

4 Appendix 1 – Capital Costing Guidelines

This section provides additional methodology and defines the terminology expected as part of the submission of the Capital Costing required by Part F Feasibility Planning and Costing.

4.1 Capital Costing; Definitions and Methodology

Net Construction Cost or (NCC)

Net Construction Cost is composed of the following:

Departmental (FPU) Costs

These represent the Net Internal Construction cost of each Functional Planning Unit (FPU) otherwise referred to as Departments. The cost per M2 varies for each FPU depending on the level of complexity, density of fitout, level of building services, typical types of finishes etc. Furthermore, the FPU rates are linked to the Role Delineation Level (the level of service being provided) or (RDL), so the cost of the same FPU varies from one RDL to another. A higher RDL is more expensive than a lower RDL.

The FPU rates are applied to Gross areas including the circulation space within each department. The area measurement method is known as the No-Gap method. In this method, the Gross departmental (FPU) area is the simple sum of the individual rooms plus the internal circulation corridors but not Travel and Engineering space.

The room areas are measured as follows:

- To the inside face of outside walls
- To the centre of side walls
- To the outside face of circulation corridors
- Circulation corridors are measured to the face of the walls.

Departmental (FPU) Gross areas can be estimated early in the project on the basis of the Briefing Information and Schedules of Accommodation (SOA). Later in the project these can be measured off the plans and compared with the briefing estimates. A variance of more than a few m² per department would normally be unacceptable in a new building design but tolerable in refurbishment projects.

A special note must be made in relation to “Shell Space”. Some projects include shell space for future internal expansion. This is based on the theory that building shell space for the future now is cheaper than building it in the future. This conclusion is not universally accepted. There should be no automatic assumption that for public or private facilities it is necessary to provide shell spaces for the future. However, if this is the intention, they should be identified and correctly costed.

Travel and Engineering (T&E) Costs

Travel refers to the major corridor links between the Departments (or FPU's). These are measured to the face of the walls.

Travel also includes Stairs (measured once per floor), Lift lobbies, internal Ramps but not voids such as lift voids.

Engineering refers to plant rooms, service cupboards, service tunnels etc. Holes in the slabs for risers are not counted.

T&E may be estimated as a percentage of the Gross Areas or measured off the plan depending on the stage of project (before design or after design). If T&E is estimated at briefing time, it is entered as a percentage, separate to FPU areas. If T&E is measured off the plans, it is entered separately as Travel FPU and Engineering FPU. Then the T&E % is entered as 0.

Building Shell and Site Conditions

Each building or building type is designed to an Architectural shell with certain external features responding to the site and design preferences including materials finishes. The Departmental rates cover all the internal costs for the building(s). The "Building Shell and Site Conditions" will estimate the balance of the cost including the following:

- Bulk Earthworks
- Fire Compartmentation
- Demolition Works
- External Works
- Façade
- Infrastructure Services
- Landscaping
- Roof
- Site Preparation
- Special Provisions
- Sub Structure
- Super Structure
- Transportation Services
- Civil Works
- Outbuildings.

The assumptions for each of the above vary from one project to the next. So, unlike the FPU costs, the above costs must be site-specific. However, for many components of the above categories, it is possible to develop benchmarks which are applied to similar facilities. For example, the Façade system or Super Structure in one project may be very similar to another. So, it is possible to simply quote the cost from a recently tendered project, identifying those elements.

Project Specific Costs

A number of project costs are regarded as on-off costs and cannot be estimated based on formulas applied to variables of the project. These costs are entered as cash estimates. These may include:

- mains upgrade
- New generators
- Contribution to road extensions or repairs
- Cash already spent towards the project.

FF & FE Costs

Normally the cost of Furniture, Fittings, Fixtures and Equipment (FF&FE) would be estimated separately based on generic equipment lists and the room types present in the brief or design. However, on occasions where such an equipment list does not exist, FF&FE are entered as a percentage of building cost.

Gross Construction Cost (GCC)

Gross Construction Cost (GCC) is composed of NCC plus the following "Contract Costs":

Each procurement contract type has different on-costs which should be applied. These on-costs can be calculated as follows:

Table of on-costs included in GCC based on the intended contract type

1	Net Construction Cost (NCC)	% applied to NCC	Applied to	Cost (AED)
2	Preliminaries Cost (1)	e.g. 10%	1	???
3	Contractors Margin	e.g. 10%	1+2	???
4	Design Contingency	e.g. 5%	1+2+3	???
5	Locality Factor (2)	e.g. 0%	1+2+3+4	???
6	Risk Factor	e.g. 5%	1+2+3+4+5	???
7	Project Agreement (3)	e.g. 0%	1+2+3+4+5+6	???
	Subtotal of on-costs			???

Notes:

- (1) Preliminaries include site establishment and direct labour by the builder
- (2) Locality Factor is the cost difference for the same facility if built in a Capital City vs a regional or remote city with special circumstances. Costs are benchmarked to the nearest capital city, then for each other city a Regional Factor is applied to compensate for the difference in costs. Therefore, when costs are done for a Capital City, the regional factor is 0. When costs are done for other cities, the regional factor is a positive or negative % of NCC.
- (3) Project Agreement refers to any special contractual agreement for labour penalties for harsh conditions, extra hours or similar

Please note the order of calculations shown in the above table. Changing the order will change the results. In order to maintain a central benchmark for costing, these Guidelines require the above order of calculations to be maintained.

The typical contract costs which vary the above on-costs are:

- Prime Contractor
- D&B (Design and Build) also called Design-Construct
- DD&C (Design Develop and Construct)
- Managing Contractor (or Cost +)
- Public Private Partnership (PPP)
- Construction Management
- Direct Contract (or owner-build).

One of the above generic contract descriptions needs to be selected or assumed in order to arrive at the benchmark percentages. It should also be noted that the benchmark percentages are those achieved over many projects and many years as measured at the end of the project. Initial optimistically low percentages inserted into various contracts are not a good benchmark to use as the impact of variations during the contract must be considered and allowed.

The above benchmarks are usually available to clients and Quantity Surveyors experienced in healthcare projects.

Total Project Cost (TPC)

Total Project Cost (TPC) is composed of the GCC plus the following:

Fees, Charges and Contingencies- These are the balance of the on-costs mentioned above under GCC. The on-costs which are included in the TPC are as follows:

Table of on-costs included in the TPC

		% applied to NCC	Applied to	Cost (AED)
8	Construction Contingency	e.g. 5%	1+2+3+4+5+6+7	???
9	Consultants Fees	e.g. 12%	1+2+3+4+5+6+7+8	???
10	Authority Charges	e.g. 2%	1+2+3+4+5+6+7	???
11	Other Charges	e.g. 0%	1+2+3+4+5+6+7	???
	Subtotal of on-costs			???

The reason these are included in the TPC and not GCC is that on many projects these costs are separated and paid by the Client. So, it is beneficial to separately note these costs.

Project FF&FE Costs- This refers to the cost of Furniture, Fittings, Fixtures and Equipment. The default costing methodology is to estimate these based on briefing information such as Room Data Sheets. If, however, these are not available, they can be entered directly as Project-Specific Costs.

The FF&FE procurement costs are in 6 default categories:

- Group 1- Supplied and Installed by the builder
- Group 2- Supplied by the client and installed by the builder
- Group 3- Supplied and installed by the Client
- Group 1T- Existing items transferred and Installed by the builder
- Group 2T- Existing items supplied by the client and installed by the builder
- Group 3T- Existing items supplied and installed by the Client.

Even if there is no intention to procure the FF&FE according to the above groups, it is beneficial to separate them as such for benchmarking purposes. Obviously items which are supplied and/or installed by the client will not attract a builders margin. However, the builder is required to make allowances for the building to accommodate and serve them.

Total End Cost (TEC)

The Total End Cost (TEC) is composed of the TPC plus the following:

Escalation

This represents the rise in costs between the time the estimate is prepared and the end of the project when the final payment is made to the builder.

This does not assume that the building contract allows for rise and fall. This is simply a component of cost estimation which will vary from one locality to the next and should be separated for benchmarking purposes. It should in fact be assumed that the TEC is the contracted price.

Escalation is based on several factors:

- Estimate Date: This is the date the estimate is prepared
- Project Commencement: This is the date of the construction commencement
- Project Completion: This is the date of construction completion
- Escalation rate: This is the rate of escalation per annum.

Escalation is calculated as follows:

A= The rate of escalation is applied fully to the TPC for the period between the Estimate Date and Project Commencement.

B= The rate of escalation is applied to the escalated cost (including A) for the period between the Construction Commencement and mid-point of construction. This allows for an assumed expenditure curve from the beginning of the construction to the end.

C= A+B is the total project escalation between the Estimate Date and Project Completion.

Escalation rate can be expressed in two methods. Both methods can be used for escalation calculation, although method 2 is generally regarded as more accurate. It is usually provided by industry bodies, Municipalities or Governments. When it is not available, then Method 1 is used. These are described as follows:

Method 1- Escalation % per annum. This is a percentage estimated by quantity surveyors.

Method 2- Building Price Index (BPI). BPI is expressed by numbers which are estimated for the current as well as future years. The difference between the numbers represents the escalation factor.

Cost Summary

The above 4 major categories of Cost need to be summarised and presented similar to the following:

1	NCC	AED ???
2	GCC	AED ???
3	TPC	AED ???
4	TEC	AED ???

Warning

As the logic of the costing methodology described above would indicate, there are many factors which result in the Total End Cost (TEC), the cost that really matters.

Therefore, it is inappropriate to take the end result of this type of costing and convert it into a lower level benchmark such as a simple Cost per Square Meter, or worse, a Cost Per Bed. These types of low level cost benchmarks are misguided and inaccurate. We strongly caution against their use, even though they may be convenient in daily conversation. It can be demonstrated that their use actually results in bad decisions and outcomes.

4.2 Cost Benchmarking Issues

This section is not part of the Guidelines, but provides an overview of some of the observed issues in cost benchmarking between projects.

Benchmarking generally refers to an estimate of cost for a project in comparison with other, similar projects or project types. This is usually intended for the verification of costs so that when problems are discovered corrective action may be taken in the future.

An important factor which should be considered in costing is that high-cost building environments tend to justify and reinforce these costs through the entire eco-system of the construction industry. Once, for any reason a City, Country or Industry falls into a pattern of initial high construction costs, cost escalation during construction or unreliable cost estimates then the following will most likely follow:

- For new projects clients employ cost consultants (QS's) to estimate the market cost to within an acceptable margin of accuracy (plus/minus 5%).
- Cost Consultants look at historic, current and future patterns in that City, Country or Industry and give an estimate. This may be an accurate Market estimate but it may not be a fair Price.
- This process does not discover why in certain areas, costs are unusually high.

So, in environments where there are numerous changes to the projects during the construction, the client or head contractors do not pay on-time, designers do not provide adequate detailed information and there is no early signed-off for the project brief, each party within the construction echo-system will add its own contingency. Then each cost consultant advising the various parties anticipates this and allows for the prevailing high market rate. The client's QS does the same, otherwise both the tenders and end project costs will prove him wrong and unreliable.

So, the client gets advice in relation to the costs which, not surprisingly confirms the current high cost environment. So, if a new project is judged by such a benchmark, its high costs appear justifiable, even when in reality they are not.

In order to discover this phenomenon and quantify it, various benchmarking techniques can be used to by-pass the above feedback loop. The results, if lower than the current cost environment, may not be immediately achievable, but they will hopefully highlight the problem to be addressed.

5 Appendix 2 – Feasibility Study Template

The Owners or Operators of Health Facilities are required to provide a Feasibility Study as part of Steps 2 and 3 of both Schematic and Detailed licensing applications described in these Guidelines.

The template which appears on the following page may be completed and used for this purpose. Alternatively, if a separate, Feasibility Study has already been prepared by specialists, then its conclusions without further elaboration may can be inserted into the template and submitted along with a full copy of the original Feasibility Study.

The Feasibility Study which is prepared as part of the Schematic application may be re-checked, updated and re-submitted as part of the Detailed submission.

XYZ HOSPITAL

Feasibility Study

Date: <DD.MM.YYYY>

Version: <1>

Prepared by: <enter the name of the author>

Contacts: <enter the author's company name, telephone and email>

Prepared for: <owner or operator>

Contacts: < enter the Owner or Operators name, telephone and email>

Application Status: <choices are Schematic Submission or Detailed Submission>

<optionally insert project perspective>

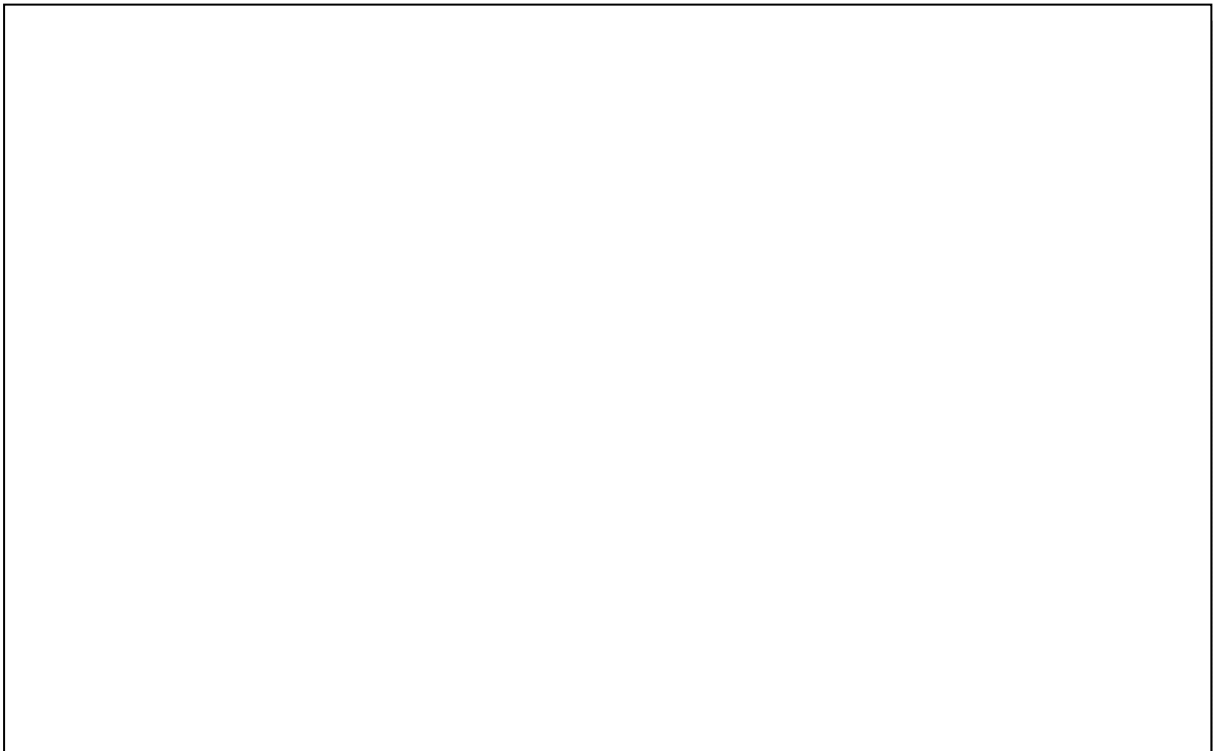


Table of Contents

<Provide a table of contents and page numbers>

1- Executive Summary

<One page free form text for executive summary. Try to incorporate a short paragraph related to each of the subjects that follows>

Name of the project and introductory text

The author of the Feasibility Study

Location- provide a small diagram or map

Key features

Key quantities, numbers, size

Timeframe for delivery

Total Capital Cost

2- Strategic Context

<Describe the strategic context of the proposal>

3- Investment Objectives

<Describe the Investment Objectives>

New Facilities and Services (if any)

Existing Facilities and Services (if any)

Problems and Opportunities

4- Needs Analysis

Health Service Catchment

Population Numbers

Geographic Definition

Population type

Health Service Demand Assessment

<list by the chosen unit eg KPU's such as Acute Beds, Sameday Beds, Operating Theatres, LDR Birthing Rooms etc or activity measures such as Beddays, Admissions, Separations, Episodes, Operations, ED Presentations P/A etc.>

Health Service Supply Assessment

< list by the chosen unit eg KPU's such as Acute Beds, Sameday Beds, Operating Theatres, LDR Birthing Rooms etc or activity measures such as Beddays, Admissions, Separations, Episodes, Operations, ED Presentations P/A etc.>

Permissible and Restricted Health Services (if any)

<Quote from the latest Health Authority Service Line and DRG categories after verifying directly or via the website>

Make reference to the Pro-forma provided in Part A:

Appendix 15 – Pro-forma for the proposed Service Lines and DRG's

Pay particular attention to the designation of Centralised, Regional and Standard Services.

Identified Health Service Gap

< list by the chosen unit eg KPU's such as Acute Beds, Sameday Beds, Operating Theatres, LDR Birthing Rooms etc or activity measures such as Beddays, Admissions, Separations, Episodes, Operations, ED Presentations P/A etc.>

5- Competitive Landscape

<Describe the competitive landscape>

6- Proposed Services and Facilities

< list by the chosen unit eg KPU's such as Acute Beds, Sameday Beds, Operating Theatres, LDR Birthing Rooms etc or activity measures such as Beddays, Admissions, Separations, Episodes, Operations, ED Presentations P/A etc.>

<Demonstrate that the proposed services and facilities are within the identified service gap>

<Optionally, prepare and attach a Clinical Services Plan (CSP). Make references to the CSP (if any) in this section.>

Make reference to the completed Pro-forma from Part A- appendix 15 – Pro-forma for the proposed Service Lines and DRG's. Provide the completed proforma in the Appendices.

7- Options Generation and Evaluation

Options Considered

<Describe one or more options considered for private facilities>

<Describe a minimum of 4 options considered for public facilities. Option 1 must be:

Do Nothing, keep safe and operating>

Options Evaluation

<Provide a simple evaluation matrix>

Option Recommended or Adopted

8- Project Costing

<Refer to an attached Costing Report with all the required details, or complete this section with the minimum requirements of costing>

Capital Cost

<Provide a simple table with the required minimum information complying with the methodology used in Part F Appendix 1- Capital Costing Guidelines>

NET Construction Cost (NCC)

Departmental (FPU) costs by category:

- New construction
- Major refurbishment
- Minor refurbishment

Travel and Engineering costs

Building Shell and Site Conditions costs;

- Bulk Earthworks
- Fire Compartmentation
- Demolition Works
- External Works
- Façade
- Infrastructure Services
- Landscaping
- Roof
- Site Preparation
- Special Provisions
- Sub Structure
- Super Structure

- Transportation Services
- Civil Works
- Outbuildings

Project Specific Costs

Gross Construction Costs (GCC)

Add the following to NCC:

- Preliminaries Costs
- Contractors Margin
- Design Contingency
- Locality Factor
- Project Agreement

Total Project Costs (TPC)

Add the following to GCC:

- Construction Contingency
- Consultants Fees
- Authority Charges
- Other Charges

Add the cost of Furniture, Fittings, Fixtures and Equipment (FF&FE):

- Group 1- Supplied and installed by the builder
- Group 2- Supplied by the client, installed by the builder
- Group 3- Supplied and installed by the client
- Group 1T- Transferred and installed by the builder
- Group 2T- Transferred by the client and installed by the builder
- Group 3T- Transferred and installed by the client

Notes:

Supply and Installation cost of Group 1&1T should be included in the NCC

Supply cost of Group 2 should be included in TPC

Transfer cost of Group 2T should be included in TPC

Installation cost of Group 2&2T should be included in NCC

Supply and Installation cost of Group 3&3T should be included in TPC

Total End Cost (TEC)

Add escalation to TPC to arrive at TEC

Transition Costs

<Provide the transition costs with a short description, if any>

Decanting Costs

Temporary Facilities Costs

Recruitment Costs

Change Management Costs

Opportunity Costs

<Provide opportunity costs, if any>

Income loss

Income gain

Recurrent Cost

<Provide a summary of the anticipated running costs>

Human Resource (HR) costs

- Doctors
- Nurses
- Medical Support
- Hotel Services
- Admin and Clerical

Goods and Services (G&S) Costs

- Administration
- Domestic Supplies and Services
- Drugs
- Equipment Leasing
- Food Supplies
- Medical & Surgical Supplies
- Motor Vehicle Expenses / Travel
- Other Goods and Services
- Patient Transport (Incl. Ambulance)
- Rental Accommodation
- Repairs Maintenance and Renewals
- Support & Special Services
- Utilities
- Insurance and Legals
- Other

Total Recurrent Costs

<Sum of HR and G&S for the first year of operation and escalate to 4 following years of operation.>

Life Cycle Cost

<provide Life Cycle Costs and NPV analysis of all options, only if required in writing by the Health Authority>

9- Revenue and Profitability

<For Private Facilities, Provide a summary of the expected revenue and profitability based on the services proposed>

<For Public Facilities, replace this section with a discussion of Public Benefit>

Revenue

Profitability

10- Options Evaluation

<Provide a tabulated Options Evaluation matrix and include the mandatory requirements>

Options Matrix

Options name and short description (Min.1 for Private and 4 for Public facilities)

Summary of KPU's for each option

Summary of SOA (as a Minimum, state total GFA)

Cost Summaries (including Capital, Transitional, Opportunity, Recurrent and Life Cycle)

Revenue and Profitability

Short remarks in the context of the Investment Objectives

Short remark under each of the evaluation criteria

Short discussion of the expected risks and risk mitigation

Options Selection

<Free form text to describe the reasoning for selecting one option>

Financial Appraisal

<At the written request of the Health Authority, provide an independent Financial Appraisal and refer to it in this section. Provide the full copy in the appendices>

11- Funding Strategy

<Provide a short description of the funding strategy>

Capacity to Fund

<Refer to the evidence of capacity to fund the project and provide the evidence in the appendices>

12- Procurement Strategy

<Provide a short description of the procurement strategy (method of delivery) including the minimum mandatory requirements>

Timeframe and Staging

<Provide a table of key dates or a bar chart>

Contract Type

<Nominate the intended contacting methodology (which may change later)>

Governance Structure and Reporting

<Provide a short outline of the Governance Structure>

13- Feasibility Self-check

<Provide a completed and signed Feasibility Study Self-Check table>

14- Appendices

<Provide all the items which are referred to the appendices in the body of the Feasibility Study including externally sourced reports such as costing and proof of capacity to pay.

The appendices may also include the completed Pro-forma from Part A: Appendix 15 – Pro-forma for the proposed Service Lines and DRG's>



The International Health Facility Guidelines recommends the use of HFBS “Health Facility Briefing System” to edit all room data sheet information for your project.

HFBS provides edit access to all iHFG standard rooms, and departments, and more than 100 custom report templates.

HFBS Health Facility Briefing System



Briefing Module

The Health Facility Briefing System (HFBS) has numerous modules available via annual subscription. It suits healthcare Architects, Medical Planners, Equipment Planners Project Managers and Health Authorities.

Use the HFBS Briefing Module to quickly drag in health facility departments or pre-configured room templates from the iHFG standard, edit the room features such as finishes, furniture, fittings, fixtures, medical equipment, engineering services. The system can print or download as PDF more than 100 custom reports including room data sheets, schedules, and more...

To learn more about the HFBS web-based Healthcare Briefing and Design Software and to obtain editable versions of the “Standard Components” including Room Data Sheets (RDS) and Room Layout Sheets (RLS) offered on the iHFG website, signup for HFBS using the link below.

Get Started Now:
hfbs.healthdesign.com.au

- ✓ iHFG Room Data Sheets and Departments are instantly editable in the HFBS software available online.
- ✓ You can access hundreds of report templates to print your iHFG room data in HFBS.
- ✓ HFBS has a onetime free 3 day trial available to all new users.

Get Started Now:
hfbs.healthdesign.com.au



HFBS

Health Facility Briefing System

hfbsinfo.com | techsupport@healthdesign.com.au