

How to contract for a heavy lift or transport project



Heavy lift safety expert Richard Krabbendam thinks that Requests For Quotations are often too complicated. Here he outlines some pointers to simplify the process.

Most of us have been asked at some point to bid for project work. Ideally, the client should clearly identify the criteria for bidding in the Request For Quotation process. In practice, you often have to ask the client for clarification on several key points to ensure the job can be done safely and efficiently, and to clearly understand all relevant conditions pertaining to the bid.

It is therefore important for clients to know how to prepare a Request For Quotation – and on the other hand it is vital for the crane, transport and rigging industry to be capable of preparing a clear and uniform offer.



One common problem with bidding documents is that they are becoming ever larger, often including lengthy standard clauses on safety and insurance regulations as well as standard scope of work clauses, which scarcely describe what work is actually required.

The first rule for contractors, however, is to try to comply as closely as possible with

the client's specification, even if you feel it is flawed. Of course, you can always offer an alternative method as a further option, provided it offers advantages. Imprecise documents make life difficult for the heavy lift and transportation industry. Such difficulties would be eased if the client were to specify clearly what work he expects to be done and what cargo is being handled.

As guidance for both clients and contractors, the following checklist gives some of the important items that should be covered by the Request For Quotation:

- **Cargo details.** Measurements and total weight should all be recorded, preferably in the metric system. Where more than one item is to be handled, a detailed pack list is needed.
- **Origin and destination of cargo.** Where and under what conditions the cargo should be collected and where and when it should be delivered.
- **Time of work execution.** If cargo is to be shipped, transported or erected, it should clearly be specified in the Request For Quotation when each individual item must be handled (shipping, transport or erection schedule). This is not always possible, because planning changes as the

THE COST PRICE

Need to find out:

1. Real Cost of project (COST PRICE)
2. Market price for project (MARKET PRICE)

In order to establish the:

3. Sales Price (SALES PRICE)
4. To conclude the deal (Sales Price becomes Contract Price) and:

Start the project

- Engineering
- Prepare equipment
- Mob. Equipment
- Execute the works
- Demob. Equipment

While doing that:

Watch the cost and stay within budget or save money and increase profit



NOTE: Sales price to be as close as possible to the Market Price



If the project involves the transportation of large and heavy items, a detailed route survey from the landing point to the jobsite should be carried out.

project progresses. However the best possible schedule should be included.

- **Details of foundations.** A plot plan of the jobsite and a layout of the foundations, with a top view (plan) and cross-section showing elevations of the foundations, are of vital importance for the correct crane selection or for formulating an alternative erection method.

Port surveys

Depending on the complexity of the project, and providing the project is of sufficient importance, a survey should be carried out. A detailed port survey should be undertaken investigating points of interest such as:

- **Quay strength.** In order to load or

unload heavy lift cargoes on or off vessels, the cargo must be brought alongside and the quay must be checked. Usually quays have an average permissible load of 5 tonnes/sq m, which in most cases is sufficient to cope with a fully loaded platform trailer.

- **Quay height above water level.** This is especially important when one has to roll-off from a ro-ro ship or flat-top barge. In most cases, the lower the quay the better.
- **Water depth at quay.** If there is enough water depth, the vessel or barge can be ballasted down to meet the exact quay level. If the barge depth is exactly the height from bottom to quay level, then the barge can be ballasted, fixed aground,

and roll-off is quite simple.

- **Tidal difference.** This can help in making beach landings. A landing area can be created with bulldozers at low tide and the loaded barge can be manoeuvred on the beach at high tide.
- **Port infrastructure.** Are there suitable road or rail connections with the area around the port? Is it a sheltered or a swell port? The unloading of heavy items with a ship's own gear can only be carried out in calm waters protected from swell.

Road surveys

If the project involves the transportation of large and heavy items, a detailed route survey should be carried out identifying important points such as:

- **Overhead wires.** Clearances of wires above the height of the load is vital. Can these be raised or should they be removed? Are there any overhead high tension transmission lines that need to be disconnected when the load passes underneath?
- **Overhead obstructions.** Can these obstructions be removed or can a bypass be constructed? In some instances the road could be dug out in order to increase the maximum clearance.
- **Bridges, culverts and such items.** What is the maximum allowable axle line load on the bridges? If the bridge cannot be crossed, can it be strengthened or can a bypass be constructed?
- **Road gradients in percentages.** Based on the slope gradient, the required

RO-RO QUOTATION CRITERIA

<p>1. Important Information:</p> <ul style="list-style-type: none"> - Quay height above water <ul style="list-style-type: none"> • At Low tide • At High tide - Water depth - Quay strength (in ton/m²) - Barge deck load (in ton/m²) - Barge dimensions - Barge strong points (frames/bulkheads) - Ballast tank plan and tank cap. - Ballast pump capacity - Mooring bollards on quay and barge 	<p>2. Tidal conditions</p> <ul style="list-style-type: none"> - Make use of the force of water - Two high tides per day - We have Spring Tides and Neap Tides - All related to Chart Datum
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tractive power of the transport combination can be calculated.

- **Camber of the road.** This is an important point concerning stability of the load on a trailer. Trailers with hydraulic suspension can easily compensate for road cambers and keep the load level at all times.
- **Road surface.** The road surface should be sufficiently compacted to withstand the tyre pressure, as well as the tractive power, of the prime mover. The road width at curves as well as straights must be sufficient to cope with the planned transport combination.

Erection projects

In order to prepare a detailed rigging plan or erection study, or for cost-estimating purposes in the bidding stage, one should investigate the following:

- **Plot plan of foundations.** To identify, where the cargo can be moved and how it could be erected or installed, one needs the layout or plot plan of the foundations in relation to surrounding site roads, structures and so on.
- **A cross-section of the foundation.** As

well as the type of foundation, this is important in selecting the final erection method. In most cases, a table top foundation requires a different rigging plan than a foundation at ground level.

- **Location of lifting points.** The location of the lifting points of a heavy pressure vessel can greatly influence the erection method and crane type(s) required.
- **Allowable ground load.** This is particularly important when extreme heavy loads need to be erected. In certain cases, piling under the crane outriggers, ringer construction of the crane or load spreading mats may be sufficient.
- **Dimensions of loads.** The size and shape of the load, as well as the location of its centre of gravity (CoG) in relation to the lifting points, can have an enormous effect on the erection method as well as the type of crane(s) needed.
- **Infrastructure of the jobsite.** How good are the access roads to the jobsite? Is there sufficient space to assemble the main boom? Can crane assembly be carried out at the erection location or at a different spot before being moved to the site fully rigged?

All these questions need to be answered before you can prepare a good quotation for the project. Most can usually be answered quite satisfactorily by the client, provided they are aware of all the relevant issues involved.

The ultimate aim must be for clients to provide a better standard of Requests For Quotations so that contractors can submit more accurate quotations to keep the project within its cost parameters and ultimately improve safety. **HLPFI**

Please note, this article is intended for guidance only. While every care has been taken to ensure the accuracy of the contents, no responsibility will be accepted by the publishers for any errors.

Richard Krabbendam was a heavy lift specialist during his whole working career, after which he formed Krabbendam Advisory Service. A Master of Mechanical Engineering from Delft University of Technology, he has worked with BigLift and Mammoet, and was a co-founder of ITREC. He helped to set up Jumbo Offshore and was involved in the development of its super heavy lift carrier fleet, the J-Class, which uses two 900-tonne mast cranes for subsea installation works. Since his retirement from Jumbo he has been working as a freelance trainer/engineering consultant.

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