

# RISK IN CONTRACTING FOR CONCRETE REPAIR AND PROTECTION

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In a technical environment, it is sometimes useful to look at the commercial realities in the structural repair and protection market. There are some technical aspects which are inseparable from their commercial implications; such as the design life of a rehabilitation treatment, or its effect on structural capacity.

Repairing and protecting corrosion-damaged structures is very different from building them in the first place. A number of stages are required:

1. The damage mechanism needs to be investigated and identified.
2. The actual extent of the damage needs to be estimated, knowing that the visible damage is no more than the tip of the iceberg.
3. The significance of the damage, both now and in the long term, needs to be assessed.
4. An appropriate solution needs to be formulated.

Only when these stages have been completed can a repair treatment be carried out properly.

This process requires specialist input at every stage. It is the owner of the structure, however, who initiates the process and who often has little understanding of the problem he (or she) may have been unaware of until recently – it may be lumps of concrete detaching from the 10<sup>th</sup> floor balcony, or it may be unsightly rust stains coming through the paintwork – and so the owner wants it fixed as quickly and cheaply as possible.

In my experience, building owners – bodies corporate or their building managers – are inclined to look for short term solutions. Without employing a specialist consultant, they go straight to the marketplace and look for fixed-priced tenders to solve their problem. Unfortunately there are few people with x-ray vision who can evaluate the nature and the extent of a building's problems from ground level, and the owner should treat with caution both the word and the price of those that claim such expertise.

What often happens, of course, is that the skills and experience of the chosen tenderers is widely varied, and it becomes a matter of chance whether the lowest bidder knows what he should do and is capable and willing to do it. If they are all experienced contractors, the lowest price will generally come from the tenderer who assumed the least amount of work to be done. And then, generally speaking, the owner is likely to get no more than he paid for. This may well, of course, be far less than he expects to get for his money, which may have been substantial.

This type of owner takes on board a large amount of contractual risk without realising it. At worst, he risks having wasted his money and allowed his asset to deteriorate further, by having employed the wrong contractor to do inadequate work.

There is often a suspicion that this may be so, and non-technical owners often ask for warranties to go with the tender. It is hard, however, to see how a warranty, drafted by the contractor to cover work which is inadequately defined, can possibly be of much use in the event of things turning out badly. An expert contractor will have all the required exclusions on his warranty and the non-expert will probably plead ignorance or insolvency.

Even if this type of owner employs a non-specialist consultant to tender the work and manage it, and that consultant drafts a warranty for the contractor to fill out, one has to wonder what has been gained by the owner and what has been lost. The warranty may now be more onerous on the contractor, but there is a good chance that the responsibility or value of the consultant has reduced proportionally. A good specialist consultant will provide a technical solution that needs no warranty from the contractor, other than the undertaking to work to the specification.

When a non-specialist consultant has been employed by the owner, it is not unknown for the consultant to obtain a specification from a specialist materials supplier, refer to the AS2124 Conditions of Contract and ask three repair contractors for fixed price quotes (with guarantees). This type of content-free consulting tends to throw a great deal of contractual responsibility onto the shoulders of the contractor and the supplier.

The more technically-aware type of owner is usually a large organization with in-house engineers or external consultants to advise it. This type of owner goes to some lengths to identify the problem and its solution, but varies greatly as to how it then packages the work for contract.

Generally, though, there is an acceptance that some items of repair work cannot be quantified accurately in advance. I have never seen a concrete repair contract that correctly predicted exactly how much concrete needed to be replaced before the work was done, no matter how many tests and surveys were carried out. These investigations reduce the uncertainty, however, and allow the owner to pay for the work on an as-measured basis, with a reduced – but still reasonable - contingency allowance in his budget for fluctuations in quantity.

Despite this uncertainty, however – or perhaps because of it – there are some knowledgeable clients who seek to shed as much as possible of the uncertainty onto the contractor, while ensuring through the tender process that the lowest price is also obtained. In such cases the tenderer may be required to take responsibility for quantifying the extent of the work, and whichever tenderer assumes the lowest quantity is then most likely to win the job.

While this focus on fixed prices for unfixed amounts of work may reduce the risk of variations expense for the client, it increases the hidden risk of failing to get value for money. The lowest bidder may have overestimated the quantum of work but is more likely to have underestimated it. If variations are unavailable, he will be under pressure to cut corners and reduce quality or pass the contractual risks down the food chain to the smallest subcontractor, who is the one least able to control those risks or escape their consequences.

Clients who seek to dump risks while demanding fixed prices are being unrealistic in the long run - it is a truism that you generally get what you pay for. It may be the contractor's repair, but it is the client's building; the contractor may be an expert with his materials and equipment but he is not familiar with the exact nature and history of the structure and its problems.

So, what are the typical risks we are considering in a repair and protection contract? They include things that are not clearly known about the work that needs to be done, such as the cause, significance and extent of the damage and the rate of deterioration; the nature and duration of the owner's future use of the structure; the materials technology (many of the products we use have been developed only recently); the competence of the contractor and the consultant; and the impact of the work on the owner's operations. No one party to a contract has control of all of these risks and the responsibility should be shared equitably if the contract is to be completed to the benefit of all concerned.

So, how should owners manage their risks? They should consider employing specialist advisers to determine the technical basis, extent and implications of their structural problem. They should define their usage of the structure, both current and future, and their ability to pay for any work, so that their advisers can recommend an appropriate solution and a selection of experienced contractors. They should insist on quantifying the extent of the work as much as possible, and they should employ a specialist adviser to supervise the work.

They should also consider whether there are more appropriate alternative contract types to the standard design/specify/tender project. For example, electrochemical treatments and structural strengthening works suit Design & Construct contracts because proprietary systems are involved and a wide range of solutions can be obtained from specialists at little cost. The consultant can evaluate the technical merits of each proposal and act as the superintendent for the contract works. The contractor is better off by being able to manage the risk in a way that suits his business and methodology.

In some cases, particularly for projects which are very large or which are not fully defined, Relationship Contracting may be appropriate. This is a method of risk allocation in which the parties share the gains and the pains of the contract. It may include features such as an agreed maximum price, with payment by the hour or unit of work up to that maximum price, and both parties sharing any savings made in the final price. A single Project Team is usually formed to carry out the work, perhaps with the assistance of a 3<sup>rd</sup> party facilitator.

Joint Venturing may also be appropriate to a client who has a large workforce but not the expertise or equipment to do all the work. The contractor may supply supervision, some of the plant and equipment or a licensed system.

The concrete repair industry needs to work proactively to achieve the best results for both its clients and its members. A major element in this should be the education of customers and their advisors so that they understand fully the nature of the issues involved in repairing a major structural asset.