

# ENGINEUITY TUTORIAL



## Successful Tendering



# Successful Tendering

Based upon the company's strategy for growth, a number of bids may be submitted in a period. Each one is processed in strict job number order.

Each bid is awarded through competitive tendering, and at the time a bid is submitted to the client success in being awarded the contract depends upon a number of factors.

## PROCUREMENT RESTRICTIONS

Company based procurement restrictions include :-

- **Number of jobs in progress**  
If the company has too many job commitments, clients will reject a company's bid because they feel that the company will not be able to manage further contracts efficiently.
- **Workload limitations**  
Clients will not accept a bid from the company if they feel that the company does not have the resources (capital base) to complete the job.

Job specific restrictions include :-

- **Client relationship**  
As time passes clients may look to preferred bidders, and if the client relationship is not strong enough the client may refuse to accept the bid.
- **Consultant BIM experience and expertise for Design and Build jobs**  
For Design & Build jobs, the client will only accept a consultant chosen to produce the design who has suitable expertise for the job, based upon the job sector. In addition, if BIM (Building Information Modelling) is being used for the job, the client will insist that the consultant has some BIM experience.

## PRICE

The company's bid being able to compete on price against rival bidders.

We will look at each factor in turn.



# Successful Tendering

**MAKING Procurement decisions for period 5 in the Early Years**

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### PROCUREMENT RESTRICTIONS

#### Company Based Limitations

#### NUMBER OF JOBS IN PROGRESS

At the start of the period, the number of jobs in progress is: **6** (job progression screen)

The number of jobs in progress after bidding cannot exceed: **10** jobs

Hence, the maximum number of jobs that can be won is: **4** jobs during bidding

#### VALUE OF WORK IN PROGRESS

The initial forward workload is: **20,791,350** (job progression screen)

The current value of the capital base is: **4,239,003** (financial decision screen)

The current capital base can support forward workload of: **42,390,030** (10 x capital base)

Hence, the value of work that can be won cannot exceed: **21,598,690** during bidding

Job	Country	Type	BIM	Size	App	Location	Description	Sector	Client	Job	Bid	Bid value
74	United Kingdom	DB	Yes	Medium			Social housing development	Building & Commercial	Lowry Homes	74	Yes	11,685,720
76	United Kingdom	DB	Yes	Medium			Construction of new bridge	Transport	North-West County Council	76	Yes	9,095,936
80	United Kingdom	DB	Yes	Small			Construction of library storeroom	Building & Commercial	Fenlands County Council	80	No	0
92	United Kingdom	BO	No	Small			Scheme to upgrade tidal defences	Water & Sewage	The Environment Department	92	Yes	2,169,448
93	United Kingdom	BO	Yes	Small			New state of art aviation museum	Building & Commercial	The Defence Agency	93	Yes	3,624,047
100	Qatar	BO	No	Small			Upgrade to a marina	Transport	Qatar 2022	100	No	0

## PROCUREMENT RESTRICTIONS: NUMBER OF JOBS IN PROGRESS

The client will reject a bid if the company's number of jobs in progress exceeds the limit defined in the **Industry parameters**, feeling that the company is spreading its resources too thinly, which will affect the quality of any work progressed.

In this example the limit is 10 jobs in progress.

With 6 jobs already in progress at the beginning of the period, shown on the **Job Progression Screen**, the company **can only win up to 4 jobs** before the number of jobs limit takes affect.

## KEY POINTS

The maximum number of jobs that can be won does not take account of any of the jobs in progress that are likely to complete in the current period.

**Industry parameters**

FINANCE OVERHEADS **PROCUREMENT** JOB PROGRESSION

**BIDDING COSTS** The cost of bidding for a job is: **0.2** % of the approximate job value

**BIDDING LIMITATIONS** In a period, the number of jobs in progress at the beginning of the period, plus the number won during bidding, cannot exceed: **10** jobs

Forward workload cannot exceed: **10** times the capital base

No Update bid



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### PROCUREMENT RESTRICTIONS

#### Company Based Limitations

#### NUMBER OF JOBS IN PROGRESS

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76	United Kingdom	DB	Yes	Medium	9,000,000	3	Construction of new bridge	Transport	North	76	Yes	9,095,936
80	United Kingdom	DB	Yes	Small	2,000,000	3	Construction of library storeroom	Building & Commercial	F	80	No	0
92	United Kingdom	BO	No	Small	2,000,000	3	Scheme to upgrade tidal defences	Water & Sewage	ment	92	Yes	2,169,448
93	United Kingdom	BO	Yes	Small	3,000,000	3	New state of art aviation museum	Building & Commercial		93	Yes	3,624,047
100	Qatar	BO	No	Small	2,000,000	3	Upgrade to a marina	Transport		100	No	0

## PROCUREMENT RESTRICTIONS: WORKLOAD LIMITATIONS

The **company's initial workload** at the beginning of the period, based upon the value of work still to be completed from the jobs in progress on the **Job Progression Screen**, is 20,791,350.

The company has bid for 4 jobs, but will the capital base support winning the additional jobs, and adding to the existing workload ?

The **Company based limitations** show that company's capital base of 4,239,003 can support **future workload** of up to 42,390,030 (10 times the capital base) without any problems.

The **'future workload'** is defined as the company's initial forward workload (before any jobs are progressed in the period), plus the value any jobs won in the period.

We will investigate further what would happen if we were to win the additional work.

Display details for job 74

Display client details

No

Update bid



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### PROCUREMENT RESTRICTIONS

#### Company Based Limitations

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Hence, the maximum number of jobs that can be won is: **4** jobs during bidding

#### VALUE OF WORK IN PROGRESS

The initial forward workload is: **20,791,350** (job progression screen)

The current value of the capital base is: **4,239,003** (financial decision screen)

The current capital base can support forward workload of: **42,390,030** (10 x capital base)

Hence, the value of work that can be won cannot exceed: **21,598,690** during bidding

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76	United Kingdom	DB	Yes	Medium	9,000,000	3	Construction of new bridge	Transport	North-West County Council	76	Yes	9,095,936
80	United Kingdom	DB	Yes	Small	2,000,000	3	Construction of library storeroom	Building & Commercial	Fenlands County Council	80	No	0
92	United Kingdom	BO	No	Small	2,000,000	3	Scheme to upgrade tidal defences	Water & Sewage	The Environment Department	92	Yes	2,169,448
93	United Kingdom	BO	Yes	Small	3,000,000	3	New state of art aviation museum	Building & Commercial	The Defence Agency	93	Yes	3,624,047
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The initial forward workload is 20,791,350 and if the 4 bids were to be won the affect would be :-

- **Job 74:** 11,685,720 (cumulative workload 32,477,070)
- **Job 76:** 9,095,936 (cumulative workload 41,573,006)
- **Job 92:** 2,169,448 (cumulative workload 43,742,454)
- **Job 93:** 3,624,047 (cumulative workload 47,366,501)

However, the **workload limitations** will not enable all 4 jobs to be won, since the cumulative forward workload cannot exceed the upper threshold of 42,390,030, **based upon the current value of the capital base.**

**Bearing in mind that jobs are bid for in strict job number order,** there are a number of successful bidding combinations, which include :-

- Jobs 74 and 76 could be secured since the cumulative workload would not exceed 42,390,030, but then not jobs 92 and 93
- If job 74 was not secured, jobs 76, 92 and 93 could be secured
- If job 74 was won, but job 76 was not, jobs 92 and 93 could be secured
- If neither jobs 74 or 76 were secured, then jobs 92 and 93 could be secured

Successful bidding of course, depends on other factors other than just workload limitations, which will be discussed shortly.



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### PROCUREMENT RESTRICTIONS

#### Company Based Limitations

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At the start of the period, the number of jobs in progress is: **6** (job progression screen)

The number of jobs in progress after bidding cannot exceed: **10** jobs

Hence, the maximum number of jobs that can be won is: **4** jobs during bidding

#### VALUE OF WORK IN PROGRESS

The initial forward workload is: **20,791,350** (job progression screen)

The current value of the capital base is: **4,239,003** (financial decision screen)

The current capital base can support forward workload of: **42,390,030** (10 x capital base)

Hence, the value of work that can be won cannot exceed: **21,598,690** during bidding

Job	Country	Type	BIM	Size	App Value	Duration	Description	Sector	Client	Job	Bid	Bid value
74	United Kingdom	DB	Yes	Medium	11,000,000	3	Social housing development	Building & Commercial	Lowry Homes	74	Yes	11,685,720
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100	Qatar	BO	No	Small	2,000,000	3	Upgrade to a marina	Transport	Qatar	100	No	0

The actual value of work that can be won is shown.

**KEY POINTS**

It may not be possible to win all the jobs bid for, so it is good practice to bid for more work than can be potentially won, as shown in the example, to offset the risk of some jobs being lost.

However, bear in mind that every job bid for incurs a procurement cost related to the size of the job, defined in the **"Industry parameters"**, and bidding for too many jobs can affect company profits.

Display details for job 74      Display client details      No      Update bid



# Successful Tendering

**MAKING Procurement decisions for period 5 in the Early Years**

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### PROCUREMENT RESTRICTIONS

#### Company Based Limitations

#### NUMBER OF JOBS IN PROGRESS

At the start of the period, the number of jobs in progress is: 6 (job progression screen)

The number of jobs in progress after bidding cannot exceed: 10 jobs

Hence, the maximum number of jobs that can be won is: 4 jobs during bidding

#### VALUE OF WORK IN PROGRESS

The initial forward workload is: 20,791,350 (job progression screen)

The current value of the capital base is: 4,493,317 (financial decision screen)

The current capital base can support forward workload of: 44,933,170 (10 x capital base)

Hence, the value of work that can be won cannot exceed: 24,141,820 during bidding

Job	Country	Type	BIM	Size	App Value	Duration	Description	Sector	Client	Job	Bid	Bid value
74	United Kingdom	DB	Yes	Medium	11,000,000	3	Social housing development	Building & Commercial	Lowry Homes	74	Yes	11,685,720
76	United Kingdom	DB	Yes	Medium	9,000,000	3	Construction of new bridge	Transport	North-West County Council	76	Yes	9,095,936
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93	United Kingdom	BO	Yes	Small	3,000,000	3	New state of art aviation museum	Building & Commercial	The Defence Agency	93	Yes	3,624,047
100	Qatar	BO	No	Small	2,000,000	3	Upgrade to a marina	Transport	Qatar 2022	100	No	0

**MAKING Financial decisions for period 5 in the Early Years**

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### ASSET BASE

	Before decisions	After decisions
Cash account:	-319,895	-569,434
Capital base:	4,238,978	4,493,317
Investments:	822,386	718,586
Company value:	4,741,469	4,642,469

### DIVIDEND

Amount to pay shareholders:  (2% of Equity of ...)

### CAPITAL BASE

Increase by:  (limited to 254,339)

Reduce by:  (limited to 1,144,524)

To improve the company's chances of avoiding the capital base workload limitations, the **threshold can be raised for the current period** by using more of the company's cash reserves to increase the capital base.

This is a decision to be made on the **Financial Decisions Screen**.

In the example the workload cannot exceed 10 times the capital base, so an additional 254,339 of capital base will support 2,543,390 of further workload. This would now be enough to support winning jobs 74,76 and 92.

## KEY POINTS

Any changes to the capital base on the Financial Decisions Screen are immediately reflected on the Procurement Decisions Screen, and active for the current period.





# Successful Tendering

Client information

Navigate to "Main menu/Industry information/Client information"

[ALL] [ALL]

Name	Base country	Type	Current relationship	Procurement restrictions		Payment terms		
				From period	Minimum relationship required to continue bidding	Retention	Late completion penalty	Early completion bonus
AeroPower	United States	Private sector	No relationship		no restriction	1.0 %	1.2 %	0.4 %
Al Mahran Developments	United Arab Emirates	Private sector	No relationship		no restriction	1.0 %	1.2 %	0.4 %
American Steel Corporation	United States	Private sector	satisfactory	9	fairly good	1.0 %	1.2 %	0.4 %
Amrail	United States	Public sector	No relationship		no restriction	1.0 %	1.2 %	0.4 %
ANZ Water	New Zealand	Private sector	No relationship		no restriction	1.2 %	1.3 %	0.5 %
Auckland City Developments	New Zealand	Private sector	No relationship		no restriction	1.0 %	1.2 %	0.4 %
Australian Sport Institute	Australia	Public sector	satisfactory			1.0 %	1.2 %	0.4 %
AustRoads	Australia	Public sector	No relationship			1.0 %	1.2 %	0.4 %
Breeze Energy	United Kingdom	Private sector	satisfactory				1.6 %	0.6 %

## PROCUREMENT RESTRICTIONS: CLIENT RELATIONSHIP

As time passes clients may look to preferred bidders, and if the client relationship is not strong enough the client may refuse to accept the bid.

### Consider the following example.

It is now period 9.

The **Client information** shows that from period 9 onwards the relationship with the **American Steel Corporation** will need to be at least **'fairly good'** for the client to accept the bid.

However, the current client relationship with the **American Steel Corporation** is only "satisfactory", so what would happen if a bid was submitted with the client from period 9 onwards ?

American Steel Corporation opened a new training facility, the Mon Valley Works Training Hub, in Duquesne, Pennsylvania in 2008. The state-of-the-art facility, located on a portion of the property once occupied by the company's Duquesne Works, serves as the primary training site for all of its thousands of employees.





# Successful Tendering

MAKING Procurement decisions for period 9 in the Early Years

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## PROCUREMENT RESTRICTIONS

### Company Based Limitations

#### NUMBER OF JOBS IN PROGRESS

At the start of the period, the number of jobs in progress is: **5** (job progression screen)  
 The number of jobs in progress after bidding cannot exceed: **10** jobs  
 Hence, the maximum number of jobs that can be won is: **5** jobs during bidding

#### VALUE OF WORK IN PROGRESS

The initial forward workload is: **23,513,560** (job progression screen)  
 The current value of the capital base is: **4,901,641** (financial decision screen)  
 The current capital base can support forward workload of: **49,016,410** (10 x capital base)  
 Hence, the value of work that can be won cannot exceed: **25,502,850** during bidding

Job	Country	Type	BIM	Size	App Value	Duration	Description	Sector	Client	Job	Bid	Bid value
192	United Arab Emirates	BO	No	Small	3,000,000	3	Erection of overhead transmission lines	Energy	Emirates Energy	192	No	0
193	United Kingdom	BO	No	Small	2,000,000	3	Modifications to gas pipeline	Energy	UK Gas Supplies	193	No	0
195	Australia	BO	Yes	Medium	9,000,000	4	Redevelopment of the Royal Arcade	Building & Commercial	Melbourne Regeneration	195	No	0
196	United States	BO	Yes	Medium	10,000,000	4	New coke sorting plant	Industrial	American Steel Corporation	196	No	0
197	India	BO	Yes	Medium	9,000,000				Final Developments	197	No	0
198	United Kingdom	BO	Yes	Large	22,000,000				City Foods	198	No	0
199	Canada	BO	Yes	Large	21,000,000				Boji Holdings Plc	199	No	0
201	United Kingdom	BO	No	Medium	10,000,000				Zeze Energy	201	No	0
205	South Africa	BO	No	Small	3,000,000				Power	205	No	0
207	United Kingdom	DB	Yes	Small	5,000,000				Water Breweries UK	207	No	0
208	United Kingdom	BO	Yes	Medium	11,000,000				National Steel	208	No	0
209	Iraq	BO	Yes	Large	16,000,000				Energy	209	No	0
217	United Kingdom	BO	Yes	Large	20,000,000				Port England	217	No	0
219	India	BO	Yes	Medium	11,000,000				Steel	219	No	0

**Bidding For A Job**

From the beginning of period 9 onwards to be able to bid for jobs with American Steel Corporation your client relationship needs to be at least 'fairly good'.

Your current relationship with American Steel Corporation is only 'satisfactory' and so the client will not allow you to bid for the job.

Display the client details for further information.

An attempt is made to bid for job 196 with the American Steel Corporation, but the bid is rejected because the client relationship is not strong enough at this time.

Display details for job 196

Display client details

Yes



# Successful Tendering

Setting the Bid for Job 74

Help

**ESTIMATED COSTS**

Design cost (% of build cost): 11 %

Build cost: 8,388,002

Site cost: 1,677,600

**Total estimated costs: 10,988,280**

**DESIGN CONSULTANT** BIM experience required

Design consultant allocated: Donald Dewson & Partners

**KNOWN RIVAL BIDDERS**

Chota Nagpur Group Based in India

East State Enterprises

Horizon Group

Rempstone Building

The Bommell Group

**BIDDING HISTORY**

Job	Period	Country	Sector	Markup
1	2	United Kingdom	Building & Commercial	4.3 %

## PROCUREMENT RESTRICTIONS: CONSULTANT EXPERIENCE

For design & build jobs, the client will reject the bid if the consultant chosen does not have relevant experience for the job.

In the example shown for job 74, a Building and Commercial contract, Donald Dewson & Partners have been allocated. However, their profile clearly shows that their experience lies in the Water & Sewage sector, and the client will reject the bid because they have not got enough experience to undertake the work.

## DONALD DEWSON PARTNERS



Donald Dewson & Partners are a well-established company whose mission statement has always been the same, to work in close association with clients to produce a design solution to suit their particular requirements, which results in environmentally sustainable designs delivered within agreed timescale and cost.

They have many years experience in the water and related industries, and have particular expertise in river engineering, flood control and coastal engineering, and have undertaken many UK and international assignments.

The company was a founder member of the Design & Build Foundation, and have a number of awards for staff training, and most of their staff are conversant with the latest digital tools and practices.

### USEFUL INFORMATION

- The job is in the Building & Commercial sector
- The job is based in United Kingdom
- The planned duration of the job is 3 periods
- The annual salary for project managers ranges from 27,000 to 64,000

competitively on price for the work they tender for, helped enormously by their continuing investment in new technologies.



# Successful Tendering

Setting the Bid for Job 74

Help

**ESTIMATED COSTS**

Design cost (% of build cost): 11 %

Build cost: 8,388,002

Site cost: 1,677,600

**Total estimated costs: 10,988,280**

**KNOWN RIVAL BIDDERS**

Chota Nagpur Group Based in India

East State Enterprises

Horizon Group

Rempstone Building

The Bommell Group

**DESIGN CONSULTANT** BIM experience required

Design consultant allocated: Ardvard Architects

**BIDDING HISTORY**

Job	Period	Country	Sector	Markup
1	2	United Kingdom	Building & Commercial	4.3 %
4	2	United Arab Emirates	Building & Commercial	4.4 %

## PROCUREMENT RESTRICTIONS: BIM EXPERIENCE

For design & build jobs, if BIM (Building Information Modelling) is being used for the job, the client will insist that a consultant designer is chosen with some BIM experience.

In the example shown for job 74 Ardvard Architects have been chosen because of their suitability for the job, and because they have significant BIM experience.

## ARDVARK ARCHITECTS

After meeting at a BIM conference 3 years ago a small group of design consultants established Ardvard Architects to take advantage of the emergence of Building Information Modelling in the construction process.



Since being established Ardvard Architects has undertaken a number of prestigious project designs within the building and commercial field, and their skills are becoming increasingly in demand as their reputation spreads.

The company have invested heavily in technology, and particularly in BIM training for their staff, to enable them to compete for new work against even their rivals.

- The job is in the Building & Commercial sector
- The job is based in United Kingdom
- The planned duration of the job is 3 periods
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continuing investment in new technologies.



## COMPETING ON PRICE

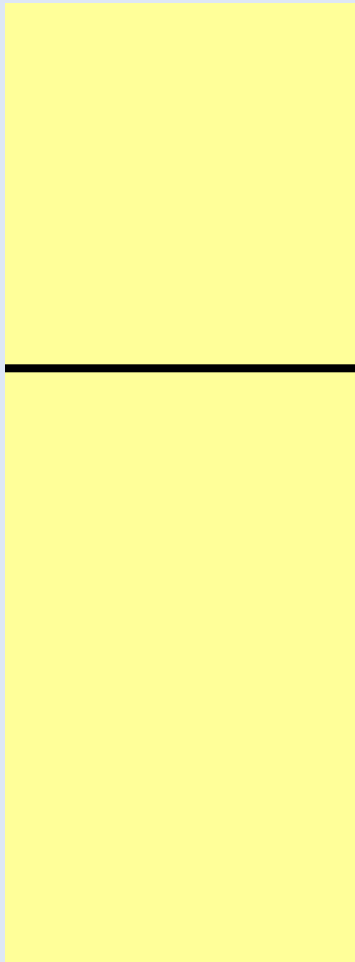
If the client does not immediately reject the company's bid because of the procurement restrictions, then the decision as to whether or not they are awarded the job comes down to competing on price against rival bidders :-

- 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 later years, with less certainty about possible bidding strategies, and hence setting the markup becomes far harder.



# Successful Tendering

Rival Bid



Consider the following example in the Early Years.

The most competitive (lowest) rival bid is as shown



# Successful Tendering

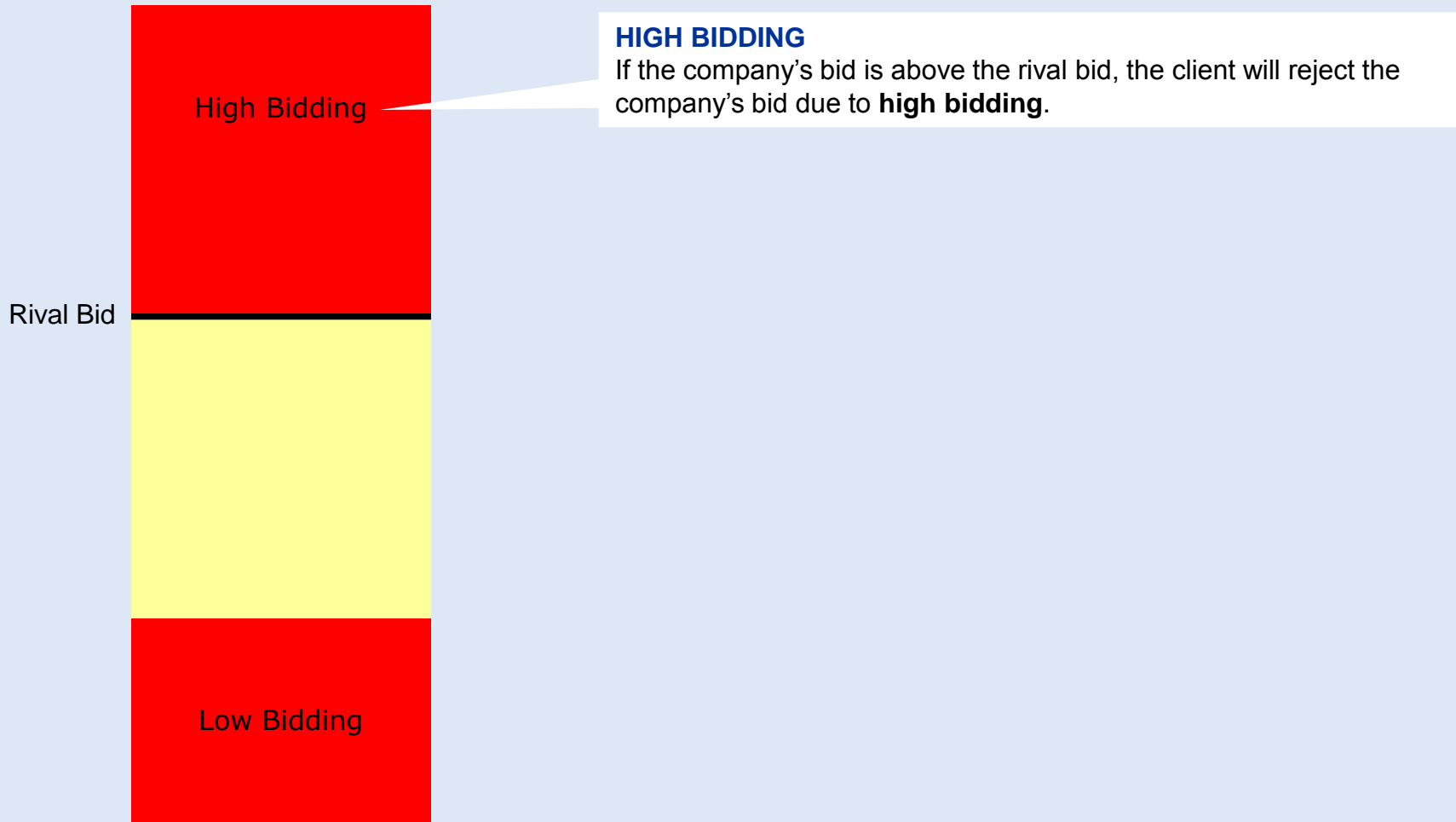


## LOW BIDDING

If the company's bid is too far below the most competitive rival bid, the client will reject the company's bid on the grounds of **low bidding**, believing that the quality of the work will be undermined because the company cannot possibly complete the project without cutting costs.



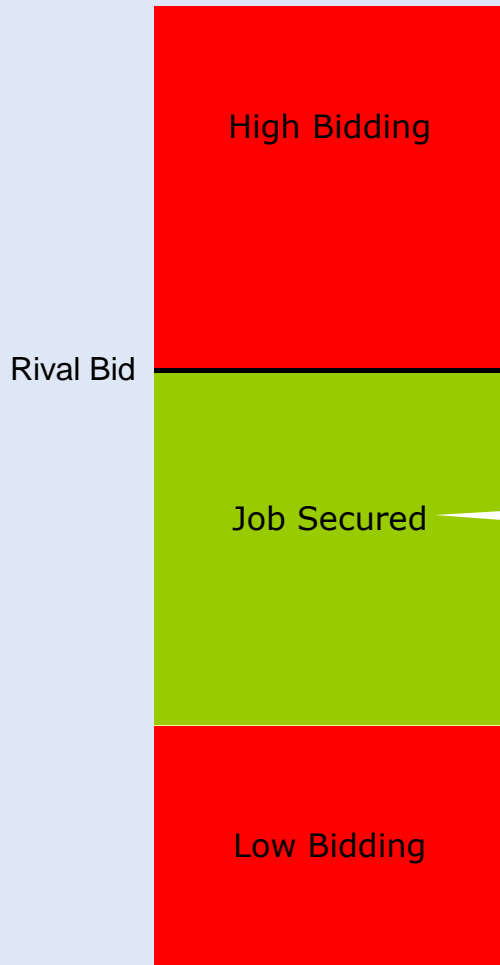
# Successful Tendering







# Successful Tendering

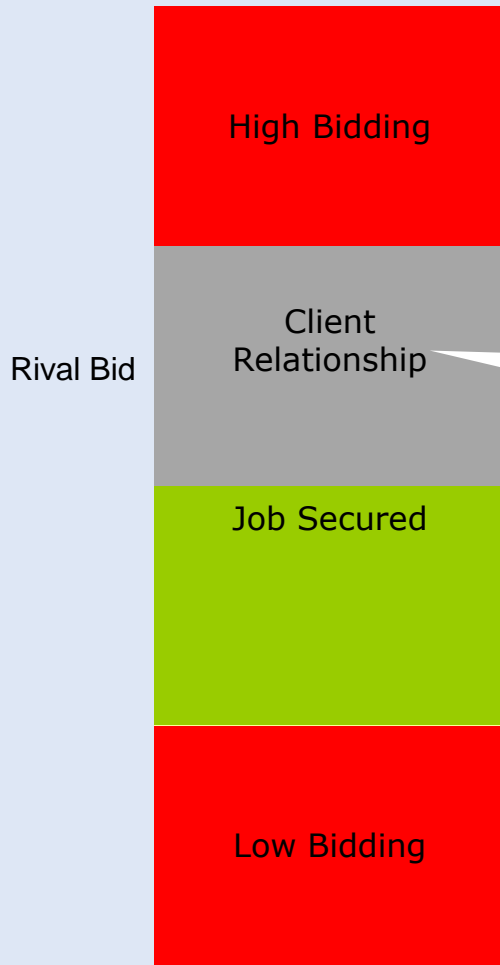


## **'SAFE' AREA**

If the company's bid falls below the rival bid, but above the low bidding threshold, then the job will definitely be won.



# Successful Tendering



## **CLIENT RELATIONSHIP**

In the Later Years, when the teams compete 'Head to Head' against each other, client relationship becomes a factor where bids are within a % of the most competitive bid.