

# A Life in Construction

by Keith McMillan, Chartered Construction Manager.

*Reflecting on a life in construction, it becomes apparent that many of the changes in legislation which now govern how we approach our expert work actually stems from the construction site. It is the changes in society's approach to health and safety, the result of mechanisation and the essential adoption of new skill sets brought about by ground breaking inventions. A process which, whether we like it or not, will continue to grow.*

Reflecting on a life in construction, it becomes apparent that many of the changes in legislation which now govern how we approach our expert work actually stems from the construction site. It is the changes in society's approach to health and safety, the result of mechanisation and the essential adoption of new skill sets brought about by ground breaking inventions. A process which, whether we like it or not, will continue to grow.

For this reason I start with some of the more vivid memories dotted through my journey, from disposable navy to (possibly equally disposable) director.

Starting as a school holiday hod carrier, dumper driver on good days and unloading the cement lorry on bad ones, causing burnt ears from the hot bags, which because of their weight had to rest on my shoulders. Something I blame for not being six feet tall to this day.

At least it only happened once a week and didn't last too long. Unlike the worst job I ever had, working from 07.00 to 21.00, with two half hour breaks, on the M4 around Bristol, Because of cost over runs it was said that labour was cost reimbursable. Not a term I was familiar with at the time, although I soon came to know its impact. My job was to walk between the wheels of a heavy roller, behind the wide front roller with my shovel against its surface knocking off the lumps of sand. At the end of each run, we turned and repeated the process but with the shovel against the tall rear wheels. Apparently we were cheaper than fitting new scrapers.

To this day I imagine an imprint of my body in the sand whenever I hear the term, over runs. How I silently thanked Yorkie the land rover driving foreman for telling me to pick up my cards on Friday. On leaving school, I was offered a number of jobs including one with a high street bank. However, I wanted to work in the open, I couldn't imagine being behind a desk for the rest of my working life.

With sublime ignorance I joined Gleeds, as an incredibly low paid junior QS. All I knew about the job was that it was something to do with building and I had never seen a QS between the wheels of a roller. There was also the benefit of shorter hours, we even got one Saturday morning in four off.

My folks were not overjoyed that I was going to be a builder rather than a banker but at least it was an office job, I had to wear a suit and having spent months advising me to take a job with prospects not just big starting money, they could not object too strongly. For which I am forever grateful.

I soon learned that a QS spends as much time bent over his desk worrying about things called chamfered architrave and whether the skirting was to have round or square top, as any bank clerk spends adding figures. Also, I found juniors had to spend hours adding up excavation items called CA or RFR more often than I would have added up anything as a starter in a bank. In fact my proudest moment was when the comp operator (comptometer not computer) announced that I had added both full sides of an abstract sheet (folded double width paper) without any mistakes.

Another role passed to juniors was to become the catalogue king. Brochures from a myriad of suppliers had to be logged alphabetically stored in the right order so the takers off could specify the correct item. This was one job that I did well. I was fascinated by the products and spent far too much time reading rather than just logging. I was little to know how much this information would pay off in later years. But all was not lost, eventually I was awarded the privilege of having my first external duty. It was to measure the depths achieved by grid a of hammer drop piles. The site was water logged (reason for piling?). Shiny shoes and clean clothes quickly disappeared. I was distraught, however one day early in the contract, an apparently sympathetic foreman advised that I could leave site as the piles would not reach bottom that day.

Next day I was welcomed with the news that the piling had bottomed out unexpectedly, so much so that they had been able to drop in the reinforcement cages and concrete the previous evening. Being a good sort, the foreman had taken readings, which strangely appeared to be very similar to those I had taken for other piles.

I might have been a novice but I was not a complete fool. When early relief was next offered I accepted taking refuge in a nearby café from where I could

see the site and any approaching ready mix wagon. The only drawback to my highly successful subterfuge was the cost of the coffee and the fear of being spotted by any member of the office staff. When all piles were capped I returned to the office considering myself a piling expert.

However, even then I realised I had learnt a couple of worthwhile lessons. Firstly, never to commit to something unless you know fully what it involves and secondly, when tasked to do a job, do it yourself.

Without wishing to labour any of these points I will admit to being caught out much later in life by someone who is now head of one of the UK's biggest contractors.

After several years spent mostly in the office I heard George Wimpey, then reputed to be the largest contractor in the World, were advertising for site surveyors, this persuaded me to jump ship.

A wonderful gentleman, Alex Walker interviewed me and gave me some sage advice, to the effect that the company did not expect me to fiddle my measurements or misread the tape to the company's benefit. If I was willing to do it for the company I could be persuaded to do the same by others. If he is looking down on me now he will be pleased that this is one piece of advice I never forgot and have always passed to employees.

The move soon brought me my first claims assignment. As a junior site surveyor it was not exactly taxing but it did involve cement. The contract was to build 663 no-fines houses, ie walls constructed without the use of sand. My kind of construction! Speedy progress demanded the use of rapid hardening cement. It was all too apparent when the crane hoisted the shuttering and a mound of cement and aggregate appeared where a wall should have been, ordinary Portland not rapid hardening had been delivered. It had been fed into the onsite silos contaminating a complete batch, more than just one wall.

Again my youthful enthusiasm led me astray. If this was claims work, I was all for it.

What strikes me now is the lack of real disputes. Most contracts had disagreements and the opposing Qs would argue but certainly in my experience the differences of opinion did not end up in court. It could have been that I was still at too lowly a position to become involved in the really contentious accounts. But I think not.

For me this changed significantly many years later with the Channel Tunnel Project. Certainly not the first major project to become litigious but probably because of its size and being a hotly debated 'national project', it received continuous adverse comment. Reports of rabid wolves queueing on the approaches to Calais and swarms of rats ahead of them were daily headlines in one national newspaper.

Early works arbitrations for Pway, cable trays etc. were to be seated at Paris. I was responsible for design to commissioning of all M&E contracts, our arguments were held in house at Folkestone, ah well! Proceedings involved instantaneous bi-lingual cross examination. Even then, notwithstanding giving evidence and being cross examined in a manner to be expected by an expert witness today, I cannot recall the matter being referred to as a claim. This changed dramatically as the project progressed, with much of my time being spent with lawyers, examining claims received and preparing huge project wide claims.

We had entered the World where claims were anticipated on most major projects. Claims were not automatically handled by Qs, specialist claims handling firms existed, similarly with the legal profession certain firms became known for their claims handling expertise.

The direct consequence being that time taken and costs incurred in claims expanded rapidly.

On completion of my role I left the project to become commercial head of one of Railtrack's largest departments. Whereupon I discovered a backlog of small to medium claims. One of which had reached the courts. Given my lack of knowledge of this type of claim I decided to attend as an observer. I trust that no one heard my snoring as discussion on the meaning and use of 'as before' occupied the whole morning. I returned to my office resolving that all of my inherited disputes would be settled without bothering the courts.

With the sale of BR completed, I was asked to return to the Tunnel to join the very small team commissioned to settle the huge claim with the client and the outstanding ones with suppliers, each valued in hundreds of millions.

Rightly or wrongly it is still my contention that it was not the work of the claims team but the realisation of the costs being incurred that brought settlements. Back in the uncloistered world of day to day construction it became evident that the world had changed, thanks to a number of significant happenings, some recent and others currently bringing hard fought improvements.

One of the first important milestones was the Health and Safety at Work Act 1974, a year when the construction industry recorded 166 deaths. Construction was not the only industry with an unacceptable mortality rate, (I quote. Is there such a thing as an acceptable rate?) The Woodhead Tunnel alone reported 32 killed. Generally the mortality rate on the railways was 3 deaths for every mile of track. The rate of 7.9 per hundred thousand hours was four times that of industry.

It was recognised that whilst efforts had to be made to reduce the terrible death rate, there were other matters that also needed addressing. One such problem was deafness caused by the increasing use of machinery. As increasing mechanisation made life easier

for the operatives, it introduced new hazards. I have failed to mention above, laying at full stretch in what was designed to be the main sewer outlet of the new BRI, trying to break into the existing hospital sewer, with only a Kango as company. I was fortunate, my hearing was not permanently damaged by the week long noise in the enclosed environment. Others, even working in the open air but with the new much bigger compressor driven jack hammers were not so fortunate. The noise from compressors, hammer piles and the like had serious detrimental effect. This was finally addressed with the introduction in 1989 of The Noise at Work Regulations.

Tractors with back hoes, fork lift trucks, tele handlers and later, lorries with Hyabs, lessened burnt ears and sore shoulders, materials on pallets removed the game of seeing how many bricks you could throw at a time, hods disappeared. Tiles, bricks and the like were mechanically hoisted. As buildings grew taller hoist were used to move materials and labour much higher. Safety at height demanded new precautions, netting at edges and eventually gates on scaffolding etc.

The coming into force of, The Housing Grants Construction and Registration Act (HGCR) 1976 and amended 2011 addressed itself, as far as construction was concerned, to contract requirements and payment procedures. Importantly it introduced the concept of Adjudication. It was supported in 1998 by The Scheme for Construction Contracts Regulation. Of interest is the vociferous reaction by legal profession to the Act's proposal for the introduction of Adjudication and the impossible time limits it included (the aim to speed up payments). Articles by Partners of the leading law firms of the day appeared in every issue of Building.

I will not name the published number of partners in the top twenty law firms of 2000. Suffice to say only one firm had more than ten, and that was the firm that we worked with on the Tunnel. The same list today would show a more than tenfold increase.

When HGCR was passing through Parliament it was described as a quick and dirty process designed to reduce the time taken to settle grievances. As one of the first of the new breed of adjudicators I can confirm that it was successful. In the main disputes were settled before they festered and threatened to slow the whole works. The fact that the decision could be blamed on a third party removed some of any continuing ill feeling. Soon solicitors accepted that it was best to join than argue. The fees we could charge rose dramatically.

It is a sad reflection that even when it is a result of a contractual requirement, in many cases adjudication has become as expensive as arbitration, the spiralling cost of which was one of the reason for adjudications introduction. It is to be hoped that contracts with stepped ADR procedures, will produce quicker and less expensive results in all but the largest projects. For these the burgeoning list of dispute centres (often

English speaking) such as at Hamburg, Frankfurt, Amsterdam and Paris (possibly multi lingual) and a greater number of arbitral centres such as Hong Kong and Stockholm could lead to lower cost. If this is so it is to be hoped that these cost reductions will be reciprocated throughout lower level dispute resolution.

More pertinent to health and safety was the Construction Design and Management Regulations 1994 as amended 2007 and 2015. This introduced new supervisory roles, claimed to improve business and efficiency and improvements to health and safety. It included requirement to address and produce written proof of detailed consideration of dangers, risks and storage of materials before starting work.

The requirement for Personal Protection Equipment was introduced in 1993. It did not include shinny shoes or suits but waterproof coats and leggings. Which was a sensible improvement on the builders Donkey Jackets that were issued previously, often only to senior site staff.

The terrible tragedy of 6 March 1987, the capsizing of the Herald of Free Enterprise at Zeebrugge brought Corporate Responsibility to peoples' attention. The accepted practice was for the ship, a car ferry, to cast off and commence manoeuvres at the same time as it closed its bow doors. On this occasion it is believed uneven loading allowed water ingress resulting in 192 casualties as the ship rolled over. The practice was immediately banned in European ports but continues to this day, using the very same ships, running between Tenerife and Gomera.

It was put forward that as the practice was routine and allowed for in the timetable the blame lay not with the ship's Captain but with management and that corporate responsibility started at the top. It was suggested that even the CEO could end up facing imprisonment. A similar suggestion was put forward following the Deepwater Horizon oil disaster of 20 April 2010.

How much of what was immediately evident as far as the Channel Tunnel project was concerned, were messages from the top, or simply a greater awareness that accidents can happen even on the best regulated sites, promoting an increased awareness of the need for safety, is unknown. It was not just taking every care to avoid deaths but also ensuring all injuries were avoided. I personally witnessed a very senior executive tell a ready mix driver that he was not allowed on site without a hard hat and work glasses, no matter how important his load was. No alcohol was permitted on site and no matches or even a lighter through the security gates to get on the man-rider going into the tunnel.

It is tragically ironic that regulations were strictly enforced at Folkestone, but not so in France, as evidenced by the historic photo of the French labourer offering his British counterpart a cigarette as they shook hands at break-through in the centre of the tunnel. Ironic because of the 14,000 operatives em-

ployed on the tunnel, 8 of the 10 fatal accidents were on the UK side.

It is equally ironic that in the various descriptions of CR I have read it is stated that companies should take into account; social, economic and environmental impacts and ensure their business is carried out ethically. Am I the only one that believes the most important word is missing from that list?

The foregoing is a brief note of a few of the events and actions that have changed construction and some matters we should concentrate on when serving as an expert. In truth many are ones we should always have thought of. Many reflect wise words as important today as bygone days when they were first used.

For example; More haste less speed. A small construction site where insufficient thought had gone into site planning. The forecast arrival of reinforcement necessitated a change of position of a site caravan, using a crane. One operative was sent to the roof to adjust the brothers to ensure they did not create a pinch point when the crane commenced the hoist. To save time the site agent started to wind up the caravan jockey wheel with the operative still on top, with nothing to hold onto. He slid off the roof of the then sloping caravan landing painfully on the front A bar, breaking his ankle in the process. Rebar delivery was delayed whilst HSE examined the incident and I wrote a report.

Safety Glasses. I had the misfortune of having to rush a welder to hospital with hot bitumen in his eye. He had been jointing pipes internally without wearing his safety glasses. I still had to wait to sign for the van keys before I could aim for the hospital.

A little knowledge is worse than none. A relatively prosperous householder had an extension built by a local builder. The householder was proud to show wall tiling he had carried out in an extended kitchen. A new large lounge had been constructed. The owner had tiled the floor with 1m x 0.5m, thin, imported Spanish tiles. I was appointed expert witness by the builder's solicitor when areas of the tiles started cracking.

The owner's expert produced a report laying the blame squarely on the builder, referring to excess mortar on the external wall of the cavity wall extension and numerous other instances of untidiness.

My report disagreed with most of the other expert's report, pointing out that the tiles had been wrongly laid using the same 'dob and dab' method used for wall tiles not the full, specialist screed essential for these floor tiles. Needless to say my opposite number queried my knowledge and threatened to take the matter to arbitration, pointing out that he was a member of the Royal Institution. I told him to go ahead, not bothering to point out that I had been a Fellow. I presume someone whispered in his ear as I heard no more and my client cheerfully informed me he had been paid in full, as was I.

I detail this case at length as it emphasises one of my pet concerns. Academically well qualified experts with no or little site experience opining on practical or every day construction issues. Would it be acceptable for me to submit my report with the equivalent lack of contract knowledge not knowing my FIDIC from my NEC 4?

The repost to this is usually that I use planes but I cannot fly one. Which is true but I point out that once a plane is designed not even a screw can be changed in length, fixing or gauge without referring the change to a design team

This brings me to my final thoughts, where does the construction industry, go from here? Dame Judith Hackitt in her Grenville Towers report makes so many observations of our industry as a whole. Including in the case of short term shortages and our habit (unlike in the air industry) of substituting one product for another without even consulting anyone. Just one example of so many highly significant issues. We call ourselves experts and we assume the right to judge others who have spent a lifetime in construction. As I have admitted, I made enough lack of experience mistakes and given old hands a good laugh at some of my suggestion, having spent around 50% of my time either on site or in direct construction management roles.

Of course many disputes revolve around purely contract or commercial issues . . . or do they? Dame Judith's Report suggests not.

**Keith McMillan** is principal consultant with over 40 years' experience at McMillan Associates, Chartered Construction Consultants, providing Expert Witness and Claims Management services in; construction, light & heavy rail, utilities, port & airports and tunnelling. The consultancy also has a specialist risk management, value engineering and operational audit team.

As a Chartered Construction Manager with over 40 years' experience gained in a variety of roles, London based Keith McMillan is ideally suited to serve as an expert on construction and related disputes.

Contact: Keith McMillan

Tel: 0207 307 5655

Alternate Tel: 01326 212 242

Mobile: 07770 575 170

Email: [keith@mcmillanassociates.co.uk](mailto:keith@mcmillanassociates.co.uk)

Alternate Email: [consult@mcmillanassociates.co.uk](mailto:consult@mcmillanassociates.co.uk)

Website: [www.mcmillanassociates.co.uk](http://www.mcmillanassociates.co.uk)