatory notes

To provide a brief guide of the background, structure, content and potential use for ICMS, together with various appendices, which provide further and more detailed guidance and worked examples.

## For global RICS professionals

This user guide is intended for use by RICS and other relevant professionals to make use of ICMS as part of a client instruction or other relevant work. This work can be done on behalf of or by investors, funders, clients, consultants and contractors across all aspects of construction.

It assumes a level of competency and experience in cost reporting and data analysis. For further help or support please refer to appendix C for relevant contact details, or visit [rics.org](https://www.rics.org) to find out more.



# Philosophy of ICMS

## Objectives

ICMS are principles-based international standards that set out how to report, group and classify construction project costs in a structured and logical form. As far as RICS is concerned, it is the first step in creating a seamless, global, pyramidal hierarchy of construction cost classification: from high-level global cost benchmarking to granular, local cost measurement.

## Why is it important?

As property, construction and infrastructure continues to be increasingly global in extent and operation, there is a real need for international consistency in something as fundamental as construction cost classification. Historically, these processes have followed local and regional custom and practice, which has made comparison across the world more difficult, leading to confusion, uncertainty and lack of confidence from key stakeholders.

## Combining buildings and civil engineering

ICMS deal with construction cost classification across buildings and civil engineering (infrastructure) type projects. Never has a single standard document sought to combine all elements of construction.

'Buildings' are defined in ICMS as 'a construction with a cover and enclosure to house people, equipment or goods' and includes all functional types, such as residential, offices, retail and industrial. The definition of which functional type applies is then set out in the relevant description of the project.

In the case of civil engineering or infrastructure projects, these are presented as separate project classifications, each defined by their principal purpose. The principal project classifications identified currently include roads, railways, bridges, tunnels, waste water treatment works, water treatment works, pipelines, wells and boreholes, power-generating plants, chemical plants and refineries. For each project classification, the definition of which functional type applies (for example: bridges, roads, rail, pedestrians, etc.) is then set out in the relevant description of the project.

The separate classification for civil engineering projects has been decided for presentation within ICMS because the characteristics and purpose of each are sufficiently different from each other to warrant separate sections. On the other hand, any differences in the functional types for each project can be captured in the project attributes section.

One of the strengths of ICMS is that it treats buildings and each separate class of civil engineering project in the same structured way.

## Projects and sub-projects

A 'project' is considered as a stand-alone piece of construction work where the cost classification can be presented for that building or civil engineering piece of work. A 'project' can also be a 'wrapper' for a series of 'sub-projects', where each sub-project is distinct and comprises part of the overall development. However, if one building is designed and built for multi-use, such as a tower-built mixed-use development that contains residential, commercial office space, retail and hotel accommodation, then this would be considered a single 'project'.

# Structure, format and layout of ICMS

## ICMS framework – concept overview

References in this user guide to page numbers, Sections, Tables and Schedules are related to ICMS, first edition, published in July 2017.

**Section 2.1 of ICMS** (Figure 1) sets out an overview of the framework with various cost classification levels, the component parts of which are explained in this guide. All of the terms and definitions in each case are set out in the list of definitions at ICMS section 1.2):

**Level 1: 'projects or sub-projects'** – these relate to either '**buildings**', or '**civil engineering/infrastructure**' classified projects individually, although the treatment of both types is the same.

In the case of '**buildings**', the description of the functional type of the building under consideration is given in the project attributes for the 'Works' in Schedule 1 – a selection of sample building functional types are provided (such as residential, office and commercial) together with the opportunity to add any other functional type not specifically listed.

In the case of '**civil engineering/infrastructure**' type projects, there are 11 classified types of such projects listed, these being considered the most common infrastructure type projects that typically exist and again, for each classification a selection of sample functional types is provided (such as road, rail, pipeline for tunnels) together with the opportunity to add any other functional type not specifically listed.

Appropriate skill and judgement is needed by the construction cost adviser if the ‘building’ being cost classified (say, a shopping centre, railway station or airport terminal) contains within the development an element of surface access roads (and car parking). It is suggested, as a principle, that, unless they are of significant scope, the roads and car parking cost is included within the building cost classification (within the ‘external works’ cost group) rather than being classified as separate projects.

Further, appropriate skill and judgement is needed by the construction cost adviser as to whether (for example, a small ancillary structure within a larger project) should merely be considered as part of the whole or whether it should be placed into and cost reported as a separate sub-project. Given that ICMS are intended to be a ‘high-level’ framework model, it is impossible to provide meaningful guidance on the multitude of variants that will exist.

Similarly, if the civil engineering project of one classification contains a minor amount of work in other classifications (for example, minor lineside buildings and access roads to a railway) these may be included within the external work cost group rather than being classified as separate projects.

ICMS, first edition, only contain these level 1 project categories and the framework notes that further types of project will be ‘added later’.

**Level 2: ‘cost categories’** – these are individual categories that provide for a suitable split or classification of the overall project cost into three level 2 cost categories, as follows:

**Capital construction costs:** this will be typically the total cost of the project expenditure as paid by the client to the constructor as set out in the business case, budget, or construction contract(s). There may be separate sets of construction costs that make up the total, if more than one constructor is retained, depending on the procurement model chosen.

**Associated construction costs:** this will typically be the sum of the other capital costs associated with the project and which serve to facilitate all that takes place. The four cost groups listed in this section are:

- 1 services and similar work off-site, to enable the project to be completed – typically the cost of the utility connections (where not paid for by the constructor)
- 2 loose furniture and equipment that would typically be installed or placed after, or close to, completion of the construction works
- 3 consultant’s fees related directly to the construction project – this would typically be the client’s directly-appointed design and management team – fees that are not directly construction related should be classified in the next section.

Design fees incurred and paid for by the constructor should be included elsewhere within the capital construction costs and a suitable note added to the attributes section and

- 4 risk allowances (sometimes known as contingency).

**Site acquisition and client’s other costs:** this will typically include the cost to acquire the site and all non-directly construction-related costs incurred by the client, such as fees incurred with lawyers, marketing, funders, etc.

Construction cost advisers may not be aware of the site acquisition cost incurred by the client or the site may have been within the ownership of the client for some time, appropriate notes should be added to the project attributes section to make clear the status of the site purchase cost.

Do not include in this cost group the current open-market valuation of the site as an asset – this is not relevant to this cost classification framework.

The sum of these three cost categories must always be the same as the **total capital cost** and the construction cost adviser must ensure that all construction and other related costs are included in one of the three cost categories. In other words, the total cost of each category or group shall be the sum of its results at the level below, plus any cost allocated at that level and not further broken down.

ICMS, first edition, only contains these three level 2 cost categories and the framework notes that provision for the analysis and cost classification of cost-in-use will be made ‘later’.

**Level 3: ‘cost groups’** – these capture the sub-division of the three cost category totals into a more detailed breakdown in each case – there are ten separate cost groups for capital construction costs, three separate cost groups for associated capital costs and two separate cost groups for the site acquisition.

These cost groups at level 3 are mandatory and should not be changed, deleted or added to – the construction cost adviser is required to ensure that all the costs to be classified should be included somewhere within this framework at level 3.

The definition of these level 3 cost groups is set out in section 2.2 Table 1 and a more detailed description of the coverage of these cost groups is set out in the guide under the commentary in respect of Table 1.

**Level 4: ‘cost sub-groups’** – these are intended to capture further sub-divisions of cost within each of the level 3 cost groups, thereby providing an even more granular level of detail of cost classification.

These cost sub-groups at level 4 are discretionary and can be formulated to suit local custom and practice. ICMS include a set of suggested cost sub-group codes and descriptions, which it is recommended are followed, wherever possible.

If a cost incurred on the project is not listed within the sample selection provided at level 4, then the construction cost adviser should add a suitable item and cost code in a logical manner taking account of the remainder of the coding within that cost group. These sample selection details are contained within four appendices within ICMS (pages 27-40 inclusive), as follows:

**Appendix A** (pages 28-34 inclusive): 'buildings' classification (common to all types of Buildings, where the functional type is defined in the project attributes elsewhere).

**Appendix B** (pages 35-38 inclusive): 'civil engineering works' classification (the classification appears in the form of a table or matrix, where the relevant level 4 cost sub-group item is 'dotted' to indicate that it is relevant to that particular type of civil engineering works).

**Appendix C** (page 39): 'associated capital costs' classification (common to both of the foregoing in appendix A and B).

**Appendix D** (page 40): 'site acquisition and client's other costs' classification (common to both of the foregoing in appendix A and B).

A detailed, but discretionary, cost coding system is provided for all items and it is suggested that these are followed whenever possible, although it is likely that the future data products, published by the RICS and others, will represent these in a formal structure. There are also (in the case of appendix A and B of ICMS) a set of 'general notes' (page 27 of ICMS) that are intended to clarify and define coverage and allocation where applicable.

## ICMS hierarchical levels – overview

**Section 2.2** (Figure 2) sets out a diagram of the hierarchical structure of ICMS together with a brief set of notes that describe the various levels of the framework.

**Table 1** (pages 8-9 inclusive) provides a detailed description of the scope or 'coverage' intended to be classified within the relevant level 3 cost group under each of the three cost categories at level 2. Such 'coverage' is common in this Table to both buildings and civil engineering projects and is mandatory and standardised for all projects irrespective of type or function.

**Schedule 2** contains guidance on the allocation of the costs between substructure and structure.

The three divisions set out in **Table 1** are as follows:

**Capital construction costs**, this classifies the total cost into **ten separate level 3 cost groups**, in order to 'capture' all of the construction costs (in seven groups) together with **three further** groups for such items of cost such as preliminaries, risk allowances and taxes/levies.

It is acknowledged that the use of only seven directly related construction cost groups for the classification of all the construction cost will be a lower number than many historic construction cost classification systems or databases have in place, but it should be remembered that further and more detailed cost classification can be given at level 4 in the various cost sub-groups.

The other three cost groups relate to construction-related costs such as preliminaries (site running costs), risk allowances (contingency) within the construction project and taxes/levies.

In the case of taxes/levies and where local mandatory tax is applicable as an addition to the cost of the construction works, but by custom and practice has been excluded from any cost classification system, the construction cost adviser should ensure that it is clear that such mandatory tax is included within the cost classification, and the total cost of the project, even though the tax status of the client and the local tax rules may mean that the tax incurred is recovered by the client at a later date. In addition, it should be made clear in the attributes section if the client does not have to pay such tax.

**Associated capital costs**, this classifies the total cost of the **three separate level 3 cost groups**, in order to capture items such as utility connections, loose furniture, construction project related consultant fees and risk allowances (contingency) where the client chooses to retain the risk allowance outside the parameters of the construction project.

The inclusion of the cost of loose furniture, fittings and furniture is intended to capture the cost of those items that are added to the completed project after completion of the construction works, although this distinction should be considered by the construction cost adviser in the context of such items, which might be included prior to the completed construction works.

Careful consideration should be given so that the construction cost adviser makes clear in any project cost report the status of items of cost which linked to the project (for example, the new rolling stock for a railway or the process plant for a production facility) but which are not correctly to be considered as construction works.

**Site acquisition and client's other costs**, this classifies the total cost of the purchase of the site (if known or released by the client) and all expenses incurred by the client on such non-direct construction activities undertaken by lawyers, marketing people, funders, etc.

If the site acquisition costs are not known, then the construction cost adviser should make this clear within the various notes included with the cost classification plan or report and it is suggested that for consistency in data systems, that this information should have a well-defined location.

**Schedule 2** (pages 25-26 inclusive) contains a sample set of diagrams on the suggested delineation point between **substructure** and **structure** in the case of buildings and a selection of civil engineering works, so that the relevant cost allocation between the two can be made.

No other delineation diagrams are given (for example, between structure and non-structural works) and accordingly the construction cost adviser is to use appropriate judgement for such decisions, based on the scope description contained within Table 1.

Each of the cost groups within Table 1 has a primary cost code number (for example, 1.01, 2.02 and 3.01), which are mandatory and will better facilitate a digital analysis. Further suggested (non-mandatory) cost sub-group cost codes are given in appendices A–D inclusive of ICMS).

## ICMS project attributes and project values [pages 10-24 inclusive]

Section 2.3 (brief introductory notes) and Schedule 1 (a detailed checklist) has a suggested model for the standard presentation of the key information about the project so that construction cost advisers (and others) can make judgements and comparisons between different projects in respect of time, size, quality, location, market conditions and any other relevant information that would assist other advisers.

There are two separate sets of Attributes and Values: the first set (pages 11-12 inclusive) which are **common** to all projects and the second set (pages 13-24 inclusive) which are **specific** to buildings and each of the 11 civil engineering works types.

The common attributes and values provide for 'general' information about the project (which could be considered as non-technical) in areas such as 'real-time' date and project stage status, currency and exchange rate, programme information, site conditions and procurement model adopted.

Sample project values are given and the construction cost adviser should use appropriate skill and judgement to select the 'best-fit' value or add to and adapt that which is offered to suit the circumstances of the project and local custom and practice. At the same time, they will be also seeking to retain the suggested structure and form as best as possible.

The specific attributes and values are split into each of the 12 separate project types – one for buildings generally and 11 for each of the civil engineering works types (and these could be considered as the technical information). This information seeks to capture the key and specific design-based data about the project together with the key quantities.

In respect of quantities under the 'buildings' section, it should be noted that the 'gross external floor area' (IPMS 1) and 'gross internal floor area' (IPMS 2) are cross-referenced to that International Property Measurement Standards (IPMS) definition (see appendix G of ICMS). Construction cost advisers should satisfy themselves that they are aware of the provisions of IPMS to report against this attribute (or be aware that any quantities provided to them by others have also been prepared in that format), required to be quoted within the project attributes and values (Schedule 1) should be defined and given to an appropriate level of detail, to give a general indication of the scale and size of the project.

It is suggested that the currency used for reporting should be the local currency relating to the payments made for the project. It is, therefore, important that the project attributes capture both the real-time details (when the project was undertaken) as well as the exchange rate applicable at the 'base' point in time for the relevant report so that meaningful currency conversion can be made for comparison purposes. This is of particular importance where the project has a long construction period and various packages may be procured at different times.

However, certain clients may require all reports and costs to be reported in their own local corporate 'trading' currency and appropriate dual reporting of costs may be required. Consideration should be given to the possibility that projects should be reported on a common currency basis (say US\$ or a suitable interbank rate).

## Other appendices

ICMS contains several other pieces of relevant information in appendices, as follows:

**Appendix E – Process Flow Charts** (pages 41-43 inclusive)

A selection of process flow charts are given to assist construction cost advisers (and others) to formulate a structured approach to the production of a cost classification model or report for a project and to ensure that all cost aspects of the project are captured.

**Appendix F – Reporting Templates** (pages 44-46 inclusive)

ICMS provides a set of suggested templates for three separate scenarios (noting that this merely contains the financial material, with the need for the text and notes in respect of the project attributes and project values to be added):

- 1 The cost classification of a project in its own right.
- 2 The cost classification between two different project design schemes (for option appraisal purposes, but only in respect of the capital cost and not developed tools such as cost benefit analysis).
- 3 The cost classification for a project with a selection of sub-projects.

While these reporting templates are paper-based models as published with the ICMS, first edition, it is expected that digital models or templates will be prepared by software vendors or individual organisations. For example, of such possible digital solutions see appendix B of this user guide.

**Appendix G – Interface with International Property Measurement Standards (IPMS)** (page 47)

For reporting purposes, construction cost advisers are required to state the relevant areas of the project by reference to the relevant definition within IPMS and this appendix sets out applicable notes.

It should be remembered, as at the publication date of ICMS, first edition, (July 2017) that IPMS continues to be developed across four key functional project types (offices, residential, industrial and retail).

**Appendix H – Bibliography** (page 48)

This contains a brief listing of the key relevant reference documents to ICMS and its use in practice.



# Uses of ICMS

## Early conversations

It is anticipated that construction cost advisers who are intending to use ICMS will have an early conversation with the end-user of the report or other piece of work to explain the benefits of reporting costs in this way.

## Benchmarking and cost reporting

Construction cost advisers will be providing construction cost information and recommendations to their clients at various stages throughout each project life cycle and ICMS, as a tool, will become essential in that process. In addition, informed clients need robust data and reporting for benchmarking in order to assess the financial viability of their projects.

Firstly, when providing benchmarking and order-of-cost estimates of the likely cost of a project, the cost adviser will use appropriate skill and judgement to provide and use costs based on measurements such as an approximate area or key functional parameters, e.g. length or capacity, against the relevant project type. This 'base' figure will be drawn from historic cost data either held by the cost adviser or accessible from published sources and will have a common source basis if such historic cost data and classification has been prepared using ICMS as a reference point.

This 'high-level' cost estimating by the adviser would still need to be adjusted in the usual way for external environmental factors such as geography and real time, and to take account of the size and scale of the project.

Secondly, when providing the client with more detailed estimates, procurement evaluation and post-contract financial reporting, there will be a clearer means to compare different cost models and run 'what-if' scenarios for any change in circumstances.

Thirdly, at the end of the project, there is the need to capture the 'out-turn' cost of the scheme, which serves to provide the basis of the final cost reporting to the client, and for the individual project costs to be added to a database for reference and future use.

In all cases, it is envisaged, at least initially, that ICMS cost reporting may run alongside other methods of reporting demanded by the client or the market. This should not be problematic in practice, as long as costs can be easily mapped between the two methods of reporting using software solutions and professional interpretation.

## Cost classification and analysis

As well as providing a 'high-level' cost reporting tool, ICMS also has a cost classification function, such that individual cost groups or sub-groups (if applicable) are set out, tabulated and totalled to arrive at the overall project cost.

This will enable the cost adviser (at the 'outline business case' stage of the project) to critically challenge any individual cost group value if it seems to be considerably at variance with other current or historic data for that cost group.

In addition, this classification function will be used by the cost adviser to prepare tender enquiry pricing documents so that tender returns are able to be interrogated and evaluations can be made between bids on a common basis.

Critically, the standard classification will allow the collection of global cost data to better inform cost comparison between markets and cost prediction of future schemes.

## Quantum forensics

Cost advisers are also involved in the demonstration of proof of entitlement to recovery of costs incurred within a 'claims' environment and the use of ICMS on the project will ensure that the project cost is classified in a recognisable manner thereby providing greater confidence over the validity of the claim. Proving 'reasonable cost' or providing the cost history of a project will also be more easily undertaken with ICMS adoption.

## Work breakdown structures

Work breakdown structures (WBS) are common ways of classifying works in civil engineering. ICMS have been designed to work with these structures so that cost and time, at high level, can be classified in the same way. An example is shown in appendix B of this user guide.

## BIM models

ICMS is designed to be used, if applicable, with BIM models. Project values and attributes are designed to be used with drop-down lists to ease data input and subsequent analysis. It should be noted, however, that almost all BIM models are classified by Unifomat II and there would need to be an element of mapping between it and ICMS.





# Limitations of ICMS

## Measurement depth

Although ICMS contains the word 'measurement' in the title, it is a construction cost classification tool and, therefore, does not require detailed measurement of construction quantities (as set out – for example – in guidance on measurement rules in SMM, NRM, POMI, CESMM or similar). However, there are project quantities stated that are intended to be set out within the details of each project, although these are not intended to be arrived at by detailed measurement, but are merely an approximate quantity to provide an indication of the size and scale of the various attributes of the project. Indeed, such approximate quantities may be taken from other sources such as a client brief or similar. The construction cost adviser should use appropriate skill and judgement to arrive at a suitable level of accuracy for such approximate quantities.

## Currency and specification

No single currency is used as the basis of cost classification within ICMS, as this is intended to be expressed in the local currency pertaining to the location of the project and/or the currency which was used as the transactional machinery. That stated currency is then to be added as a project specific value by the cost adviser, together with the base date of the costs. This is so that other subsequent users of the cost data can reference the exchange rate for that currency at the time of the project and make suitable adjustments for the fluctuation in the exchange rate since that date. (See *earlier under ICMS project attributes and project values* for comments as to the reporting of costs in a common currency).

While there are limitations as to the accuracy of exchange rate comparisons over time, it should be borne in mind that the use of purchasing power parity measures instead (while more accurate) would involve the user in considerably more effort.

The specification (or quality) of the project is also to be given as part of the project values but this is only intended to be an approximate indication of the general level of specification within each project, rather than a detailed description of each cost group. This is so that other subsequent users of the cost data can form a reasoned judgement of the adjustment in cost required when producing an approximate estimate based on the historic cost data and adjusting it for the perceived difference in specification or quality.

## Extent of coverage – civil engineering

As already noted, ICMS covers 11 common civil engineering (infrastructure) project types and it is considered that these cover much of the infrastructure output. It is intended that further infrastructure project types will be added into a second edition of ICMS due for publication in 2019.

## Extent of coverage – life cycle costs

ICMS only addresses the capital cost of the project – that is the initial cost of construction or development – and does not seek to capture any life cycle (or cost-in-use) data with the cost classification models.

It is intended that a further refinement and addition of life cycle cost data (together with other related non-financial impacts) will be added into a second edition of ICMS in the future. This expansion of the coverage of ICMS will seek to link into BREEAM and similar standards and provide a complete project cycle throughout the whole life of the asset.



# Differences to elemental cost planning

## Classification principles

The classification of construction costs as set out in ICMS differ from other historic elemental cost plan structures, layouts and formats, given that the traditional elemental titles and groups for cost classification do not necessarily apply across the world. Indeed, the thinking behind the work of the ICMS Coalition is to arrive at a cost framework that can be understood by all parties, hence, the use of classification groups with titles such as ‘cost groups’ and ‘cost sub-groups’.

## Substructure and superstructure delineation

Different parts of the world have historically applied different ‘boundaries’ to where the ‘substructure’ ends and ‘superstructure’ starts and these differences are also evident in the boundary applied between structural designers (engineers) and cost management professionals (historically quantity surveyors or cost managers).

The important matter to be decided is that a single common approach is taken, such that when project cost classifications are prepared, the same principle is applied in each case, based on the sample diagrams as presented in Schedule 2 of ICMS. This also serves to align with the way in which 3D models of the building or structure are constructed.

## Loadbearing and non-loadbearing delineation

Again, historic custom and practice in different parts of the world have not used or have adopted a different approach to the definition of loadbearing and non-loadbearing and the resultant allocation of costs between the two elements or sections. ICMS seeks to define what ‘structure’ should include, and it is worth noting that the inclusion of non-load bearing components, which are an integral part of the composite load-bearing work, should be included within the ‘structure’ cost allocation.

Given that there is going to be an element of uncertainty over the actual contribution that non-load bearing components to the integrity of the load-bearing component, construction cost advisers will be required to use appropriate skill and judgement over the allocation. A good example of this might relate to external walls, with the need to define in the project attributes the proportion of the façade which is glazed, however, this level of detail may not be known to any degree of confidence at the early stages of a project.

Cost management professionals may need to seek advice from structural designers (if appointed as part of the design team) to establish which construction elements are loadbearing or non-loadbearing, given that this is not always clearly evident from the design information.

## Alignment to design disciplines

The cost classification grouping, as set out in the ICMS framework, seeks to align the various cost groups with the design discipline (and, therefore, individual members of the design team) that will sit behind the defined work, such that within section 2.2 of ICMS (hierarchical levels) there are seven ‘work-based’ groups, namely:

- demolition
- sub-structure
- structure
- architectural and non-structural works
- services and equipment
- drainage (above and below ground)
- external works.

It is acknowledged that these seven groupings do not necessarily align with the ‘packaging up’ and the procurement of construction work in any market, but rather that the groups better align with the design discipline that undertakes the work in question.

# RICS planned publications

## RICS global professional statement in cost prediction

ICMS are not mandatory for RICS professionals. However, RICS will be producing a global professional statement on this subject which will incorporate all the provisions and the complete text of ICMS, at which point it will then become mandatory for RICS professionals by its inclusion within the professional statement.

The only reason that RICS professionals would not be required to comply with the RICS professional statement is if their client instructs them not to comply. The professional statement is expected to be published in 2019.

## RICS data standard

While the original publication of ICMS is available in print and online as a PDF, the reason for it existing is to present a construction cost classification framework, which, in normal usage, will almost always be in a digitally-based media. Traditionally, this has been in a very two-dimensional format such as Microsoft Office Excel, which, while being familiar to the cost adviser community over many years, does still have its limitations.

Accordingly, RICS are in the process of producing a data standard document that seeks to define a preferred data format for the template documents that will be used to complete cost classifications in use. It is expected that software importing or exporting data will comply with this data standard to provide compatibility and consistency across different products. This XML data standard is expected to be formally released in the first quarter of 2018.

## RICS adaptations to the NRM suite

Given that there is an existing UK RICS construction cost classification model in existence as contained within *NRM 1: Order of cost estimating and cost planning for capital building works* and *NRM 3: Order of cost estimating and cost planning for building maintenance works*, there is the need to align and interface the specific classification system of ICMS with the original NRM classifications. Initially, this will take the form of an overview statement of the linkage between the two and, subsequently, the publication of revisions to both NRM 1 and NRM 3 so that they both fully align with the ICMS classifications.

It is not expected that there will be any material impact on NRM 2 because of the publication of ICMS. However, since ICMS reporting can be used at any project stage, mapping between both elemental (NRM 1 and 3) classifications and ICMS and trade (NRM 2) classifications and ICMS will be reviewed.

## Planned RICS BCIS products

It is expected that the following products will be developed by BCIS in due course to complement the use of ICMS (although the ability to develop these products (in the case of the second and third bullet points) will depend on the availability of data to develop robust measures of construction purchasing power parity:

- research and scope amendment of data collection forms/templates to allow collection of ICMS structured data
- development of international location factor and indices product for adjusting ICMS data and
- development of an international benchmarking tool.

# Appendices

## Appendix A – Mapping to NRM 1

Given that RICS NRM 1 and ICMS follow different formats for cost classification, an exercise has been undertaken that seeks to map across the NRM 1 cost groups to those which are now presented in ICMS, such that a valid interface can be achieved when comparing historic cost classification data – previously prepared in accordance with NRM 1 – with any new data prepared in accordance with ICMS.

Consideration will need to be given for the need for mapping in both directions.

The initial mapping document is set out in this appendix.

The Microsoft Office Excel version of ICMS mapped to RICS NRM is available at [rics.org/icmsexplained](http://rics.org/icmsexplained)

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
			Capital Construction Costs	Capital Construction Costs						
01			Capital Construction Costs	Demolition and site preparation			8.1.1	External works	Site preparation works	Site clearance
			Capital Construction Costs	Demolition and site preparation			8.1.2	External works	Site preparation works	Preparatory groundworks
01	020		Capital Construction Costs	Demolition and site preparation	Site survey and investigation			#N/A	#N/A	#N/A
01	020		Capital Construction Costs	Demolition and site preparation	Environmental treatment		0.6.2	Facilitating works	Extraordinary site investigation works	Reptile/wildlife mitigation measures
01	030		Capital Construction Costs	Demolition and site preparation	Sampling for construction, geophysical, geological or similar purposes			#N/A	#N/A	#N/A
01	040		Capital Construction Costs	Demolition and site preparation	Temporary fencing			#N/A	#N/A	#N/A
01	050		Capital Construction Costs	Demolition and site preparation	Demolition of existing buildings and support to adjacent structures		7.1.1	Work to existing buildings	Minor demolition and alteration works	Minor demolition and alteration works
			Capital Construction Costs	Demolition and site preparation	Demolition of existing buildings and support to adjacent structures		0.2.1	Facilitating works	Major demolition works	Demolition works
			Capital Construction Costs	Demolition and site preparation	Demolition of existing buildings and support to adjacent structures		0.2.2	Facilitating works	Major demolition works	Soft strip works
01	060		Capital Construction Costs	Demolition and site preparation	Site surface clearance [clearing, grubbing, topsoil stripping, tree felling, minor earthwork, removal]			#N/A	#N/A	#N/A
01	070		Capital Construction Costs	Demolition and site preparation	Tree transplant			#N/A	#N/A	#N/A
01	080		Capital Construction Costs	Demolition and site preparation	Temporary surface drainage and dewatering			#N/A	#N/A	#N/A
01	090		Capital Construction Costs	Demolition and site preparation	Temporary protection, diversion and relocation of public utilities			#N/A	#N/A	#N/A
02			Capital Construction Costs	Substructure				#N/A	#N/A	#N/A
02	010		Capital Construction Costs	Substructure	Foundation piling:		1.1.1	Substructure	Substructure	Standard foundations
			Capital Construction Costs	Substructure	Foundation piling:		1.1.2	Substructure	Substructure	Specialist foundations
			Capital Construction Costs	Substructure	Foundation piling:		1.1.3	Substructure	Substructure	Lowest floor construction

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
02	010	1	Capital Construction Costs	Substructure	Foundation piling:	Mobilisation and demobilisation		#N/A	#N/A	#N/A
02	010	2	Capital Construction Costs	Substructure	Foundation piling:	Trial piles		#N/A	#N/A	#N/A
02	010	3	Capital Construction Costs	Substructure	Foundation piling:	Permanent piles		#N/A	#N/A	#N/A
02	010	4	Capital Construction Costs	Substructure	Foundation piling:	Pile testing		#N/A	#N/A	#N/A
02	020		Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:			#N/A	#N/A	#N/A
02	020	1	Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:	Excavation and disposal		#N/A	#N/A	#N/A
02	020	2	Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:	Lateral supports		#N/A	#N/A	#N/A
02	020	3	Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:	Raft footings, pile caps, column bases, wall footings, strap beams, tie beams		#N/A	#N/A	#N/A
02	020	4	Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:	Substructure walls and columns		#N/A	#N/A	#N/A
02	020	5	Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:	Ground beams and ground slabs		#N/A	#N/A	#N/A
02	020	6	Capital Construction Costs	Substructure	Foundations up to top of lowest floor slabs:	Lift pits		#N/A	#N/A	#N/A
02	030		Capital Construction Costs	Substructure	Basement sides and bottom:			#N/A	#N/A	#N/A
02	030	1	Capital Construction Costs	Substructure	Basement sides and bottom:	Excavation and disposal	1.1.4	Substructure	Substructure	Basement excavation
02	030	2	Capital Construction Costs	Substructure	Basement sides and bottom:	Lateral supports		#N/A	#N/A	#N/A
02	030	3	Capital Construction Costs	Substructure	Basement sides and bottom:	Bottom slabs and blinding		#N/A	#N/A	#N/A
02	030	4	Capital Construction Costs	Substructure	Basement sides and bottom:	Sides	1.1.5	Substructure	Substructure	Basement retaining walls
02	030	5	Capital Construction Costs	Substructure	Basement sides and bottom:	Vertical waterproof tanking, drainage blanket, drains and skin wall		#N/A	#N/A	#N/A
02	030	6	Capital Construction Costs	Substructure	Basement sides and bottom:	Horizontal waterproof tanking, drainage blanket, drains and topping slab		#N/A	#N/A	#N/A
02	030	7	Capital Construction Costs	Substructure	Basement sides and bottom:	Insulation		#N/A	#N/A	#N/A
02	030	8	Capital Construction Costs	Substructure	Basement sides and bottom:	Lift pits, sump pits, sleeves		#N/A	#N/A	#N/A
03			Capital Construction Costs	Structure			2.1.1	Superstructure	Frame	Steel frames
03			Capital Construction Costs	Structure			2.1.2	Superstructure	Frame	Space frames/decks
03			Capital Construction Costs	Structure			2.1.3	Superstructure	Frame	Concrete casings to steel frames
03			Capital Construction Costs	Structure			2.1.4	Superstructure	Frame	Concrete frames
03			Capital Construction Costs	Structure			2.2.1	Superstructure	Upper Floor	Floors
03			Capital Construction Costs	Structure			2.2.2	Superstructure	Upper Floor	Balconies
03			Capital Construction Costs	Structure			2.2.3	Superstructure	Upper Floor	Drainage to balconies
03			Capital Construction Costs	Structure			2.1.4	Superstructure	Frame	Concrete frames
03			Capital Construction Costs	Structure			2.1.5	Superstructure	Frame	Timber frames
03			Capital Construction Costs	Structure			2.1.6	Superstructure	Frame	Specialist frames
03			Capital Construction Costs	Structure			2.3.1	Superstructure	Roof	Roof structure
03			Capital Construction Costs	Structure			2.3.2	Superstructure	Roof	Roof coverings

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
03			Capital Construction Costs	Structure			2.3.3	Superstructure	Roof	Specialist roof systems
03			Capital Construction Costs	Structure			2.3.4	Superstructure	Roof	Roof drainage
03			Capital Construction Costs	Structure			2.3.5	Superstructure	Roof	Rooflights, skylights and openings
03			Capital Construction Costs	Structure			2.3.6	Superstructure	Roof	Roof features
03			Capital Construction Costs	Structure			2.4.1	Superstructure	Stairs and ramps	Stair/ramp structures
03			Capital Construction Costs	Structure			2.4.2	Superstructure	Stairs and ramps	Stair/ramp finishes
03			Capital Construction Costs	Structure			2.5.1	Superstructure	External Walls	External enclosing walls above ground level
03			Capital Construction Costs	Structure			2.5.2	Superstructure	External Walls	External enclosing walls below ground level
03			Capital Construction Costs	Structure			2.5.3	Superstructure	External Walls	Solar/rain screening
03			Capital Construction Costs	Structure			2.5.4	Superstructure	External Walls	External soffits
03			Capital Construction Costs	Structure			2.5.5	Superstructure	External Walls	Subsidiary walls, balustrades and proprietary balconies
03	010		Capital Construction Costs	Structure	Structural removal and alterations		#N/A	#N/A	#N/A	
03	020		Capital Construction Costs	Structure	Basement suspended floors:		#N/A	#N/A	#N/A	
03	020	1	Capital Construction Costs	Structure	Basement suspended floors:	Walls and columns	#N/A	#N/A	#N/A	
03	020	2	Capital Construction Costs	Structure	Basement suspended floors:	Beams and slabs	#N/A	#N/A	#N/A	
03	020	3	Capital Construction Costs	Structure	Basement suspended floors:	Staircases	#N/A	#N/A	#N/A	
03	030		Capital Construction Costs	Structure	Frames and slabs:		#N/A	#N/A	#N/A	
03	030	1	Capital Construction Costs	Structure	Frames and slabs:	Structural walls and columns	#N/A	#N/A	#N/A	
03	030	2	Capital Construction Costs	Structure	Frames and slabs:	Upper floor beams and slabs	#N/A	#N/A	#N/A	
03	030	3	Capital Construction Costs	Structure	Frames and slabs:	Roof beams and slabs	#N/A	#N/A	#N/A	
03	030	4	Capital Construction Costs	Structure	Frames and slabs:	Roof beams and slabs	#N/A	#N/A	#N/A	
03	030	5	Capital Construction Costs	Structure	Frames and slabs:	Staircases	#N/A	#N/A	#N/A	
03	030	6	Capital Construction Costs	Structure	Frames and slabs:	Fireproofing to steel structure	#N/A	#N/A	#N/A	
03	040		Capital Construction Costs	Structure	Tanks, pools, sundries		#N/A	#N/A	#N/A	
04			Capital Construction Costs	Architectural works   Non-structural works			2.7.1	Superstructure	Internal walls and partitions	Walls and partitions
04			Capital Construction Costs	Architectural works   Non-structural works			2.7.3	Superstructure	Internal walls and partitions	Moveable room dividers
04			Capital Construction Costs	Architectural works   Non-structural works			4.1.1	Fittings, furnishings and equipment	Fittings, furnishings and equipment	General fittings, furnishings and equipment
04			Capital Construction Costs	Architectural works   Non-structural works			4.1.2	Fittings, furnishings and equipment	Fittings, furnishings and equipment	Domestic kitchen fittings and equipment
04	010		Capital Construction Costs	Architectural works   Non-structural works	Non-structural removal and alterations		#N/A	#N/A	#N/A	

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
04	020		Capital Construction Costs	Architectural works   Non-structural works	External elevations:			#N/A	#N/A	#N/A
04	020	1	Capital Construction Costs	Architectural works   Non-structural works		Non-structural external walls and features		#N/A	#N/A	#N/A
04	020	2	Capital Construction Costs	Architectural works   Non-structural works		External wall finishes except cladding		#N/A	#N/A	#N/A
04	020	3	Capital Construction Costs	Architectural works   Non-structural works		Facade cladding and curtain walls	2.5.6	Superstructure	External Walls	Facade access/cleaning systems
04	020	4	Capital Construction Costs	Architectural works   Non-structural works		External windows	2.6.1	Superstructure	Windows and external doors	External windows
04	020	5	Capital Construction Costs	Architectural works   Non-structural works		External doors	2.6.2	Superstructure	Windows and external doors	External doors
04	020	6	Capital Construction Costs	Architectural works   Non-structural works		External shop fronts		#N/A	#N/A	#N/A
04	020	7	Capital Construction Costs	Architectural works   Non-structural works		Roller shutters and fire shutters		#N/A	#N/A	#N/A
04	030		Capital Construction Costs	Architectural works   Non-structural works	Roof finishes, skylights and landscaping (including waterproofing and insulation):			#N/A	#N/A	#N/A
04	030	1	Capital Construction Costs	Architectural works   Non-structural works		Roof finishes		#N/A	#N/A	#N/A
04	030	2	Capital Construction Costs	Architectural works   Non-structural works		Skylights		#N/A	#N/A	#N/A
04	030	3	Capital Construction Costs	Architectural works   Non-structural works		Roof landscaping (hard and soft)		#N/A	#N/A	#N/A
04	040		Capital Construction Costs	Architectural works   Non-structural works	Internal divisions:			#N/A	#N/A	#N/A
04	040	1	Capital Construction Costs	Architectural works   Non-structural works		Non-structural internal walls and partitions		#N/A	#N/A	#N/A
04	040	2	Capital Construction Costs	Architectural works   Non-structural works		Shop fronts		#N/A	#N/A	#N/A
04	040	3	Capital Construction Costs	Architectural works   Non-structural works		Toilet cubicles	2.7.4	Superstructure	Internal walls and partitions	Cubicles
04	040	4	Capital Construction Costs	Architectural works   Non-structural works		Cold rooms		#N/A	#N/A	#N/A
04	040	5	Capital Construction Costs	Architectural works   Non-structural works		Internal doors	2.8.1	Superstructure	Internal doors	Internal doors
04	040	6	Capital Construction Costs	Architectural works   Non-structural works		Internal windows		#N/A	#N/A	#N/A
04	040	7	Capital Construction Costs	Architectural works   Non-structural works		Roller shutters and fire shutters		#N/A	#N/A	#N/A
04	040	8	Capital Construction Costs	Architectural works   Non-structural works		Sundry concrete work		#N/A	#N/A	#N/A
04	050		Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:			#N/A	#N/A	#N/A
04	050	1	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Balustrades, railings and handrails	2.7.2	Superstructure	Internal walls and partitions	Balustrades and handrails

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
04	050	2	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Staircases and catwalk not forming part of the structure, cat ladders		#N/A	#N/A	#N/A
04	050	2	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Staircases and catwalk not forming part of the structure, cat ladders		#N/A	#N/A	#N/A
04	050	3	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Cabinets, cupboards, shelves, counters, benches, notice boards, blackboards		#N/A	#N/A	#N/A
04	050	4	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Exit signs, directory signs	4.1.4	Fittings, furnishings and equipment	Fittings, furnishings and equipment	Signs/notices
04	050	5	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Pellets and curtains		#N/A	#N/A	#N/A
04	050	6	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Decorative features	4.1.3	Fittings, furnishings and equipment	Fittings, furnishings and equipment	Special purpose fittings, furnishings and equipment
04	050	7	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Interior landscaping		#N/A	#N/A	#N/A
04	050	8	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Access panels, fire service cabinets		#N/A	#N/A	#N/A
04	050	9	Capital Construction Costs	Architectural works   Non-structural works	Fittings and sundries:	Sundries		#N/A	#N/A	#N/A
04	060		Capital Construction Costs	Architectural works   Non-structural works	Finishes under cover:			#N/A	#N/A	#N/A
04	060	1	Capital Construction Costs	Architectural works   Non-structural works	Finishes under cover:	Floor finishes (internal and external)	3.2.1	Internal finishes	Floor finishes	Finishes to floors
04	060	1	Capital Construction Costs	Architectural works   Non-structural works	Finishes under cover:	Floor finishes (internal and external)	3.2.2	Internal finishes	Floor finishes	Raised access floors
04	060	2	Capital Construction Costs	Architectural works   Non-structural works	Finishes under cover:	Internal wall finishes and cladding	3.1.1	Internal finishes	Wall finishes	Wall finishes
04	060	3	Capital Construction Costs	Architectural works   Non-structural works	Finishes under cover:	Ceiling finishes and false ceilings (internal or external)	3.3.1	Internal finishes	Ceiling finishes	Finishes to ceilings
04	070		Capital Construction Costs	Architectural works   Non-structural works	Builder's work in connection with services:		3.3.2	Internal finishes	Ceiling finishes	False ceilings
04	070	1	Capital Construction Costs	Architectural works   Non-structural works		Plinth, bases	3.3.3	Internal finishes	Ceiling finishes	Demountable suspended ceilings
04	070	2	Capital Construction Costs	Architectural works   Non-structural works		Fire-proofing enclosure	8.7.11	External works	External services	Builder's work in connection with external services
04	070	3	Capital Construction Costs	Architectural works   Non-structural works		Hoisting beams, lift pit separation screens	5.10.1	Services	Lift and conveyor installations	Lifts and enclosed hoists
04	070	4	Capital Construction Costs	Architectural works   Non-structural works		Suspended manholes	5.14.1	Services	Builder's work in connection with services	Builder's work in connection with services
04	070	5	Capital Construction Costs	Architectural works   Non-structural works		Cable trenches, trench covers		#N/A	#N/A	#N/A
04	070	6	Capital Construction Costs	Architectural works   Non-structural works		Sleeves, openings and the like not allowed for in fittings and sundries		#N/A	#N/A	#N/A
05			Capital Construction Costs	Services and equipment				#N/A	#N/A	#N/A
05	010		Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:		5.4.5	Services	Water installations	Steam and condensate distribution



Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
05	010	1	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Seawater system	5.6.2	Services	Space heating and air conditioning	Local heating
05	010	2	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Cooling water system	5.6.3	Services	Space heating and air conditioning	Central cooling
05	010	3	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Chilled water system	5.6.4	Services	Space heating and air conditioning	Local cooling
05	010	4	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Heating water system	5.6.5	Services	Space heating and air conditioning	Central heating and cooling
05	010	5	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Steam and condensate system	5.6.6	Services	Space heating and air conditioning	Local heating and cooling
05	010	6	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Fuel oil system	5.6.7	Services	Space heating and air conditioning	Central air conditioning
05	010	7	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Water treatment	5.6.8	Services	Space heating and air conditioning	Local air conditioning
05	010	8	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Air handling and distribution system	#N/A	#N/A	#N/A	#N/A
05	010	9	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Condensate drain system	#N/A	#N/A	#N/A	#N/A
05	010	10	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Unitary air-conditioning system	#N/A	#N/A	#N/A	#N/A
05	010	11	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Mechanical ventilation system	5.7.1	Services	Ventilation	Central ventilation
05	010	12	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Kitchen ventilation system	5.7.2	Services	Ventilation	Local and special ventilation
05	010	13	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Fume-extraction system	#N/A	#N/A	#N/A	#N/A
05	010	14	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Anaesthetic gas-extraction system	#N/A	#N/A	#N/A	#N/A
05	010	15	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Window and split-type air conditioners	#N/A	#N/A	#N/A	#N/A
05	010	16	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Air-curtains	#N/A	#N/A	#N/A	#N/A
05	010	17	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Fans	#N/A	#N/A	#N/A	#N/A
05	010	18	Capital Construction Costs	Services and equipment	Heating, ventilating and air-conditioning systems/air conditioners:	Related electrical and control systems	5.2.1	Services	Services equipment	Services equipment
05	020		Capital Construction Costs	Services and equipment	Electrical services:		#N/A	#N/A	#N/A	#N/A

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
05	020	1	Capital Construction Costs	Services and equipment	Electrical services:	High-voltage transformers and switchboards	5.8.1	Services	Electrical installations	Electrical mains and sub-mains distribution
05	020	2	Capital Construction Costs	Services and equipment	Electrical services:	Incoming mains, low-voltage transformers and switchboards		#N/A	#N/A	#N/A
05	020	3	Capital Construction Costs	Services and equipment	Electrical services:	Main and submain		#N/A	#N/A	#N/A
05	020	4	Capital Construction Costs	Services and equipment	Electrical services:	Standby system		#N/A	#N/A	#N/A
05	020	5	Capital Construction Costs	Services and equipment	Electrical services:	Lighting and power	5.8.3	Services	Electrical installations	Lighting installations
05	020	5	Capital Construction Costs	Services and equipment	Electrical services:			#N/A	#N/A	#N/A
05	020	6	Capital Construction Costs	Services and equipment	Electrical services:	Uninterrupted power supply		#N/A	#N/A	#N/A
05	020	7	Capital Construction Costs	Services and equipment	Electrical services:	Electric underfloor heating	5.6.6	Services	Space heating and air conditioning	Local heating and cooling
05	020	8	Capital Construction Costs	Services and equipment	Electrical services:	Local electrical heating units	5.6.2	Services	Space heating and air conditioning	Local heating
05	020	9	Capital Construction Costs	Services and equipment	Electrical services:	Earthing/lightning protection and bonding	5.8.6	Services	Electrical installations	Earthing and bonding systems
05	030		Capital Construction Costs	Services and equipment	Fitting out lighting fittings			#N/A	#N/A	#N/A
05	030	1	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Communications	5.8.4	Services	Electrical installations	Specialist lighting installations
05	030	2	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Staff paging/location		#N/A	#N/A	#N/A
05	030	3	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Public address system		#N/A	#N/A	#N/A
05	030	4	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Building automation		#N/A	#N/A	#N/A
05	030	5	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Security and alarm	5.12.2	Services	Communication, security and control systems	Security systems
05	030	6	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Close circuit television	8.7.8	External works	External services	External security systems
05	030	7	Capital Construction Costs	Services and equipment	Fitting out lighting fittings	Communal aerial broadcast distribution and the like		#N/A	#N/A	#N/A
05	040		Capital Construction Costs	Services and equipment	Water supply and above ground drainage:			#N/A	#N/A	#N/A
05	040	1	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Cold water supply	5.4.2	Services	Water installations	Cold water distribution
05	040	2	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Hot water supply	5.4.3	Services	Water installations	Hot water distribution
05	040	3	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Flushing water supply		#N/A	#N/A	#N/A
05	040	4	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Grey water supply		#N/A	#N/A	#N/A
05	040	5	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Cleansing water supply		#N/A	#N/A	#N/A
05	040	6	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Irrigation water supply		#N/A	#N/A	#N/A
05	040	7	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Rainwater disposal		#N/A	#N/A	#N/A
05	040	8	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Soil and waste disposal		#N/A	#N/A	#N/A
05	040	9	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Planter drainage disposal		#N/A	#N/A	#N/A
05	040	10	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Kitchen drainage disposal		#N/A	#N/A	#N/A
05	040	11	Capital Construction Costs	Services and equipment	Water supply and above ground drainage:	Related electrical and control systems.		#N/A	#N/A	#N/A

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
05	050		Capital Construction Costs	Services and equipment	Supply of sanitary fittings		#N/A	#N/A	#N/A	#N/A
05	060		Capital Construction Costs	Services and equipment	Disposal systems:		#N/A	#N/A	#N/A	#N/A
05	060	1	Capital Construction Costs	Services and equipment	Supply of sanitary fittings	Refuse	5.1.1	Services	Sanitary installations	Sanitary appliances
05	060	2	Capital Construction Costs	Services and equipment	Supply of sanitary fittings	Laboratory waste	5.1.2	Services	Sanitary installations	Sanitary ancillaries
05	060	3	Capital Construction Costs	Services and equipment	Supply of sanitary fittings	Industrial waste	5.2.1	Services	Services equipment	Services equipment
05	060	4	Capital Construction Costs	Services and equipment	Supply of sanitary fittings	Incinerator	5.3.1	Services	Disposal installations	Foul drainage above ground
05	070		Capital Construction Costs	Services and equipment	Fire services:		5.3.2	Services	Disposal installations	Chemical, toxic and industrial liquid waste drainage
05	070	1	Capital Construction Costs	Services and equipment	Fire services:	Fire hydrant and hose reel system	5.3.3	Services	Disposal installations	Refuse disposal
05	070	2	Capital Construction Costs	Services and equipment	Fire services:	Wet risers	5.11.1	Services	Fire and lightning protection	Fire fighting systems
05	070	3	Capital Construction Costs	Services and equipment	Fire services:	Sprinkler system	5.11.2	Services	Fire and lightning protection	Fire suppression systems
05	070	4	Capital Construction Costs	Services and equipment	Fire services:	Deluge system	#N/A	#N/A	#N/A	#N/A
05	070	5	Capital Construction Costs	Services and equipment	Fire services:	Gaseous extinguishing system	#N/A	#N/A	#N/A	#N/A
05	070	6	Capital Construction Costs	Services and equipment	Fire services:	Foam extinguishing system	#N/A	#N/A	#N/A	#N/A
05	070	7	Capital Construction Costs	Services and equipment	Fire services:	Audio/visual advisory system	#N/A	#N/A	#N/A	#N/A
05	070	8	Capital Construction Costs	Services and equipment	Fire services:	Automatic fire alarm and detection system	#N/A	#N/A	#N/A	#N/A
05	070	9	Capital Construction Costs	Services and equipment	Fire services:	Portable hand-operated appliances	#N/A	#N/A	#N/A	#N/A
05	070	10	Capital Construction Costs	Services and equipment	Fire services:	Related electrical and control systems.	#N/A	#N/A	#N/A	#N/A
05	080		Capital Construction Costs	Services and equipment	Gas services:		#N/A	#N/A	#N/A	#N/A
05	080	1	Capital Construction Costs	Services and equipment	Gas services:	Coal gas	#N/A	#N/A	#N/A	#N/A
05	080	2	Capital Construction Costs	Services and equipment	Gas services:	Natural gas	#N/A	#N/A	#N/A	#N/A
05	080	3	Capital Construction Costs	Services and equipment	Gas services:	Liquid petroleum gas	#N/A	#N/A	#N/A	#N/A
05	080	4	Capital Construction Costs	Services and equipment	Gas services:	Medical gas/ laboratory gas	#N/A	#N/A	#N/A	#N/A
05	080	5	Capital Construction Costs	Services and equipment	Gas services:	Industrial gas/ compressed air/ instrument air	#N/A	#N/A	#N/A	#N/A
05	080	6	Capital Construction Costs	Services and equipment	Gas services:	Vacuum	#N/A	#N/A	#N/A	#N/A
05	090	7	Capital Construction Costs	Services and equipment	Gas services:	Steam	5.4.5	Services	Water installations	Steam and condensate distribution
05	090		Capital Construction Costs	Services and equipment	Movement systems:		#N/A	#N/A	#N/A	#N/A
05	090	1	Capital Construction Costs	Services and equipment	Movement systems:	Lifts	#N/A	#N/A	#N/A	#N/A
05	090	2	Capital Construction Costs	Services and equipment	Movement systems:	Escalators	5.10.2	Services	Lift and conveyor installations	Escalators
05	090	3	Capital Construction Costs	Services and equipment	Movement systems:	Conveyors	5.10.5	Services	Lift and conveyor installations	Conveyors
05	100		Capital Construction Costs	Services and equipment	Gondolas		5.10.6	Services	Lift and conveyor installations	Dock levellers and scissor lifts

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
05	110		Capital Construction Costs	Services and equipment	Turntables			#N/A	#N/A	#N/A
05	120		Capital Construction Costs	Services and equipment	Generators and uninterruptible power supply		5.8.5	Services	Electrical installations	Local electricity generation systems
05	130		Capital Construction Costs	Services and equipment	Energy-saving features			#N/A	#N/A	#N/A
05	140		Capital Construction Costs	Services and equipment	Sewage treatment			#N/A	#N/A	#N/A
05	150		Capital Construction Costs	Services and equipment	Fountains, pools and filtration plant			#N/A	#N/A	#N/A
05	160		Capital Construction Costs	Services and equipment	Powered building signage			#N/A	#N/A	#N/A
05	170		Capital Construction Costs	Services and equipment	Kitchen equipment			#N/A	#N/A	#N/A
05	180		Capital Construction Costs	Services and equipment	Cold room equipment			#N/A	#N/A	#N/A
05	190		Capital Construction Costs	Services and equipment	Laboratory equipment			#N/A	#N/A	#N/A
05	200		Capital Construction Costs	Services and equipment	Medical equipment			#N/A	#N/A	#N/A
05	210		Capital Construction Costs	Services and equipment	Hotel equipment			#N/A	#N/A	#N/A
05	220		Capital Construction Costs	Services and equipment	Car park or entrances access control			#N/A	#N/A	#N/A
05	230		Capital Construction Costs	Services and equipment	Domestic appliances			#N/A	#N/A	#N/A
05	240		Capital Construction Costs	Services and equipment	Other specialist services			#N/A	#N/A	#N/A
05	250		Capital Construction Costs	Services and equipment	Builder's profit and attendance on services			#N/A	#N/A	#N/A
06			Capital Construction Costs	Services and equipment	Underground drainage			#N/A	#N/A	#N/A
06	010		Capital Construction Costs	Services and equipment	Surface water drainage			#N/A	#N/A	#N/A
06	020		Capital Construction Costs	Services and equipment	Storm water drainage			#N/A	#N/A	#N/A
06	030		Capital Construction Costs	Services and equipment	Foul water drainage		5.3.1	Services	Disposal installations	Foul drainage above ground
06	040		Capital Construction Costs	Services and equipment	Drainage connections		8.6.1	External works	External drainage	Surface water and foul water drainage
06	050		Capital Construction Costs	Services and equipment	CCTV inspection of existing or new drains			#N/A	#N/A	#N/A
07			Capital Construction Costs	External and ancillary works				#N/A	#N/A	#N/A
07	010		Capital Construction Costs	External and ancillary works	Site formation, slope treatment and incidental temporary drainage and dewatering further to site preparation		8.6.2	External works	External drainage	Ancillary drainage systems
07	020		Capital Construction Costs	External and ancillary works	Permanent retaining structures			#N/A	#N/A	#N/A
07	030		Capital Construction Costs	External and ancillary works	Site enclosures and divisions			#N/A	#N/A	#N/A
07	040		Capital Construction Costs	External and ancillary works	Ancillary structures			#N/A	#N/A	#N/A
07	050		Capital Construction Costs	External and ancillary works	Roads and paving		8.2.1	External works	Roads, paths, pavings and surfacings	Roads, paths and pavings
07	060		Capital Construction Costs	External and ancillary works	Landscaping (hard and soft)		8.3.1	External works	Soft landscapes, planting and irrigation systems	Seeding and turfing
07	060		Capital Construction Costs	External and ancillary works	Landscaping (hard and soft)		8.3.2	External works	Soft landscapes, planting and irrigation systems	External planting

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
07	060		Capital Construction Costs	External and ancillary works	Landscaping (hard and soft)		8.3.3	External works	Soft landscapes, planting and irrigation systems	Irrigation systems
07	070		Capital Construction Costs	External and ancillary works	Fittings and equipment		#N/A	#N/A	#N/A	#N/A
07	080		Capital Construction Costs	External and ancillary works	External services:		#N/A	#N/A	#N/A	#N/A
07	080	1	Capital Construction Costs	External and ancillary works	External services:	Water supply	5.4.1	Services	Water installations	Mains water supply
07	080	2	Capital Construction Costs	External and ancillary works	External services:	Gas supply	8.7.5	External works	External services	Gas mains supply
07	080	3	Capital Construction Costs	External and ancillary works	External services:	Power supply	#N/A	#N/A	#N/A	#N/A
07	080	4	Capital Construction Costs	External and ancillary works	External services:	Communications supply	#N/A	#N/A	#N/A	#N/A
07	080	5	Capital Construction Costs	External and ancillary works	External services:	External lighting	8.7.9	External works	External services	External street lighting systems
07	080	6	Capital Construction Costs	External and ancillary works	External services:	Utility connections	#N/A	#N/A	#N/A	#N/A
08	010		Capital Construction Costs	Preliminaries   Constructor's site overheads	Construction management including site management staff and support labour		#N/A	#N/A	#N/A	#N/A
08	020		Capital Construction Costs	Preliminaries   Constructor's site overheads	Insurances and bonds		#N/A	#N/A	#N/A	#N/A
08	030		Capital Construction Costs	Preliminaries   Constructor's site overheads	Common construction plant		#N/A	#N/A	#N/A	#N/A
08	040		Capital Construction Costs	Preliminaries   Constructor's site overheads	Temporary access roads and storage areas		8.7.7	External works	External services	External fuel storage and piped distribution systems
08	050		Capital Construction Costs	Preliminaries   Constructor's site overheads	Temporary facilities and services		#N/A	#N/A	#N/A	#N/A
08	060		Capital Construction Costs	Preliminaries   Constructor's site overheads	Submissions and reports		#N/A	#N/A	#N/A	#N/A
08	070		Capital Construction Costs	Preliminaries   Constructor's site overheads	Building information modelling (BIM)		#N/A	#N/A	#N/A	#N/A
08	080		Capital Construction Costs	Preliminaries   Constructor's site overheads	Traffic management and diversion		#N/A	#N/A	#N/A	#N/A
08	090		Capital Construction Costs	Preliminaries   Constructor's site overheads	Safety, health and environmental management		#N/A	#N/A	#N/A	#N/A
08	100		Capital Construction Costs	Preliminaries   Constructor's site overheads	Monitoring and recording		#N/A	#N/A	#N/A	#N/A
08	110		Capital Construction Costs	Preliminaries   Constructor's site overheads	Testing and commissioning		#N/A	#N/A	#N/A	#N/A
08	120		Capital Construction Costs	Preliminaries   Constructor's site overheads	As-built documentation		#N/A	#N/A	#N/A	#N/A
09			Capital Construction Costs	Risk Allowance			#N/A	#N/A	#N/A	#N/A
09	010		Capital Construction Costs	Risk Allowance	Design development allowance		#N/A	#N/A	#N/A	#N/A
09	020		Capital Construction Costs	Risk Allowance	Construction contingencies		#N/A	#N/A	#N/A	#N/A
09	030		Capital Construction Costs	Risk Allowance	Price level adjustments:		#N/A	#N/A	#N/A	#N/A
09	030	1	Capital Construction Costs	Risk Allowance	Price level adjustments:	Until tendering	#N/A	#N/A	#N/A	#N/A
09	030	2	Capital Construction Costs	Risk Allowance	Price level adjustments:	During construction	#N/A	#N/A	#N/A	#N/A

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
090	040		Capital Construction Costs	Risk Allowance	Exchange rate fluctuation adjustments			#N/A	#N/A	#N/A
10			Capital Construction Costs	Taxes and Levies				#N/A	#N/A	#N/A
10	010		Capital Construction Costs	Taxes and Levies	Paid by the Constructor			#N/A	#N/A	#N/A
10	020		Capital Construction Costs	Taxes and Levies	Paid by the Client in relation to the construction contract payments			#N/A	#N/A	#N/A
01			Associated Capital Costs	Site acquisition				#N/A	#N/A	#N/A
01	010		Associated Capital Costs	Site acquisition	Costs and premium required to procure site including additional cost and premium to be paid by foreign investors			#N/A	#N/A	#N/A
01	020		Associated Capital Costs	Site acquisition	Compensation to existing occupiers			#N/A	#N/A	#N/A
01	030		Associated Capital Costs	Site acquisition	Demolition, removal and modification of existing properties by way of payment to existing owners instead of carrying out physical work			#N/A	#N/A	#N/A
01	040		Associated Capital Costs	Site acquisition	Related fees to agents, lawyers, and the like			#N/A	#N/A	#N/A
01	050		Associated Capital Costs	Site acquisition	Related taxes and statutory charges			#N/A	#N/A	#N/A
02			Associated Capital Costs	Construction-related consultants and supervision				#N/A	#N/A	#N/A
02	010		Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:			#N/A	#N/A	#N/A
02	010	1	Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:	Architects [architectural, landscape, interior design, technical]		#N/A	#N/A	#N/A
02	010	2	Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:	Engineers [geotechnical, civil, structural, mechanical, electrical and plumbing, technical]		#N/A	#N/A	#N/A
02	010	3	Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:	Project managers		#N/A	#N/A	#N/A
02	010	4	Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:	Surveyors [quantity surveying, land surveying, building surveying, cost engineering]		#N/A	#N/A	#N/A
02	010	5	Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:	Specialist consultants [environmental, traffic, acoustic, facade, bim]		#N/A	#N/A	#N/A
02	010	6	Associated Capital Costs	Construction-related consultants and supervision	Consultants' fees and reimbursable:	Value management studies		#N/A	#N/A	#N/A
02	020		Associated Capital Costs	Construction-related consultants and supervision	Charges and levies payable to statutory bodies or their appointed agencies [in connection with planning, design, tender and contract approvals, supervision and acceptance inspections]			#N/A	#N/A	#N/A

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
02	030		Associated Capital Costs	Construction-related consultants and supervision	Site supervision charges (including their accommodation and travels)			#N/A	#N/A	#N/A
02	040		Associated Capital Costs	Construction-related consultants and supervision	Payments to testing authorities or laboratories			#N/A	#N/A	#N/A
03			Associated Capital Costs	Work and utilities outside site				#N/A	#N/A	#N/A
03	010		Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:			#N/A	#N/A	#N/A
03	010	1	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Electricity		#N/A	#N/A	#N/A
03	010	2	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Transformers		#N/A	#N/A	#N/A
03	010	3	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Water	8.7.1	External works	External services	Water mains supply
03	010	4	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Sewer		#N/A	#N/A	#N/A
03	010	5	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Gas		#N/A	#N/A	#N/A
03	010	6	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Telecommunications	5.12.1	Services	Communication, security and control systems	Communication systems
03	010	6	Associated Capital Costs	Work and utilities outside site	Connections to, diversion of and capacity enhancement of public utility mains or sources outside site up to mains connections on site:	Telecommunications	8.7.6	External works	External services	Telecommunications and other communication system connections
03	020		Associated Capital Costs	Work and utilities outside site	Public access roads and footpaths			#N/A	#N/A	#N/A
04			Associated Capital Costs	Loose furniture, fittings and equipment			8.5.1	External works	External fixtures	Site/street furniture and equipment
04	010		Associated Capital Costs	Production, process and loose furniture, furnishing and equipment not normally provided before completion of construction				#N/A	#N/A	#N/A

Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	Cost Category [Level 1]	Cost Category [Level 2]	Cost Group [Level 3]	Cost Sub-Group [Level 4]	NRM	Group Element	Element	Sub-element
05			Associated Capital Costs	Administrative, finance, legal and marketing expenses			#N/A	#N/A	#N/A	#N/A
05	010		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's general office overheads		#N/A	#N/A	#N/A	#N/A
05	020		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:		#N/A	#N/A	#N/A	#N/A
05	020	1	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	In-house project management team	#N/A	#N/A	#N/A	#N/A
05	020	2	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	Supporting project staff	#N/A	#N/A	#N/A	#N/A
05	020	3	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	Project office venue, furniture and equipment if not included in constructor's preliminaries   site overheads	#N/A	#N/A	#N/A	#N/A
05	020	4	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	Stores and workshops	#N/A	#N/A	#N/A	#N/A
05	020	5	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	Safety and insurances	#N/A	#N/A	#N/A	#N/A
05	020	6	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	Staff training	#N/A	#N/A	#N/A	#N/A
05	020	7	Associated Capital Costs	Administrative, finance, legal and marketing expenses	Client's project-specific administrative expenses:	Accommodation and travelling expenses for in-house team and external parties	#N/A	#N/A	#N/A	#N/A
05	030		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Interest and finance costs		#N/A	#N/A	#N/A	#N/A
05	040		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Legal expenses		#N/A	#N/A	#N/A	#N/A
05	050		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Accounting expenses		#N/A	#N/A	#N/A	#N/A
05	060		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Sales, leasing, marketing, advertising and promotional expenses		#N/A	#N/A	#N/A	#N/A
05	070		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Taxes and statutory charges related to sales and lease		#N/A	#N/A	#N/A	#N/A
05	080		Associated Capital Costs	Administrative, finance, legal and marketing expenses	Licence and permit charges for operation and use		#N/A	#N/A	#N/A	#N/A
06			Associated Capital Costs	Risk Allowance			#N/A	#N/A	#N/A	#N/A



## Appendix B – Worked examples

Worked examples are reproduced with kind permission of the ICMS Coalition.

The Microsoft Office Excel versions of these worked examples are available at [rics.org/icmseexplained](http://rics.org/icmseexplained) and on the ICMS Coalition website, <http://icms-coalition.org/>

Appendix G of ICMS, first edition, contains a selection of three reporting templates. Appendix B of this user guide contains worked examples of a selection of ‘live’ projects where the presentation of the cost classification data is illustrated in a form that aligns with ICMS, and adjusted as necessary to suit local circumstances.

### Work breakdown structures

ICMS are based on a cost grouping structure. However, it is recognised that a work breakdown structure (WBS) approach to cost monitoring and reporting is also widely used around the world.

Example 1 attempts to demonstrate how organisations that usually use a WBS can still present their project costs in the ICMS format. The rationale behind this is to both welcome and encourage construction organisations from all countries to contribute to the ICMS goal of achieving widespread use of the standard. It is not claimed that the analysis in this example is exhaustive or precise. To reiterate – the intention is to encourage worldwide involvement, whatever the in-country cost management structure and systems might be.

The example project is based on a commercial project located in Istanbul in Turkey.

The example uses the original WBS presentation for the project. The work breakdown is recast into the ICMS elemental format.

Example 1 was originally created in Microsoft Office Excel and contains three worksheets:

- (i) Sheet 1 shows the overview project attributes and values sheet required by ICMS.
- (ii) Sheet 2 is the original work breakdown structure spreadsheet used on the sample job. This sheet also includes annotations shown in red. These annotations have been added as part of the process of matching the work breakdown sections to the ICMS elements.
- (iii) Sheet 3 shows the standard ICMS presentation of the project costs. In practice, this would be the final stage of the process of converting the work breakdown structure to an ICMS format.

### Commentary: Original work breakdown structure

In sheet 2, the original work breakdown section titles have been retained in Turkish in the right-hand column. The English translations are in the main body of the cost report under the column heading Work Section Breakdown.

Each work section breakdown is examined and allocated to an appropriate ICMS element. The allocated group – both its title and the relevant percentage – is shown in red (Note: due to rounding, the red numbers do not add up to exactly 100).

The original spreadsheet record used on the project was designed to show the work breakdown structure in major sections and sub-sections beneath those. Each major section can be opened to show all the sub-sections; or the spreadsheet can be viewed in a collapsed format where only the major sections are visible.

The format provided shows the view of the spreadsheet that gives a level of detail (major section and sub-sections in expanded form or collapsed) that adequately illustrates the allocation of WBS sections to ICMS structure.

In some cases, the choice of which ICMS element is straightforward. For example, the cost of Earthworks (*Toprak İşleri*) is allocated to the Substructure group.

With some major sections, the typical title used in the work breakdown structure (for example, Rough Work translated from the Turkish *Kaba İnşaat İşleri*) it is not clear as to which ICMS element might be suitable. In these cases, each sub-section is shown, for example, Rough Work must be split between the Substructure and Structure groups.

In other cases, while the whole work section is allocated to a single ICMS group, the full sub-group breakdown is still shown. This has been done to assist the reader’s understanding because the major section title does not reflect the precise nature of all the work involved. For example, Advanced Construction Rough Works (from the Turkish *İleri Kaba İnşaat İşleri*) includes work such as internal walls, plastering and screeding. Likewise, Other Construction Works, which is allocated to ICMS Preliminaries, includes items such as shipping costs, plant and equipment used across the whole project and expenditure on health and safety provisions.

The Infrastructure Works section, when examined more closely through the sub-sections, must be allocated to three ICMS elements.



## Worked example 1: Offices and shopping centre, Istanbul, Turkey

### Sheet 1: ICMS Attributes

Attributes	
Location	Suburban Istanbul, Turkey
Function	Residential   office   commercial   shopping centre   industrial   hotel   carpark   warehouse   educational   hospital   airport terminal   railway station   ferry terminal   mix of the foregoing
IPMS 1 floor area	Offices – 21,058 m <sup>2</sup> ; Shopping Centre 8,072 m <sup>2</sup>
IPMS 2 floor area	Offices – 20,345 m <sup>2</sup> ; Shopping Centre 7,792 m <sup>2</sup>
Storeys above ground	specific number   0 - 3   4 - 7   8 - 20   20 - 30   30 - 50   over 50   house   low rise   medium rise   high rise
Storeys below ground	2
Grade	ordinary quality   medium quality   high quality
Hotel grade	1 star   2 star   3 star   4 star   international + the foregoing   local + the foregoing
Funding	Private   government
Site topology	Levelled   sloping
Site conditions	Soft   rocky   reclaimed
Currency	Turkish Lira
Cost Data	As completed May 2016

### Sheet 2: WBS by Percentage (Pursantaj)

#	Work Section Breakdown	%	Turkish work section names
1	EARTHWORKS <span style="color: red;">Substructure</span>	7.05%	TOPRAK İŞLERİ
2	GEOTECHNICAL WORKS	2.22%	ZEMİN İŞLERİ
2.1	SOIL IMPROVEMENT WORKS <span style="color: red;">Substructure</span>	0.66%	Temel Altı İyileştirme
2.1.1	PILING	0.16%	Fore Kazık Yapılması
2.1.2	MINI-PILING	0.06%	Mini Kazık Yapılması
2.1.3	LABOR DAILY WAGES	0.01%	Yevmiye
2.1.4	CONCRETE	0.24%	Beton
2.1.5	RE-BAR STEEL	0.18%	Donatı
2.1.6	MISCELLANEOUS	0.01%	Diğer İmalatlar
2.1.7	CONSUMABLES	0.00%	Sarf Malzemeler
2.2	SHORING <span style="color: red;">Substructure</span>	1.02%	İksa İşleri
2.2.1	PILING	0.08%	Fore Kazık Yapılması
2.2.2	MINI-PILING	0.12%	Mini Kazık Yapılması
2.2.3	PILE HEAD BEAM	0.01%	Başlık Kirişi Yapılması
2.2.4	WALER BEAM	0.02%	Kuşak Kirişi Yapılması
2.2.5	ANCHORAGE WORKS	0.35%	Ankraj Yapılması
2.2.6	SOIL NAILING	0.01%	Zemin Çivisi Yapılması
2.2.7	TIE-BACK	0.00%	Tie Back Yapılması
2.2.8	SHOTCRETE	0.01%	Püskürtme Yapılması
2.2.9	INSULATION WORKS	0.08%	İzolasyon İşleri
2.2.10	CONCRETE	0.11%	Beton
2.2.11	RE-BAR STEEL	0.20%	Demir
2.2.12	MATTING STEEL	0.00%	Hasır Çelik
2.2.13	FORMWORK	0.00%	Kalıp
2.2.14	CONSUMABLES	0.00%	Sarf Malzemeler
2.2.15	STRUT	0.01%	Strut Yapılması
2.2.16	MISCELLANEOUS	0.00%	Diğer İmalatlar

#	Work Section Breakdown		%	Turkish work section names
2.2.17	LABOR DAILY WAGES		0.00%	Yevmiye
2.3	TIER CURTAIN WALL	Substructure	0.42%	Kademe Perdesi
2.3.1	FORMWORK		0.12%	Kalıp İşçiliği
2.3.2	MISCELLANEOUS		0.00%	Diğer İmalatlar
2.3.4	CONCRETE		0.15%	Beton
2.3.5	RE-BAR STEEL		0.17%	Demir
2.4	GEOTECHNICAL WORKS	Demolition, site preparation and formation	0.11%	Geoteknik
2.4.1	GEOTECHNICAL STUDIES		0.07%	Geoteknik
2.4.2	OSTERBERG		0.01%	Osterberg
2.5	SOIL SAMPLING		0.03%	Zemin Etüpleri
3	ROUGH WORK		24.27%	KABA İNŞAAT İŞLERİ
3.1	FOUNDATION WORKS	Substructure	3.77%	TEMEL İMALATLARI
3.1.1	FORMWORK		0.01%	Kalıp İşçiliği
3.1.3	STEEL RE-BAR INSTALLATION		0.30%	Demir İşçiliği
3.1.4	CONCRETE POURING		0.04%	Beton İşçiliği
3.1.5	LABOR DAILY WAGES		0.00%	Yevmiye
3.1.6	MISCELLANEOUS		0.00%	Diğer İmalatlar
3.1.7	RE-BAR STEEL		1.90%	Demir
3.1.9	CONCRETE		1.52%	Beton
3.2	FLOOR RC WORKS	Structure	18.13%	KATLAR İNŞAAT
3.2.1	FORMWORK		2.37%	Kalıp İşçiliği
3.2.3	SCAFFOLDING		0.05%	Kalıp İskelesi
3.2.5	SELF CLIMBLING FORMWORK		0.14%	Tırmanır Kalıp
3.2.6	STEEL RE-BAR INSTALLATION		2.11%	Demir İşçiliği
3.2.7	CONCRETE POURING		0.23%	Beton İşçiliği
3.2.9	TUNNEL FORMWORK		0.32%	Tünel Kalıp
3.2.11	PARAPET WORKS		0.06%	Parapet Yapılması
3.2.12	HOLLOW-TILE FLOOR SLAB WORKS		0.06%	Asmolen İşleri
3.2.13	OTHER LABOR COSTS		0.16%	Normal Kat İşçiliği
3.2.15	PRESTRESSING WORKS		0.13%	Ardgerme
3.2.16	LABOR DAILY WAGES		0.07%	Yevmiye
3.2.17	MISCELLANEOUS		0.01%	Diğer İmalatlar
3.2.18	CONCRETE		4.78%	Beton
3.2.19	RE-BAR STEEL		7.34%	Demir
3.2.20	MATTING STEEL		0.29%	Hasır Çelik
3.2.22	CONSUMABLES		0.00%	Sarf Malzemeler
3.3	STEEL CONSTRUCTION WORKS	Structure	0.85%	ÇELİK YAPI İŞLERİ
3.3.1	STEEL CONSTRUCTION		0.78%	Çelik Yapı İşleri
3.3.2	STEEL CONNECTION PARTS		0.07%	Bağlantı Elemanları
3.4	RC INSULATION WORKS	Structure	0.27%	KABA YAPI İZOLASYONLARI
3.4.1	CONCRETE WALL INSULATION		0.21%	Ba Perde İzolasyonu
3.4.2	DILATATION INSULATION		0.05%	Dilatasyon İzolasyonu
3.4.3	COLD JOINT INSULATION		0.01%	Derz İzolasyonu
3.5	ROUGH WORK OTHER WORKS	Structure	0.07%	KABA YAPI DIĞER İMALATLAR
3.5.1	MATERIAL TESTING		0.04%	DENEYLER
3.5.2	CONCRETE CUTTING WORKS		0.01%	KAROT
3.5.3	ANCHORAGE EQUIPMENT		0.01%	ANKRAJ
3.6	FORMWORK MATERIAL	Structure	1.18%	KALIP
4	ADVANCED CONSTRUCTION ROUGH WORKS	Architectural works   Non-structural works	3.99%	İLERİ KABA İNŞAAT İŞLERİ
4.1	WALL WORKS		1.20%	DUVAR İŞLERİ
4.2	PLASTER WORKS		1.07%	SIVA İŞLERİ
4.3	SCREEDING WORKS		0.58%	ŞAP İŞLERİ
4.4	ISOLATION WORKS		1.14%	İZOLASYON İŞLERİ

#	Work Section Breakdown		%	Turkish work section names
5	FINISHING WORKS	Architectural works   Non-structural works	14.50%	İNCE İNŞAAT İŞLERİ
5.1	GYPSUM BOARD WORKS		1.24%	Alçıpan İşleri
5.2	CERAMIC WORKS		0.62%	Seramik İşleri
5.3	MARBLE WORKS		1.07%	Mermer İşleri
5.4	STEEL DOOR WORKS		0.26%	Çelik Kapı İşleri
5.5	METAL DOOR WORKS		0.28%	Metal Kapı İşleri
5.6	WALLPAPER WORKS		0.57%	Duvar Kağıdı İşleri
5.7	PARQUET WORKS		0.53%	Parke İşleri
5.8	CARPENTRY WORKS		3.24%	Ahşap İşleri
5.8.1	CLOAKROOM CABINET		0.24%	Vestiyer Dolabı
5.8.2	SIDEBOARD		0.03%	Dresuar
5.8.3	BATHROOM CABINET		0.31%	Banyo Dolabı
5.8.4	CUPBOARD		0.11%	Teknik Oda (Yükük)
5.8.5	WOODEN DOOR		0.46%	Ahşap Kapı
5.8.6	APARTMENT ENTRANCE DOOR		0.08%	Çelik Kapı İç - Dış Kapı Pervazı Yapımı
5.8.7	WOOD SKIRTING		0.16%	Ahşap Süpürgelik
5.8.8	KITCHEN CUPBOARD		0.95%	Mutfak Dolabı
5.8.9	ACRILIC COUNTER TOP		0.52%	Akrilik Tezgah İşleri
5.8.10	BATHROOM CABINET MARBLE TOP		0.14%	Banyo Mermer Tezgah
5.8.11	DOOR ACCESSORIES		0.05%	Kapı Aksesuarları
5.8.12	ALUMINUM SKIRTING		0.03%	Alüminyum Süpürgelik
5.8.13	SLIDING DOOR		0.02%	Sürme Kapılar
5.8.14	ELEVATOR DOOR JAMBS	NB Add to Elevator Works	0.13%	ASANSÖR SÖVELERİ
5.9	PVC-CARPET FLOORING		0.04%	PVC, Halı İşleri
5.10	PAINT WORKS		0.56%	Boya İşleri
5.11	LIGHT STEEL AND HANDRAIL WORKS		0.10%	Konstrüksiyon ve Korkuluk
5.12	WHITEWARE		0.27%	Beyaz Eşya
5.13	DECORATION WORKS		0.53%	Dekorasyon İşleri
5.14	PARKING AREA WORKS		0.78%	Otopark İşleri
5.15	MISCELLANEOUS WORKS		0.26%	Diğer İşler
5.16	CLEANING WORK		0.15%	Temizlik İşleri
5.17	SHOPPING MALL COMMON AREAS		4.13%	AVM Ortak Alan İşleri
6	FACADE WORKS	Architectural works   Non-structural works	13.29%	DIŞ CEPHE İŞLERİ
7	ELECTRICAL WORKS	Services and equipment	5.52%	ELEKTRİK İŞLERİ
8	MECHANICAL WORKS	Services and equipment	10.10%	MEKANİK İŞLER
9	ELEVATOR WORKS	Services and equipment	2.23%	ASANSÖR İŞLERİ
10	LANDSCAPE WORKS	External and ancillary works	0.09%	ÇEVRE DÜZENLEME İŞLERİ
11	INFRASTRUCTURE WORKS		1.68%	ALTYAPI İŞLERİ
11.1	WASTE WATER LINES	Underground drainage	0.05%	ATIK SU HATLARI
11.2	RAIN WATER LINES	Underground drainage	0.06%	YAĞMUR SUYU HATLARI
11.3	WATER LINES	Underground drainage	0.01%	TENİZ SU HATLARI
11.4	DRAINAGE LINES	Underground drainage	0.01%	DRENAJ HATLARI
11.5	SURROUNDING WALLS	External works	0.19%	ÇEVRE - İSTİNAT DUVARLARI
11.6	INTERNAL ROADS	External works	0.31%	PROJE İÇİ YOLLAR
11.7	EXTERNAL ROADS	Work and utilities outside the site	1.06%	PROJE DIŞI YOLLAR
12	OTHER CONSTRUCTION WORKS	Preliminaries   Contractor's site overheads   General requirements	2.25%	OTHER CONSTRUCTION WORKS
18	PROJECT AND DESIGN	Construction related consultants and supervision	0.54%	PROJE GİDERLERİ
19	DESIGN	Construction related consultants and supervision	1.21%	PROJELENDİRME
20	CONSULTANCY	Construction related consultants and supervision	0.11%	DANIŞMANLIK İŞLERİ
21	GENERAL EXPENSES	Preliminaries   Contractor's site overheads   General requirements	1.75%	GENEL GİDER
22	MOBILIZATION	Preliminaries   Contractor's site overheads   General requirements	1.46%	MOBİLİZASYON
23	STAFF SALARIES	Preliminaries   Contractor's site overheads   General requirements	7.30%	PERSONEL
TOTAL			100.00%	GENEL TOPLAM

## Sheet 3: Example Turkey

Cost code	Description	Sub-Project						Total	
		Offices			Shopping Centre			TRY	% of '0'
		TRY	TRY/m <sup>2</sup>	TRY/m <sup>2</sup>	TRY	TRY/m <sup>2</sup>	TRY/m <sup>2</sup>		
	Project Quantity		21,058	20,345		8,072	7,792		
			IPMS 1 Floor Area [m <sup>2</sup> ]	IPMS 2 Floor Area [m <sup>2</sup> ]		IPMS 1 Floor Area [m <sup>2</sup> ]	IPMS 2 Floor Area [m <sup>2</sup> ]		
<b>0</b>	<b>Total Capital Costs (1 + 2 + 3)</b>	<b>122,906,332</b>	<b>5,837</b>	<b>6,041</b>	<b>43,782,789</b>	<b>5,424</b>	<b>5,619</b>	<b>166,689,121</b>	<b>100.00%</b>
<b>1</b>	<b>Capital Construction Costs</b>	<b>118,448,151</b>	<b>5,625</b>	<b>5,822</b>	<b>42,268,636</b>	<b>5,236</b>	<b>5,425</b>	<b>160,716,787</b>	<b>96.42%</b>
1.01	Demolition, site preparation and formation	134,213	6	7	47,894	6	6	182,107	0.11%
1.02	Substructure	17,667,242	839	868	6,304,593	781	809	23,971,835	14.38%
1.03	Structure	23,560,930	1,119	1,158	8,407,575	1,042	1,079	31,968,505	19.18%
1.04	Architectural works   Non-structural works	38,824,000	1,844	1,908	13,854,429	1,716	1,778	52,678,429	31.60%
1.05	Services and equipment	21,815,628	1,036	1,072	7,784,953	964	999	29,600,581	17.76%
1.06	Surface and underground drainage	158,615	8	8	56,602	7	7	215,217	0.13%
1.07	External and ancillary works	719,867	34	35	256,886	32	33	976,753	0.59%
1.08	Preliminaries   Contractor's site overheads   general requirements	15,567,647	739	765	5,555,704	688	713	21,123,351	12.67%
1.09	Risk Allowances	Not included							
1.10	Taxes and Levies	Not included							
<b>2</b>	<b>Associated Capital Costs</b>	<b>4,458,181</b>	<b>212</b>	<b>219</b>	<b>1,514,153</b>	<b>188</b>	<b>194</b>	<b>5,972,334</b>	<b>3.58%</b>
2.01	Work and utilities off-site	1,464,002	70	72	522,432	65	67	1,986,434	1.19%
2.02	Post-completion loose furniture, fittings and equipment	2,530,600	120	124	75,000	9	10	2,605,600	1.56%
2.03	Construction-related consultancies and supervision	463,579	22	23	916,721	114	118	1,380,300	0.83%
2.04	Risk Allowances	Not included							
<b>3</b>	<b>Site Acquisition and Client's Other Costs</b>	<b>Not included</b>							
3.01	Site acquisition	Not included							
3.02	Administrative, finance, legal and marketing expenses	Not included							

NOTE: Those items indicated as 'Not included' were either not included in the WBS report or no relevant, analogous ICMS items were identified.

## Worked example 2: Offices and warehouse, Australian Capital Territory, Australia

### Sheet 1: Office attributes

Project Attributes	Project Values
<b>Common (Project level only)</b>	
<b>Report</b>	
<b>Project title</b>	New Offices and Warehouse
<b>Status of cost report</b>	Pre-construction forecast
<b>Date of cost report</b>	May 2014
<b>Revision number of cost report</b>	Revision 3
<b>Brief description of the Project</b>	New 2 storey office block, warehouse, soft landscaping and paving. Removal of existing buildings in completion
• <b>client's name</b>	Withheld
• <b>main Project type (principal Sub-Project)</b>	Offices and warehouse facilities
• <b>brief scope</b>	
<b>Location and country</b>	Canberra, Australian Capital Territory, Australia AUS
<b>Sub-Projects included</b>	Buildings and external works
<b>Price Level</b>	
<b>ISO currency code</b>	AUD
<b>Base date of costs</b>	May-14
<b>Price basis</b>	Fixed
<b>Currency Conversion</b>	
<b>Conversion date</b>	N/A
<b>Exchange rates or other conversion factors (used to convert a cost report of multi-currencies into a single currency)</b>	N/A
<b>Programme</b>	
<b>Project status</b>	Initiation and concept phase
<b>Construction period</b>	
• <b>number of months</b>	15 months
• <b>from</b>	Start of site preparation – Actual start date not known at this stage
• <b>to state</b>	Completion of commissioning
• <b>key milestones and dates</b>	To be decided
<b>Site</b>	
<b>Existing site status</b>	
• <b>state of use</b>	Brownfield
• <b>type of use</b>	Urban - low density
<b>Legal status of site</b>	Freehold
<b>Site topography</b>	Principally flat
<b>Ground conditions</b>	Soft
<b>Site conditions and constraints</b>	
• <b>access problems</b>	Average NB Existing buildings will remain operative during construction
• <b>extreme climatic conditions</b>	Easy
• <b>environmental constraints</b>	Easy
<b>Procurement</b>	
<b>Funding</b>	Private
<b>Project delivery</b>	
• <b>pricing method</b>	Lump sum stipulated price
• <b>mode of procurement</b>	Design bid build
• <b>joint venture foreign Constructor</b>	No
• <b>predominant source of Constructors</b>	Local

Project Attributes	Project Values	
<b>Code</b>		
<b>Local functional classification standard</b>		
• name of standard	Building Code of Australia	
• code number of construction	01.04.02 [Commercial offices - Suburban/Regional B Grade]	
<b>Works</b>		
Functional type	Office Warehouse	
Nature	New build	
Grade [qualitative description to be read in conjunction with the location]	Medium quality	
<b>Environmental grade</b>		
• grade and name of environmental certification	Four Star - NABERS (National Australian Built Environment Rating System)	
• status	Targeted	
<b>Principal design features</b>		
• structural (predominant)	Steel	
• external walls (predominant)	Tilt-up [precast] concrete panels	
• environmental control	Air conditioning	
• degree of prefabrication	Less than 25% of Capital Construction Costs	
<b>Project Complexity</b>		
• shape (on plan)	Rectangular	
• design	Simple	
• method of working	Existing buildings on site will remain operational during the construction. Staff will move to new buildings. Old buildings demolished on completion of new	
Design life	40 to 50 years	
Average height of site above or below sea level	577 metres above sea level	
Dimensions (overall length * width * height of each building to highest point of the building)	Offices 64.85 x 37.64 x 6.20 metres Warehouse 53.90 x 45 x 5.80 metres	
Typical storey height (floor level to floor level)	Offices 3 metres	
Other storey heights and applicable floors	N/A	
<b>Storeys above ground [qualitative description to be read in conjunction with the location]</b>		
Storeys above ground [quantitative]	0-3	
Storey below ground	Nil	
<b>Project Quantities</b>		
Site area (within legal boundary of building site, excluding temporary working areas outside the site)	50000 m <sup>2</sup>	
Covered area on plan	Offices 4950 m <sup>2</sup>	Warehouse 2600 m <sup>2</sup>
Gross external floor area as IPMS 1	E	
Gross internal floor area as IPMS 2	Offices 2426 m <sup>2</sup>	Warehouse 2344 m <sup>2</sup>
Functional units	N/A	

NOTE: \* See Item 1.10: Goods and Services Tax (GST) is 10% (and applied to all new construction)

## Sheet 2: Example attributes

Cost code	Description	Sub-Project						Total	
		Offices			Warehouse			AUD	% of '0'
		AUD	AUD/m <sup>2</sup>	AUD/m <sup>2</sup>	AUD	AUD/m <sup>2</sup>	AUD/m <sup>2</sup>		
Project Quantity			4,881	4,716		2,426	2,344		
			IPMS 1 Floor Area [m <sup>2</sup> ]	IPMS 2 Floor Area [m <sup>2</sup> ]		IPMS 1 Floor Area [m <sup>2</sup> ]	IPMS 2 Floor Area [m <sup>2</sup> ]		
<b>0</b>	<b>Total Capital Costs (1 + 2 + 3)</b>	<b>23,611,350</b>	<b>4,837</b>	<b>5,007</b>	<b>3,760,300</b>	<b>1,550</b>	<b>1,604</b>	<b>27,371,650</b>	<b>100.00%</b>
<b>1</b>	<b>Capital Construction Costs</b>	<b>18,723,600</b>	<b>3,836</b>	<b>3,970</b>	<b>3,523,300</b>	<b>1,452</b>	<b>1,503</b>	<b>22,246,900</b>	<b>81.28%</b>
<b>1.01</b>	<b>Demolition, site preparation and formation</b>								
1.01.050	Demolition of existing buildings	600,000	123	127				600,000	2.19%
1.01.060	Site surface clearance	200,000	41	42	100,000			300,000	1.10%
1.01.080	Site formation	230,000	47	49	90,000			320,000	1.17%
<b>1.02</b>	<b>Substructure</b>								
1.02.020	Foundations up to top of lowest floor slab	534,000	109	113	552,000	228	235	1,086,000	3.97%
<b>1.03</b>	<b>Structure</b>								
1.03.030	Frames and slabs (above top of ground floor slab)								
1.03.030.010	Structural wall and columns	133,000	27	28	152,000	63	65	285,000	1.04%
1.03.030.020	Upper floors and beams	951,000	195	202				951,000	3.47%
1.03.030.030	Roof beams and slabs	618,000	127	131	438,000	181	187	1,056,000	3.86%
1.03.030.040	Staircases	72,000	15	15				72,000	0.26%
<b>1.04</b>	<b>Architectural works   Non-structural works</b>								
1.04.020.010	Non-structural external walls	1,700,000	348	360	257,500	106	110	1,957,500	7.15%
1.04.020.050	External doors	72,800	15	15	36,000	15	15	108,800	0.40%
1.04.030.010	Roof finishes	270,000	55	57	290,000	120	124	560,000	2.05%
1.04.040.010	Non-structural internal walls and partitions	565,000	116	120	93,700	39	40	658,700	2.41%
1.04.040.060	Internal doors	120,000	25	25	21,000	9	9	141,000	0.52%
1.04.040.070	Internal windows	120,000	25	25	11,000	5	5	131,000	0.48%
1.04.050	Fittings and sundries	125,000	26	27	55,000	23	23	180,000	0.66%
1.04.060.010	Floor finishes	388,000	79	82	113,000	47	48	501,000	1.83%
1.04.060.020	Internal wall finishes	242,100	50	51	16,200	7	7	258,300	0.94%
1.04.060.030	Ceiling finishes	364,000	75	77	16,700	7	7	380,700	1.39%
1.04.070	Builder's work in connection with services	170,200	35	36	11,300	5	5	181,500	0.66%
<b>1.05</b>	<b>Services and equipment</b>								
1.05.010.080	Air handling and distribution system	2,186,000	448	464	87,500	36	37	2,273,500	8.31%
1.05.020	Electrical services	1,360,000	279	288	193,000	80	82	1,553,000	5.67%
1.05.040.010	Communications	728,000	149	154				728,000	2.66%
1.05.050	Water supply and above ground drainage	730,000	150	155	58,700	24	25	788,700	2.88%
1.05.080	Fire services	266,700	55	57				266,700	0.97%
1.05.100	Movement systems	247,000	51	52				247,000	0.90%
1.05.250	Other specialist services	242,800	50	51	24,700	10	11	267,500	0.98%
1.06	Surface and underground drainage	125,000	26	27	40,000	16	17	165,000	0.60%
1.07	External and ancillary works	988,000	202	209	150,000	62	64	1,138,000	4.16%
1.08	Preliminaries   Contractor's site overheads   general requirements	2,260,000	463	479	393,000	162	168	2,653,000	9.69%
1.09	Risk Allowances	2,115,000	433	448	323,000	133	138	2,438,000	8.91%
1.10	Taxes and Levies	Not included							
<b>2</b>	<b>Associated Capital Costs</b>	<b>4,235,900</b>	<b>868</b>	<b>898</b>	<b>217,000</b>	<b>89</b>	<b>93</b>	<b>4,452,900</b>	<b>16.27%</b>
2.01	Work and utilities off-site	255,000	52	54	35,000	14	15	290,000	1.06%
2.03	Construction-related consultancies and supervision	1,300,300	266	276	80,000	33	34	1,380,300	5.04%



Cost code	Description	Sub-Project						Total	
		Offices			Warehouse			AUD	% of '0'
		AUD	AUD/m <sup>2</sup>	AUD/m <sup>2</sup>	AUD	AUD/m <sup>2</sup>	AUD/m <sup>2</sup>		
	IPMS 1 Floor Area [m <sup>2</sup> ]	IPMS 2 Floor Area [m <sup>2</sup> ]		IPMS 1 Floor Area [m <sup>2</sup> ]	IPMS 2 Floor Area [m <sup>2</sup> ]				
2.02	Post-completion loose furniture, fittings and equipment	2,530,600	518	537	75,000	31	32	2,605,600	9.52%
2.04	Risk Allowances	150,000	31	32	27,000	11	12	177,000	0.65%
<b>3</b>	<b>Site Acquisition and Client's Other Costs</b>	<b>651,850</b>	<b>134</b>	<b>164</b>	<b>20,000</b>	<b>8</b>	<b>9</b>	<b>671,850</b>	<b>2.45%</b>
3.01	Site acquisition	Not included							
3.02	Administrative, finance, legal and marketing expenses	651,850	134	138	20,000	8	9	671,850	2.45%

## Worked example 3: Offices tower, Kuala Lumpur, Malaysia

### Sheet 1: Office attributes

Attributes	
<b>Location</b>	City Centre, Kuala Lumpur, Federal Territory, Malaysia
<b>Function</b>	residential   <b>office</b>   commercial   shopping centre   industrial   hotel   car park   warehouse   educational   hospital   airport terminal   railway station   ferry terminal   mix of the foregoing
<b>Gross external floor area</b>	33,236 m <sup>2</sup>
<b>Gross internal floor area</b>	32,105 m <sup>2</sup>
<b>Storeys above ground</b>	specific number   0 - 3   4 - 7   8 - 20   <b>20 - 30</b>   30 - 50   over 50   house   low rise   medium rise   high rise
<b>Storey below ground</b>	3-level basement
<b>Grade</b>	ordinary quality   medium quality   <b>high quality</b>
<b>Hotel grade</b>	1 star   2 star   3 star   4 star   international + the foregoing   local + the foregoing
<b>Funding</b>	<b>private</b>   government
<b>Site topology</b>	<b>levelled</b>   sloping
<b>Site conditions</b>	soft   rocky   reclaimed ( <b>underground rock and cavity</b> )
<b>Currency</b>	Ringgit Malaysia
<b>Cost Data</b>	Final account 2007

### Sheet 2: Example Malaysia

Cost code	Description	Building			% of '0'
		\$M	\$/m <sup>2</sup>	\$/m <sup>2</sup>	
	Project Quantity		33,236	32,105	
			IPMS 1 Floor Area (m <sup>2</sup> )	IPMS 2 Floor Area (m <sup>2</sup> )	
<b>0</b>	<b>Total Capital Costs (1 + 2 + 3)</b>	<b>111,324,809</b>	<b>3,349.5</b>	<b>3,467.5</b>	<b>100.0%</b>
<b>1</b>	<b>Capital Construction Costs</b>	<b>92,398,920</b>	<b>2,780.1</b>	<b>2,878.0</b>	<b>83.0%</b>
1.01	Demolition, site preparation and formation	1,117,820	33.6	34.8	1.0%
1.02	Substructure	18,829,013	566.5	586.5	16.9%
1.03	Structure	15,798,283	475.3	492.1	14.2%
1.04	Architectural works   Non-structural works	20,926,283	629.6	651.8	18.8%
1.05	Services and equipment	32,069,671	964.9	998.9	28.8%
1.06	Surface and underground drainage	Not included			
1.07	External and ancillary works	1,145,154	34.5	35.7	1.0%
1.08	Preliminaries   Contractor's site overheads   general requirements	2,512,696	75.6	78.3	2.3%
1.09	Risk Allowances	Not included			
1.10	Taxes and Levies	Not included			
<b>2</b>	<b>Associated Capital Costs</b>	<b>18,925,889</b>	<b>569.4</b>	<b>589.5</b>	<b>17.0%</b>
2.01	Work and utilities off-site	Not included			
2.02	Post-completion loose furniture, fittings and equipment	13,489,889	405.9	420.2	12.1%
2.03	Construction-related consultancies and supervision	5,436,000	163.6	169.3	4.9%
2.04	Risk Allowances	Not included			
<b>3</b>	<b>Site Acquisition and Client's Other Costs</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0%</b>
3.01	Site acquisition	Not included			
3.02	Administrative, finance, legal and marketing expenses	Not included			

## Appendix C – Further information

For further information on the content of this user guide, please contact either:

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