

## **Management and Professional Studies**

### **Assignment 05: Budget Costings**

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### Assignment 05

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#### Assumptions

- The examples chosen are 'past experiences' and can be used for the purpose of estimation.
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### Report

When considering the cost of a building the overall building cost is broken down into 6 main sections. These sections and the approximate percentage of total budget are:

Details	Percentages
Substructure	13%
Superstructure	49%
Internal Finishes	8%
Fitting Out	1%
Services	25%
External Works	4%
<b>Totals</b>	<b>100%</b>

Contingency additions are included in the above percentages. The notable exclusions from these figures are professional fees and VAT.

These main sections have several subsections which are described in the BCIS index of buildings and are as follows:

Element	Subsection
1.0 Substructure	
2.0 Superstructure	2A Frame 2B Upper floors 2C Roof 2D Stairs 2E External walls 2F External doors 2G Internal walls and partitions 2H Internal doors
3.0 Internal Finishes	3A Wall finishes 3B Floor finishes 3C Ceiling finishes
4.0 Fitting Out	
5.0 Services	5A Sanitary appliances

5B Services equipment  
5C Disposal installations  
5D Water installations  
5E Heat source  
5F Space heating and air treatment  
5G Ventilation systems  
5H Electrical installations  
5I Gas Installations  
5J Lift and conveyor installations  
5K Protective installations  
5L Communication installations  
5M Special installations (Water Treatment)  
5N Builder's work in connection with services  
5O Builder's profit and attendance on services

6.0 External Works      6A Site works inc. road works and piazza  
6B Drainage  
6C External services  
6D Minor building works

7.0 Preliminaries

8.0 Contingencies

9.0 Design Fees

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The footprint of my building is 200m<sup>2</sup>. The total floor area of the building is 1310m<sup>2</sup>. To give an approximation of the cost of my building I intend to find some buildings with the same approximate footprint, floor area and construction.

Estimate 1: Cost per m<sup>2</sup>:

The buildings I have chosen are Ujima Housing, North London; Research Building, Biberach and the College Labs, Dublin.

Ujima Housing<sup>1</sup>:

This is a housing project which has parts of the building rising to four storeys tall. This has been chosen as it uses similar construction and rises to a similar height. The total floor area of this project is 1123m<sup>2</sup> and is valued at £1,643,494 or £1,463 per m<sup>2</sup>.

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<sup>1</sup> RIBA Journal Building Study. January 2003. Pages 44-50.

Research Building<sup>2</sup>:

This project is massively bigger than my scheme at 5,919m<sup>2</sup> and a value of £11,456,466 or £1,086 per m<sup>2</sup> but it has a double skin façade which mimics part of my scheme. The internal façade cost £996,214 and the external facade cost £1,195,457. The whole perimeter of the building is clad using this system. The building rises for six storeys and is of a similar height to my building.

College Labs<sup>3</sup>:

This scheme was chosen as it is located in Dublin itself and gives some indication as to how much a building of similar size to my building would cost. This building is 1,277m<sup>2</sup> and cost £3,209,917 or £2,514 per m<sup>2</sup>. The building does not match the height of my building but it does have a very high quality of specification.

Summary:

<b>Project</b>	<b>Total Cost</b>	<b>Cost / m<sup>2</sup></b>
Ujima Housing	£1,643,494	£1,463
Research Building	£11,456,466	£1,086
College Labs	£3,209,917	£2,514

I can deduce from these costs that I will have a probable build costs of somewhere between £1,463 and £2,514 per m<sup>2</sup>. I discounted the largest value building cost as I doubt my building is large enough to benefit from economies of scale which have probably affected that buildings value per m<sup>2</sup>.

Based on this information I can generate 3 estimates for the cost of my building. One can be based on the value of £1,500 per m<sup>2</sup> the second valued at £2,000 per m<sup>2</sup> and the final valued at £2,500 per m<sup>2</sup>.

Given these assumptions and the approximate percentages given at the beginning of the document I can estimate that the three costs of the building based on similar buildings thus;

£1,500 per m<sup>2</sup>:

Total Value = £1,965,000

<b>Details</b>	<b>Cost</b>	<b>Percentages</b>
Substructure	£255,450	13%
Superstructure	£962,850	49%
Internal Finishes	£157,200	8%
Fitting Out	£19,650	1%
Services	£491,250	25%

<sup>2</sup> RIBA Journal Building Study. March 2003. Pages 29-34.

<sup>3</sup> RIBA Journal Building Study. April 2003. Pages 38-44.

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External Works	£78,600	4%
<b>Totals</b>	<b>£1,965,000</b>	<b>100%</b>

£2,000 per m<sup>2</sup>:

Total Value = £2,620,000

<b>Details</b>	<b>Cost</b>	<b>Percentages</b>
Substructure	£340,600	13%
Superstructure	£1,283,800	49%
Internal Finishes	£209,600	8%
Fitting Out	£26,200	1%
Services	£655,000	25%
External Works	£104,800	4%
<b>Totals</b>	<b>£2,620,000</b>	<b>100%</b>

£2,500 per m<sup>2</sup>:

Total Value = £3,275,000

<b>Details</b>	<b>Cost</b>	<b>Percentages</b>
Substructure	£425,750	13%
Superstructure	£1,604,750	49%
Internal Finishes	£262,000	8%
Fitting Out	£32,750	1%
Services	£818,750	25%
External Works	£131,000	4%
<b>Totals</b>	<b>£3,275,000</b>	<b>100%</b>

I can now estimate that the construction of this building will cost between £1,965,000 and £3,275,000. This shows a difference of £1,3 million in cost.

Given this vast difference in figures I would give an estimate to the client of a cost of £2,620,000 to build the scheme with a potential error of +/- £650,000.

I would then recommend employing a Quantity Surveyor with more background data to compile a more detailed, and hopefully more accurate, breakdown of costs. This recommendation comes from the fact that the Quantity Surveyor will be able to give estimates to material costs (based on volumes of materials used), labour costs, professional fees and potential inflation issues should the building take longer than a year to complete on site.

#### Estimate 2: BICS Data:

Looking at BICS data for offices and cafés, bars and restaurants I can note that office buildings of similar size to my design cost approximately £800 per m<sup>2</sup> and fitting out of bars and restaurants cost approximately £1,500 - £2,000 per m<sup>2</sup>. It might cost the client less money if the building was constructed as a basic office building at £1,000 per m<sup>2</sup> and had the shop, bar

and restaurant fitted out under a separate contract by a specialist firm. This form of construction means the tender values for both parts of the building can be negotiated separately.

If this system was used then the building cost would be thus:

£800 per m<sup>2</sup>:

Total Value = £1,048,000

<b>Details</b>	<b>Cost</b>	<b>Percentages</b>
Substructure	£136,240	13%
Superstructure	£513,520	49%
Internal Finishes	£83,840	8%
Fitting Out	£10,480	1%
Services	£262,000	25%
External Works	£41,920	4%
<b>Totals</b>	<b>£1,048,000</b>	<b>100%</b>

This would include the fit out for the offices and library archive only and the bar, restaurant and shop would be fitted out by a specialist company under a separate contract.

This would make the additional fit out for the building thus:

£1,500 per m<sup>2</sup>:

Total Value = £900,000

This figure is based on the floor area for shop, restaurant and bar being 600 m<sup>2</sup>.

This way of costing the building would therefore be slightly cheaper at a total cost of £1,948,000. This is slightly more cost effective (by £17,000) than the lowest estimate for the single contract method but it is significantly lower in cost than the main estimate (by £672,000).

The foreseeable problem with this second method is a lack of communication between two main contractors resulting in delays in the main construction programme affecting the fit out contractors programme.

Conclusion:

<b>Details</b>	<b>Cost</b>
Estimate 1	£2,620,000
Estimate 2	£1,948,000

I would offer estimate 1 on a traditional contract basis and estimate 2 on a design and build contract. I will discuss the reasons why in Assignment 06: Contract and Procurement.