

Reporting on defects in recent brickwork

Martech sometimes gets asked to assist structural engineers in understanding problems on buildings that are either under construction or are recently completed.

Recently, Martech carried out one such survey on the brickwork of a block of private flats and apartments in Greater London, which had been completed just before the global financial crisis in about 2007-8—boom years for London construction in particular.

Without going into specific detail, various problems had become apparent with this particular building in recent years, much of

which involved the brickwork façades.

Martech attended the site working to a specific brief developed in conjunction with the structural engineers. A comprehensive catalogue of the defects present was produced by a team led by one of Martech's highly experienced, in-house, senior engineers.



Essential concrete safety surveys

Martech has a number of clients where works develop from initial concrete condition surveys into carrying out full safety surveys—the removal of immediately loose concrete present when surveyed—to mitigate the risk of falling concrete fragments. This is a well-known health and safety issue and a genuine risk to both employees and the public.

Such works are sometimes repeated on an annual (or more frequent basis) until the concrete can be properly repaired.

This work is carried out by Martech with careful record-keeping such that the client's representative can maintain an understanding of the rate of decay, work required, and of course the risks involved.



Did you notice?

We have tried to cover all of Martech's services in this newsletter

This has gone fairly well with the exception of the corrosion control via Margel installation, which we carry out for a number of clients and contractors.

Unfortunately, space has not allowed us to cover everything, so please contact us if you would like more information about Margel and corrosion control.

Ongoing term contracts

Martech is in ongoing term contracts to carry out concrete condition assessments on concrete housing stock, and also carries out routine concrete condition surveys/MOTs on the MSCP stock for a number of clients on a rotational basis across their various structures.

This is, of course, essential forward-thinking and proactive work in long-term maintenance, being particularly crucial on multi-storey car park stock. These structures can often suffer from extensive reinforcement corrosion issues, and require careful detailed specialist maintenance.



The Inspector

Inspection and Testing News from Martech

Summer 2016

MARTECH REPORTS IN TOP GEAR

Martech surveys test track bridge condition for leading British car manufacturer



Martech is sometimes asked to get involved with repair works in interesting locations. A case in point is an assessment of this test track bridge for a structural engineer, engaged by a well-known British car maker.

Martech's brief was one of confirming limited historic test data and reporting, plus the provision of new concrete condition data and investigations of various parts of the construction. All this work was to help the structural engineer who had been appointed to carry out a full structural appraisal of the bridge.

A spectrum of fairly standard concrete condition testing was duly completed plus intrusive investigations into various parts of the structure including the deck build up present. The work was necessarily completed out of normal working hours to suit the manufacturer's use of the site and busy vehicle testing facilities.



Inspecting London walls



Martech often gets asked to look at specific areas of interest as part of a concrete condition survey for clients. In this case, it was as straightforward as looking at the quality of the no-fines wall construction in this Greater London block of flats.

There are many different aspects of concrete construction that may merit more detail. This may involve the exact reinforcement detailing for the structural engineer (something we often do) or perhaps a focus on a specific area within the concrete such as strength; cement, HAC or sulfate content; or even depth of affected fire damage.

Did you know?

Martech has reached yet another milestone this year—10 years as a fully independent company after our MBO in April 2006. Ten whole years—tempus fugit.

This is again a proud moment: in particular for the many colleagues who have remained with us for all that time and more.

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High-rise and low-rise repairs

Over the last few years, **Martech** has worked on the high-rise blocks of a landmark London housing estate. Starting from a straightforward but extensive concrete condition survey, their work, in partnership with a well-known contractor, developed into concrete repair advice, development of repair facing techniques, and abseil assistance with repairs to three listed landmark structures in a sympathetic manner.

Martech was pleased to be invited to tender for works on all the remaining low-rise blocks on the estate as part of the same team. Having been successful in the tender process, concrete condition survey works have now been completed on all the blocks plus a number of peripheral structures such as underground car parks, which can suffer from a variety of deterioration problems.



Restoring an existing cathodic protection system

Martech recently successfully tendered for repairs to an impressed current cathodic protection system in a prestigious 1930s steel-framed office block. The task was to work with the corrosion engineer on the 10-year-old system, and largely consisted of replacing many corrosion monitoring components, such as permanently embedded half cells and new MMO strip pseudo reference electrodes.

The offices were occupied, therefore all the works were carried out in night shifts working selectively above false ceiling panels, leaving the offices ready for work every day. About 30 new reference electrodes were installed, including a couple via abseil on the outside at the rear of the building, which **Martech** has the flexibility to do in-house. Extensive testing and installation of wiring was also involved, back to the existing transformer rectifiers



which were being recommissioned by the corrosion engineer.

Martech was additionally requested to resolve some shorts that were apparent between two zones in two different locations. Both were resolved, largely through rectification of old wire referencing and the removal of bridging sections of wiring.

Martech has experienced engineering staff in-house that can patiently resolve such problems with careful measurements back to the TR using trailing leads. This is done in conjunction with meticulous logged measurements in a logical fashion to a systematically dismantled system, followed by reassembly in the correct manner. This requires a really good understanding of the original designer's intent as well as the faulty installed system as found.

University challenged

Martech was directly engaged by a well-known Midlands university to examine the concrete surfaces of a building due for external redecorations.

As well as the obvious requirement of a concrete condition survey, this work additionally involved quantification of defects in the painted concrete surfaces following 100% hammer testing of the surfaces. Many failed previous concrete repairs were found, which is becoming a trend in **Martech's** main line of work...

The concrete condition assessment having been completed, **Martech** was further requested to provide advice for the proper concrete repair process required prior to redecorations in the summer, which was duly completed by other contractors.



Landmark tower block: The Lawn, Harlow

Martech became aware of **The Lawn** through the excellent *Concretopia* (John Grindrod, Old Street Publishing 2013), a fascinating journey through the rebuilding of post-war Britain. Even though **Martech** has worked on a great number of buildings over the years that are referenced in the book, **The Lawn** is perhaps one of the less well-known. And, as it is such a landmark structure, it felt appropriate to share it with you in the latest newsletter.

The 10-storey point block **The Lawn** is, in fact, Britain's first residential tower block. It was completed in 1951 in time for it to be part of the Festival of Britain celebrations in the summer of that year. The block stands in an area of the new town of Harlow now known as Mark Hall North, surrounded by forward-looking period houses and lower flats. It is carefully set in what was once the very nice landscaped gardens of Mark Hall Manor, surrounded by grand mature trees, and the block is today Grade II listed. It is a really nice considered piece of design, with all lounges and balconies in small flats being south-facing.



This was the very earliest phase of new town construction in Harlow and precedes the town centre by many years. Today, it is easy to forget that people were being moved out of slums and temporary housing into these very modern dwellings, as a consequence of both the New Towns Act 1946 and the London County Council overflow housing programme.

One must also reflect that in the early days of **Martech** in 1990, most of the tower block stock that we worked on was then barely 20 years old. Tower block construction had reached its zenith around 1970, two years after the Ronan Point disaster.



Advising on potential city centre blast damage



Martech undertook a rather interesting survey recently in a large city centre. Following the demolition of a prominent structure, **Martech** was called in to advise on the likely consequential explosive demolition blast damage risk to some immediately adjacent structures.



It was required to understand what was, in fact, historic reinforcement corrosion damage on the structures in question, plus the provision of a commentary on blast damage suffered on a consequential basis.

The work was completed and reported upon to **Martech's** usual high standards in a clear, easy to understand format, supported by many detail photographs and opinion.

