ENGINUITY TUTORIAL



Setting A Bid





Company Coron Limitation							
NUMBER OF JOBS IN PROGRESS		AMOUNT OF WORK THAT CAN BE WON					
At the start of the period, the number of jobs in progress is:	5 (job progression screen)	The initial forward workload is:	20,831,500 (job progression screen)				
The number of jobs in progress after bidding cannot exceed:	10 jobs	The current value of the capital base is:	4,383,088 (financial decision screen)				
Hence, the maximum number of jobs that can be won is:	5 jobs during bidding	The current capital base can support forward workload of:	43,830,880 (10 x capital base)				
		Hence, the value of work that can be won cannot exceed:	22,999,380 during bidding				

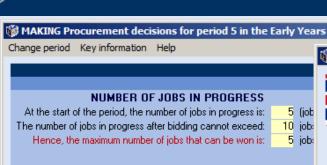
Job	Country	Туре	BIM	Size	App Value	Duration	Description	Sector	Client	Job	Bid	Bid value
74	United Kingdom	DB	Yes	Medium	12,000,000	4	New aircraft hangar	Building & Commercial	The Defence Agency	74	No	0
75	United States	BO	No	Medium	9,000,000	4	Upgrading of road network	Transport	FIFA North America 2026	75	No	0
79	United Kingdom	BO	No	Medium	8,000,000	3	Tunnel work for HS2	Transport	HS Rail Connection Green	79	No	0
81	United Kingdom	BO	Yes	Medium	11,000,000	4	Extension to head office	Building & Commercial	Madison Bank	81	No	0
83	United Kingdom	BO	Yes	Small	3,000,000	2	Redevelopment at strip mills	Industrial	National Sh	83	No	0
87	United Kingdom	BO	No	Small	1,000,000	3	New moorings on Grand Union canal	Water & Sewage	Engli ways	87	No	0

A decision is made to bid for job 74, a Design & Build job.

We will now look at how the bid formed?

Display details for job 74 Display client details Yes





Job	Country	Type	BIM	Size	App Value	Durat
74	United Kingdom	DB	Yes	Medium	12,000,000	4
75	United States	BO	No	Medium	9,000,000	4
79	United Kingdom	BO	No	Medium	8,000,000	3
81	United Kingdom	BO	Yes	Medium	11,000,000	4
83	United Kingdom	BO	Yes	Small	3,000,000	2
87	United Kingdom	BO	No	Small	1,000,000	3

Job 74 (At the procurement stage)



Period identified: 4

Country: United Kingdom

Location: Hexham

Type: Design & Build

BIM model used: Yes

Size: Medium

Approx value: 12,000,000

Duration: 4 periods

Description: New aircraft hangar

Sector: Building & Commercial

Client: The Defence Agency (**Details**)

ESTIMATED COSTS / PLANNED LABOUR SCHEDULE

Job period		Estimated site cost	Planned labour	Cumul % complete
1	2,374,931	474,986	73	25
2	2,849,917	569,984	87	55
3	2,849,917	569,984	87	85
4	1,424,959	284,992	44	100
				,

9,499,724 1,899,946 291

Estimated design cost: 10 % of build cost

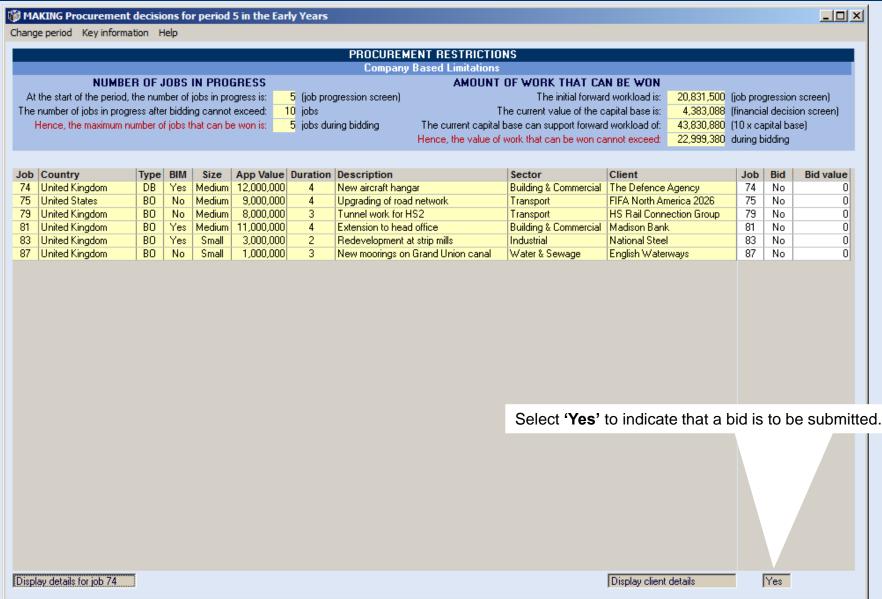
RISK REGISTER

Risk description	Likelihood occurs	Impact cost	Reduction in cost if BIM used	Expected labour reduction
Structural defects	Medium	130,000	Yes	2.4 %
Personnel issues	High	48,000	No	2.7 %
Changes in legal requirements	Low	135,000	Yes	2.6 %

The **Display Job Details** option can be used to display detailed information about the job.

Display details for job 74









The estimated costs that cannot be changed are the design, build and site costs.

DESIGN COST (D&B JOBS ONLY)

The design cost to be paid to the consultant designer is expressed as a % of the build cost.

Design cost is paid back in relation to the progression of the job e.g., if 30% of the job is completed in a period, then 30% of the design cost has to be paid back in the period.

BUILD COST

The build cost covers the labour, plant, materials and specialist subcontract trades needed to complete the job.

SITE COST

Site costs pay for the support staff and services required to administer a site.

KEY POINTS

Design and build costs paid in a period relate directly to the % of the job completed in the period, whereas the site costs to be paid are related to the actual labour on site.

E.g., if there is a lot of ineffective labour on site that does not contribute to progressing the job, site costs still have to be paid for the total labour on site.

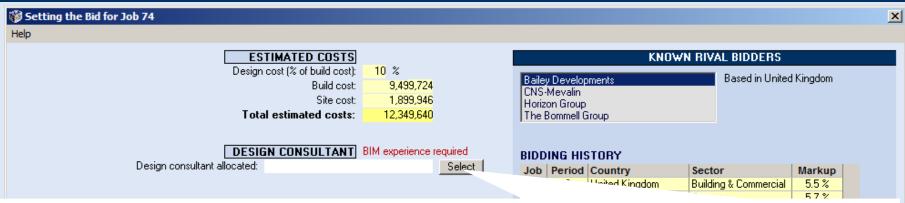
The job is based in United Kingdom

The planned duration of the job is 4 periods

The annual salary for project managers ranges from 27,000 to 64,000

pressure off the procurement department for the forseeable future.



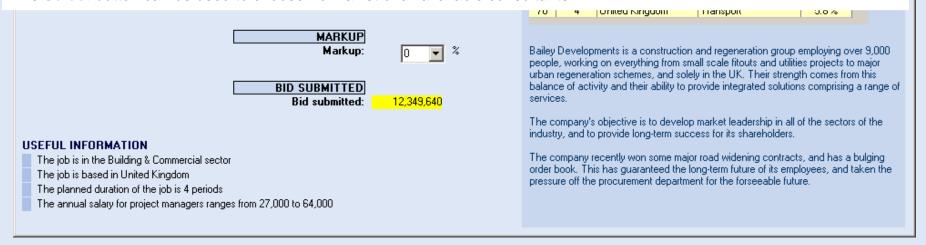


A consultant needs to be allocated to produce the design who has **appropriate expertise** for the job.

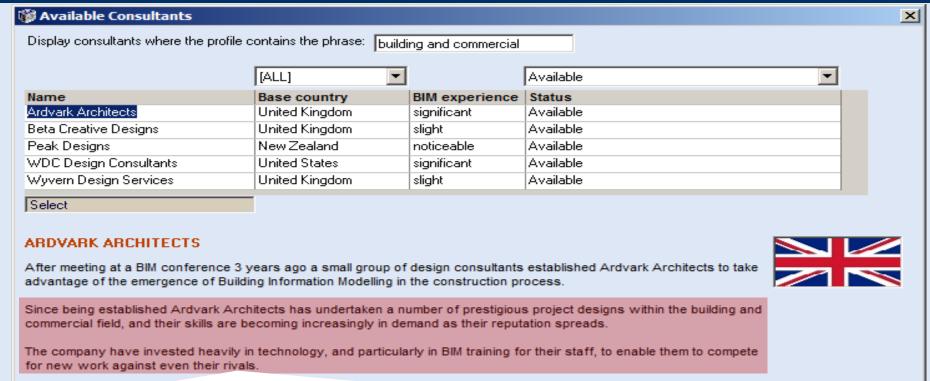
In addition, if the job is using BIM, or Building Information Modelling, the client may impose a bidding restriction that requires the consultant to have some BIM experience, in addition to expertise in the job sector. This is indicated by the "BIM experience required" note.

In this case, for job 74, a BIM model is being used, and the CLIENT RESTRICTIONS indicate that a consultant with BIM experience needs to be chosen for the design.

The Select button can be used to choose from a list of all available consultants.







An appropriate consultant for the job can be found by reviewing the profiles of each consultant, and matching the consultant's **expertise to the job sector**.

The choice of consultant can have a significant impact on the build costs. Consultants with appropriate expertise and BIM experience (if a BIM model is being used), produce designs that reduce the expected build cost.

For job 74, a building and commercial contract, **Ardvark Architects** have been chosen due to their expertise in the building and commercial sector, and their significant BIM experience.

The **Select** option is used to select **Ardvark Architects**.

KEY POINTS

The list of available consultants changes each period due to some consultants being unavailable, as shown in the **status** column e.g., too much workload.



Setting the Bid for Job 74

Help

ESTIMATED COSTS

Design cost (% of build cost): 10 %

Build cost: 9,499,724

Site cost: 1,899,946 **Total estimated costs:** 12,349,640

DESIGN CONSULTANT

Design consultant allocated: Ardvark Architects

(Select)

ONCOSTS

Project manager allowance: (for salary)

Risk register	Likelihood occurs	Impact cost	Risk Contingency
Structural defects	Medium (40 to 50 % chance)	130,000	0
Personnel issues	High (70 to 80 % chance)	48,000	0
Changes in legal requirements	Low (20 to 30 % chance)	135,000	0

Total oncost:

MARKUP

Markup:

0 🔽

0

BID SUBMITTED

Bid submitted: 12,349,640

USEFUL INFORMATION

The job is in the Building & Commercial sector

The job is based in United Kingdom

The planned duration of the job is 4 periods

The annual salary for project managers ranges from 27,000 to 64,000

KNOWN RIVAL BIDDERS

Based in United Kingdom

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Bailey Developments CNS-Mevalin Horizon Group The Bommell Group

RIDDING HISTORY

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Job	Period	Country	Sector	Markup	
1	2	United Kingdom	Building & Commercial	5.5 %	
3	2	United Kingdom	Energy	5.7%	
4	2	United Kingdom	Building & Commercial	5.7%	
9	2	United Kingdom	Industrial	5.7%	
13	2	United Kingdom	Water & Sewage	5.7 %	
20	2	United Kingdom	Transport	5.7%	
27	3	United Kingdom	Water & Sewage	5.8%	
31	3	United Kingdom	Building & Commercial	5.7 %	
32	3	United Kingdom	Building & Commercial	5.8%	
43	3	United Kingdom	Transport	5.7%	
45	3	United Kingdom	Transport	5.8%	
47	3	United Kingdom	Energy	5.6%	
56	4	United Kingdom	Building & Commercial	5.7%	
57	4	United Kingdom	Building & Commercial	5.6 %	
62	4	United Kingdom	Building & Commercial	5.5 %	
63	4	United Kingdom	Building & Commercial	5.7 %	
70	4	United Kingdom	Transport	5.8 %	

Bailey Developments is a construction and regeneration group employing over 9,000 people, working on everything from small scale fitouts and utilities projects to major urban regeneration schemes, and solely in the UK. Their strength comes from this balance of activity and their ability to provide integrated solutions comprising a range of services.

The company's objective is to develop market leadership in all of the sectors of the industry, and to provide long-term success for its shareholders.



Setting the Bid for Job 74

Oncosts are additional costs added to a bid to cover the contract costs over and above the design, build and site costs, and consist of:-

DDERS

ed in United Kingdom

Markun

- Project manager allowance
- Contingency for risk

Unlike the estimated costs that cannot be changed, oncosts **can be altered** depending upon the company's strategy when bidding for a particular job.

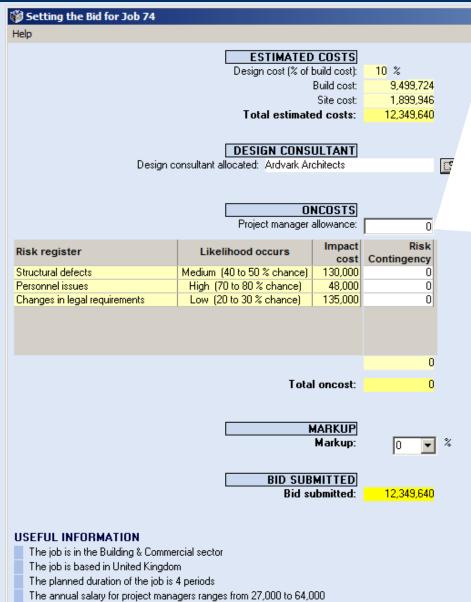
ONCOSTS					
	Project manager	allowance:	0	(for salary)	
		Impast	Risk		
Risk register	Likelihood occurs	Impact cost	Contingency		
Structural defects	Medium (40 to 50 % chance)	130,000	0		
Personnel issues	High (70 to 80 % chance)	48,000	Ö		
Changes in legal requirements	Low (20 to 30 % chance)	135,000	ō		
	,				
			0		
			U		
	Tota	l oncost:	0		
	l l	MARKUP			
		Markup:	0 🔻	%	
	BID SUB	MITTED			
		ubmitted:	12,349,640		
			12,010,010		
JSEFUL INFORMATION					
The job is in the Building & Comm	ercial sector				
The job is in the Building & Comm The job is based in United Kingdo					
The job is based in United Kingdo	om				
The job is based in United Kingdo The planned duration of the job is	om : 4 periods	100			
The job is based in United Kingdo	om : 4 periods	000			

				Markup
			ommercial	5.5 %
3	2	United Kingdom	Energy	5.7%
4	2	United Kingdom	Building & Commercial	5.7 %
9	2	United Kingdom	Industrial	5.7%
13	2	United Kingdom	Water & Sewage	5.7%
20	2	United Kingdom	Transport	5.7 %
27	3	United Kingdom	Water & Sewage	5.8%
31	3	United Kingdom	Building & Commercial	5.7 %
32	3	United Kingdom	Building & Commercial	5.8%
43	3	United Kingdom	Transport	5.7 %
45	3	United Kingdom	Transport	5.8%
47	3	United Kingdom	Energy	5.6%
56	4	United Kingdom	Building & Commercial	5.7 %
57	4	United Kingdom	Building & Commercial	5.6 %
62	4	United Kingdom	Building & Commercial	5.5 %
63	4	United Kingdom	Building & Commercial	5.7 %
70	4	United Kingdom	Transport	5.8%

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PROJECT MANAGER ALLOWANCE

Although project managers are not normally recruited until a job has been secured, and is in progress, an allowance is made in the bid for the costs of **paying the salary** of a suitable project manager to oversee the job for its planned duration.

Project managers vary in experience and salary, and the choice of an appropriate project manager for a job can have serious implications for the progress of the job.

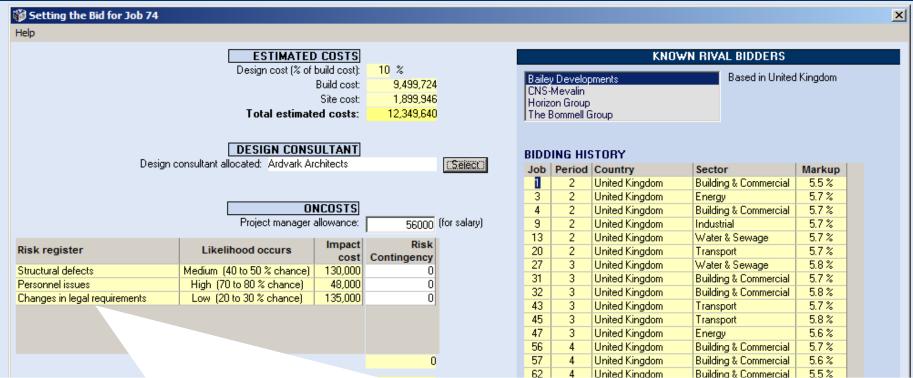
The **Useful information** section gives an indication of the range of annual salaries for project managers.

If we win the job we would be looking to employ a really good project manager for the job. To keep our bid competitive we would not be looking to use the maximum annual salary of 64,000, but instead we would base our salary allowance a bit lower, at around 56,000 per annum.

Bearing in mind that job 74 has a planned duration of 4 periods the allowance for salary is set as follows.

- 1. Using an annual salary of 56,000 as the base
- 2. Salary per period is 14,000 (56,000 / 4)
- 3. Salary for the planned duration of 4 periods is 56,000 (14,000 x 4)





RISK CONTINGENCY

The estimators made an assessment of the potential risks that could occur on the job causing monetary losses to the company, and job delays, and a **risk register** was formed for the job.

Each potential risk in the risk register has 2 key elements that need to be considered at the bidding stage :-

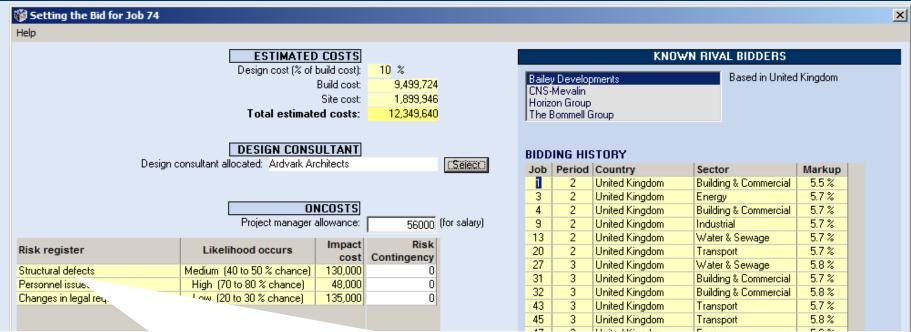
- The **likelihood** of the risk occurring (risk level), classified as High, Medium or Low.
- ■The impact cost if the risk hits.

A contingency needs to be added for each risk to cover the company for the impact cost if the risk occurs.

KEY POINTS

Although the risk contingency only covers the cost of the risk striking, if a risk strikes there may also be delays to the job, which have to be considered in the labour allocation when a job is progressed.





RISK CONTINGENCY

For the potential risk 'Structural defects' :-

- The likelihood of the risk occurring is Medium, which is defined as a 40-50% chance of happening
- If the risk hits there will be an impact cost of 130,000

We could cover ourselves for the full impact cost, but this could make our bid uncompetitive (too high). Based upon the probability of the risk hitting, a sensible approach would be to cover ourselves for 45% of the risk cost, or 58,500. This makes our bid far more competitive, and also provides some insurance if the risk occurs.

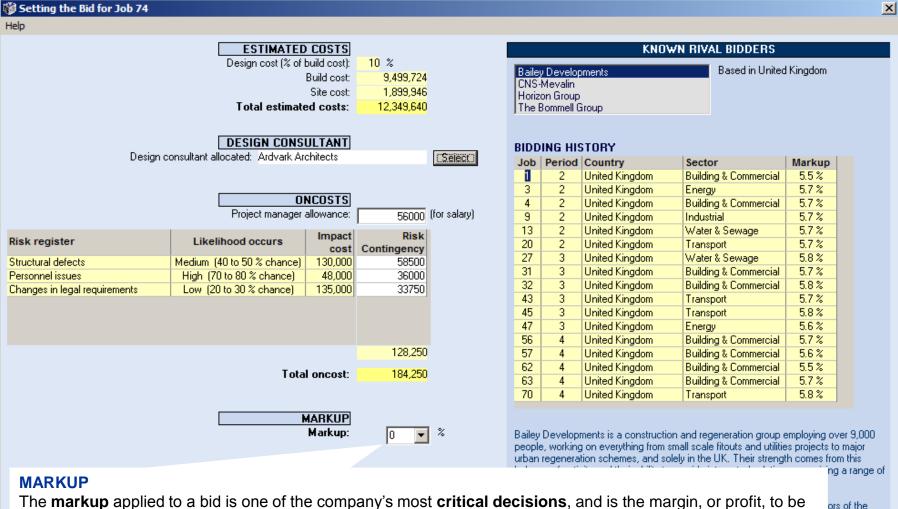
Using a similar logic the other risk contingencies are set.

KEY POINTS

Assuming we win the job, if the risk :-

- Does not occur then the extra risk becomes profit, or margin, made on the job
- Hits it will eat into job profits, although this will be offset by the risk contingency we're building into the bid, and any
 mitigating actions taken to reduce the risk costs





The **markup** applied to a bid is one of the company's most **critical decisions**, and is the margin, or profit, to be made by the job over and above the costs.

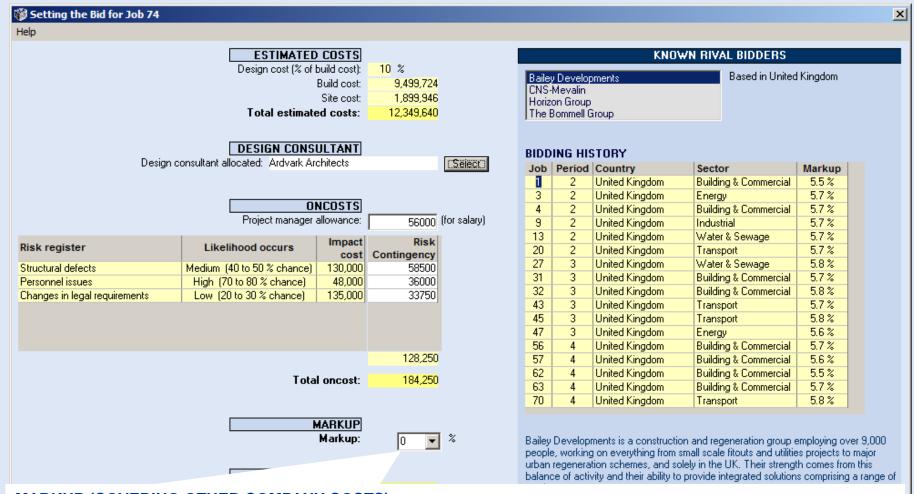
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Markup is entered as a %, and is added to the costs already set.

To determine the markup to be applied, a number of factors need to be taken into account.

We will look a each one in turn.





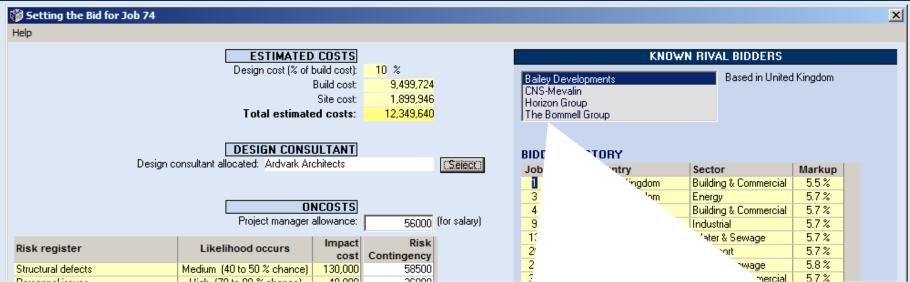
MARKUP (COVERING OTHER COMPANY COSTS)

The profit made across all jobs should at least cover the company related costs not covered in the individual jobs, such as :-

- Company overheads
- Paying dividend to shareholders

If the profit over all jobs progressed does not cover these additional company costs, then the company could suffer serious cash flow problems.





MARKUP (RIVAL BIDDERS)

When determining the mark-up, the level that may be set by rival bidders needs to be considered very carefully.

Assuming a similar cost base, including a 'sensible' level of oncost, setting too high a markup could make the bid uncompetitive, and not give the company a chance of winning the job.

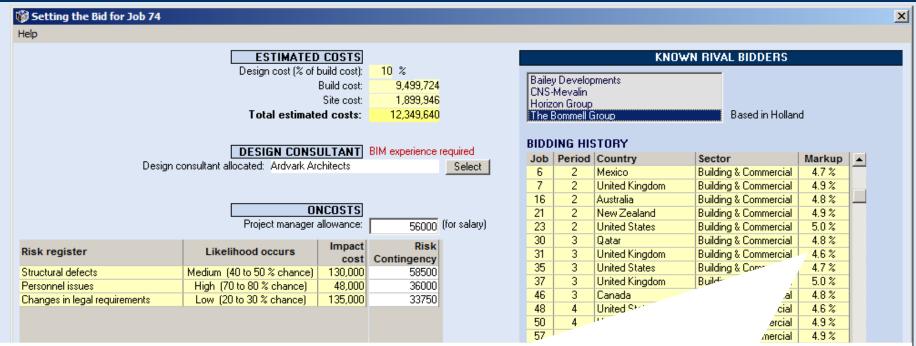
The nature of the rival bidders depends upon the timeframe :-

- In the **early years**, the competition comes from **fictional rival companies**, Each one has their own unique profile and bidding history, and a careful assessment of them is required to determine the appropriate level of margin.
- In the later years the competition comes from the other 'human' teams in the competition, with less certainty about possible bidding strategies, and hence setting the markup becomes far harder.

KEY POINTS

Only the **KNOWN** rival bidders are shown. Other **UNKNOWN** rival bidders may bid for the job, and this may affect the decision about the level of markup to apply.





MARKUPS FROM KNOWN RIVAL BIDDERS

The level of markup set by rival bidders is not influenced by the job sector or size, and the previous markups of the known rival bidders can be analysed to determine who is likely to submit the lowest, and most competitive one, for job 74

The lowest markup previously set was by the **The Bommell Group** at 4.6%. Bearing in mind that rival bidders can adjust their strategies and bid lower than their perceived lowest margin to date, we will set a markup of 4.3% to hopefully be the most competitive on price.

If we were concerned about potential unknown rival bidders undercutting us, we may reduce the margin each further.

KEY POINTS

- •Some companies may have **just joined the market**, and not have a bidding history. In this situation their profile is the only guide to their likely markup settings.
- Rival bidders will adjust their markups as time passes depending upon the prevailing economic climate.



Setting the Bid for Job 74

X

Help

ESTIMATED COSTS

Design cost (% of build cost): 10 %

Build cost: 9,499,724

Site cost: 1,899,946 **Total estimated costs:** 12,349,640

DESIGN CONSULTANT

Design consultant allocated: Ardvark Architects

(Select)

ONCOSTS

Project manager allowance: 56000 (for salary)

Risk register	Likelihood occurs	Impact	Risk
Mak register	Elicililoda occurs	cost	Contingency
Structural defects	Medium (40 to 50 % chance)	130,000	58500
Personnel issues	High (70 to 80 % chance)	48,000	36000
Changes in legal requirements	Low (20 to 30 % chance)	135,000	33750

128,250

Total oncost: 184,250

MARKUP

Markup:

4.3 🔻 %

BID SUBMITTED

Bid submitted: 13,072,850

USEFUL INFORMATION

The bid has now been set for job 74

- The job is in the Building & Commercial secon
- The job is based in United Kingdom
- The planned duration of the job is 4 periods
- The annual salary for project managers ranges from 27,000 to 64,000

KNOWN RIVAL BIDDERS

Based in United Kingdom

Bailey Developments CNS-Mevalin Horizon Group The Bommell Group

BIDDING HISTORY

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