

# driver trett DIGEST

Issue 12 | September 2016



**Aristotle,  
bullets, and  
cars that fly.**







## Welcome to the Driver Trett Digest

Welcome to this latest, and largest to date, issue of the Driver Trett Digest.

I was asked recently to speak to a group of our client's senior staff and future leaders, about the ways in which we have developed and improved our business. The Digest was one example I used. We have a rule that each time we produce an issue, it needs to be an improvement on the last one. This can create tensions when early drafts are rejected. Sometimes the enhancements required relate to presentation or graphics and sometimes they relate to content. Small gains are made in each issue, but when we look back over the past 11 issues, the improvements are manifest; and this serves to inspire the whole team to new levels of quality. Ultimately, driving continuous improvement across the business is what makes us stand out from the competition, and our management team are committed to continuing this trend.

Our business has grown considerably in recent years, this is reflected in the wider range of services and expertise on offer, across the globe. This issue is a testament to that; our structural ability is showcased on the front cover with the spectacular Goodwood sculpture, David Wileman offers his thoughts on the 'silver bullet' in delay analysis, and guest contributor Stephen Homer discusses implication and interpretation in contracts. Paul Gogarty looks at the perennial problem of contra charges and Nicola Huxtable does some smashing and some grabbing.

Also in the mix you will find the eternal battle for better records, food for thought regarding the future of diversity in the construction industry, further technical expertise pertaining to fire safety and curtain walling, a summary of the 2015 ICC Dispute Board rules, and even our homage to that popular summer topic of Brexit.

We welcome some new members to the Driver Trett team in the Western Region of Canada and introduce a new DIALES technical expert, topped off with a couple of new Digest Bytes with a technical flavour.

Finally, we are proud to announce our training partnership with the Chartered Institute of Civil Engineering Surveyors (ICES). Bill Pryke, CEO of ICES, is interviewed and shares his views on the benefits of this arrangement to both members and the wider industry. Driver Trett's commitment to quality and driving up standards was one of the key features that helped us come to an agreement with ICES, and we are excited to be working with this strong and forward-thinking institution to deliver excellent training to support our industry professionals.

I hope you enjoy this issue of the Digest. If you would like to contribute in the future or share any feedback, please do drop me a line.

**Mark Wheeler**  
Chief Operating Officer, Europe and Americas



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# The silver bullet – food for thought

**DAVID WILEMAN – DIALES EXPERT, SEARCHES FOR THE ELUSIVE ‘SILVER BULLET’ AND EXPLAINS THAT YOU’LL OFTEN NEED MORE AMMUNITION THAN THIS SINGULAR, MYTHICAL PROJECTILE.**

In a meeting with a client the other day I was asked a question which I have been asked on many occasions. The question was: “Is there a silver bullet that will make this dispute go away?”.

Werewolves, and the other party to a dispute, are always regarded as being

susceptible to the fabled silver bullet, but unfortunately there never seems to be one around when you need it most; be it on a dark misty night in an old graveyard or the well-appointed office of a blue chip company.

The ‘Silver Bullet’ is the most elusive of

things when it comes to disputes involving delay. Every now and again I have been involved with disputes that quickly turn on the interpretation of a contract clause, or can immediately settle due to issues of waiver, or even the parties coming to a meeting of the minds on which docu-

## THE ELUSIVE SILVER BULLET

The importance of contemporaneous records is not lost on our legal partners (lawyers and barristers) who also know and understand the importance of such contemporaneous evidence. In fact, such a case was reported recently in the Times newspaper<sup>1</sup>, where the defendant’s lawyer recognised the importance of contemporary evidence. In this matter there was a silver bullet.

The case involved a defendant who was accused of

drink driving. The defendant’s lawyer, who is now also known for posterity as Citizen ‘N’, was examining documents, relating to the charge his client was facing, when he was briefly left alone with the contemporaneous documents. CCTV cameras caught Citizen ‘N’ tearing off a slip of paper confirming the defendant’s positive breathalyser test from one of the documents and slipping the evidence into his pocket. Citizen ‘N’ certainly

recognised a silver bullet when he saw one.

Later CCTV images show Citizen ‘N’ eating that particular silver bullet, or as some may say, ‘wolfing it down’! For the record, Citizen ‘N’ is now facing up to two years in jail or a 200,000 rouble (£2,100) fine. As for his client, it is still unclear whether the prosecution will go ahead.

<sup>1</sup> <http://www.thetimes.co.uk/tto/news/world/europe/article4739659.ece>

**FIGURE 1 SUMMARY OF COMMON DELAY ANALYSIS METHODS**

Method of Analysis	Analysis Type	Critical Path Determined	Delay Impact Determined	Requires
Impacted As-Planned Analysis	Cause and Effect	Prospectively	Prospectively	Logic linked baseline programme. A selection of delay events to be modelled.
Time Impact Analysis	Cause and Effect	Contemporaneously	Prospectively	Logic linked baseline programme. Update programmes or progress information with which to update the baseline programme. A selection of delay events to be modelled.
Time Slice Windows Analysis	Effect and Cause	Contemporaneously	Retrospectively	Logic linked baseline programme. Update programmes or progress information with which to update the baseline programme.
As-Planned versus As-Built Windows Analysis	Effect and Cause	Contemporaneously	Retrospectively	Baseline programme. As-built data.
Longest Path Analysis	Effect and Cause	Retrospectively	Retrospectively	Baseline programme. As-built programme.
Collapsed As-Built Analysis	Cause and Effect	Retrospectively	Retrospectively	Logic linked as-built programme. A selection of delay events to be modelled.

ments constitute the contract.

Disputes involving delay, unfortunately or fortunately (depending on your stand point), are rarely that simple as there are generally very few opportunities to shortcut the work involved.

Forensic delay analysis feels more like the battle of Waterloo. It requires extensive, methodical, and meticulous analysis of prospective programmes and as-built data, overlaid with painstaking research of the matters of fact, in order to assist a judge or tribunal to understand the planned intent and how and when the actual works deviated from that planned intent.

In the Driver Digest Issue 11, dated March 2016, we discussed Rider 1 to the October 2002, Society of Construction Law (SCL) Delay and Disruption Protocol. This article summarised the pertinent points of Rider 1 and provided the table in Figure 1.

The right hand column of the table sets out, in very brief terms, the minimum amount of information and data necessary to prosecute or defend a delay related claim. When it comes to the analysis of delay, there are no silver bullets, no frying pans to be pulled out of the fire, and no last minute superheroes saving a

client in distress.

As per Figure 2, a silver bullet can become more like a thousand, mini, silver bullets. Each one providing a small amount of information that separates the claim into its constituent parts. In this manner claims are prosecuted (and defended) without the accusations as to whether the claims are global, thereby allowing each event to be linked to its effect in time and monetary terms.

The key to the successful pursuance and defence of claims, as always, is making sure that appropriate, contemporaneous records are consistently prepared and stored in a readily available and suitable manner; which with ever changing IT and email systems is an art in itself. It is these documents that will be of primary importance in the prosecution or defence of claims.

The moral of the story is that we generally deal with complex disputes, and whilst every now and again there may be a 'silver bullet' which knocks out the opponent to a dispute, for the other 99% of cases, the key to successful prosecution or defence of claims is the contemporaneous evidence prepared during the completion of the contract works. ■

## Forensic delay analysis feels more like the battle of Waterloo.

**FIGURE 2 - WHAT IS A SILVER BULLET?**

The simple truth is that, with respect to delay, disruption, and prolongation disputes, the 'Silver Bullet' is to:

1. Understand where risk lies in the contract.
2. Prepare a robust baseline programme which incorporates risks, key dates, etc.
3. Understand your baseline resource and plant requirements.
4. Update your programme on a periodic basis.
5. Address the time related impacts of variations as they occur.
6. Understand growth to resource and plant requirements.
7. Understand your own culpability with respect to delay.
8. Prepare your updated analysis in a manner that allows delays of differing responsibility to be separated.
9. Archive official baseline and re-baselined programmes for easy retrieval.
10. Differentiate between costs due to base work, delays, and disruptive costs and allocate accordingly.
11. Prepare cost value reconciliation reports to show where money is being lost on a periodic basis.
12. Keep appropriate, consistent, contemporaneous records.
13. Retrospectively review periods of delay in respect to time not awarded to understand whether the as-built dates are consistent with the forecast analysis.
14. Prepare delay and disruption event supporting files and collate data at the time it was prepared.
15. Prepare notices as required by the contract.



# Post-It Pads and iPads

**MICHAEL FOSTER – OPERATIONAL DIRECTOR, DRIVER TRETT, UK EXPLORES THE NECESSARY EVILS OF ELECTRONIC DOCUMENTATION PROTOCOL AND THE ESSENTIALS OF BEING ABLE TO SOURCE ‘GOOD’ RECORDS WHEN BEGINNING TO ASSEMBLE A CASE FOR A CLIENT.**

Modern technology never ceases to amaze me: emails; t’internet (sometimes called the world-wide-web and shortened to www); building information modelling (BIM); dashboards; systems applications products (SAP) systems... the technology is endless.

Modern construction disputes also never cease to amaze me either; same old mistakes repeated time-after-time by the same people and the human race (particularly those in construction) never

seem to learn from past mistakes.

Now let’s put them together (technology and disputes) and what do we have? You would like to think an easily retrievable bank of evidence, knowledge, and facts at our finger tips that mean disputes would be significantly easier to prosecute or defend.

Going back to fifteen years ago, the life of a dispute always started with a visit to a client’s archive, project manager’s office, or a dedicated office (with no windows) that contained racks of files and boxes. If you wanted the correspondence files or labour allocation sheets, you knew exactly where to go. The quality of the photocopying may have been poor, and some documents missing, but at least the documents could be easily located and retrieved.

Assembling a case involved lots of

page turning, an endless supply of Post-It pads, and a junior QS to undertake photocopying to assemble the relevant evidence. Eventually you were on your way with the preparation and presentation of a case, supported by evidence that was easily retrievable and appropriately filed. This was an exhaustive task and sometimes affected by the old but typical excuse that files had been put in the skip! I focus on the words ‘easily retrievable’ and fast forward to the iPad generation; from a construction aspect, I mean those living with information solution packages and electronically stored information.

Should a matter proceed to court or other forum such as arbitration, the parties are obliged to preserve and disclose to the opposition the relevant documents to a dispute, including both paper documents and electronic

information. The identification and disclosure of electronic documents in the legal arena is known as e-disclosure. This article is not about e-disclosure but is more about how and where we begin to assemble a case for a client.

Construction companies should have document retention policies, because some types of records have to be kept for statutory or regulatory purposes and to meet operational needs. Permanent retention of documents can be undesirable because of the shortage of space and the need to declutter office accommodation. We also now have a need to declutter the company server. Untimely destruction of documentation can cause difficulties in defending litigious claims, but also in prosecuting claims you may have against others.

Electronically stored information is

therefore essential to the success of a dispute. Here lies the problem; because the systems implemented to exchange and retain information might be fit for executing, running, and delivering a project they are not always fit for running a dispute.

I am certain that the introduction of electronic documentation has, in general, made life easier as it is far quicker to save a file electronically than print it, punch it, and then place in the relevant file. Document controllers were very much central to this process, but a 'single point of contact' (the administration team who controlled this process) has now been removed and replaced by staff from various disciplines who are expected to be self-sufficient; thus the electronic filing system must endure multiple contributors each with their own preferences.

The warning for all companies is that you should re-assess your document retention policies on any significant, commercially difficult project where the potential for disputes is high. Ask yourself the question: "Can you afford to ignore the possibility that you may have an entitlement which cannot be proven?". I'm not saying that you should do this on all your projects, but if there is a high-risk that a project is going to be substantially late and over-budget, then you must ask the above question. It is worth considering however, that good habits need to be worked at whereas bad habits come easily.

## It is worth considering... ...good habits need to be worked at whereas bad habits come easily.

The foundation to any claim depends on your company's electronically stored information and a detailed examination of what your staff had been doing for the years and months before the dispute arose. Therefore, the life of any dispute unequivocally starts with a retrospective trawl for evidence.

Fifteen years ago, this was a straight forward exercise as it involved a trip to an archive. If you could not find something, you went to a person who was called a 'document controller'. Now, this is not so easy and can make the life of a dispute much more difficult than it needs to be, resulting in unnecessary fees and costs and could even result in prejudicing your financial recovery.

Recently, I have had several appointments on large projects where the construction company has invested heavily in certain electronic systems for cost and financial controlling and managing electronically stored information. I am

certain these systems would have been more than fit for running and delivering a project that is completed on time and in budget. However, in a dispute situation, their robustness becomes retrospectively challenged. I'm not going to name specific packages but, when challenged and tested retrospectively, the systems and documents they included were not fit for disputes. This is also very much about the people as well as the systems.

Other recent disputes have involved working for clients who have not made any investment in expensive electronic systems, but preferred to run their projects using a directory system that anyone can create using a typical Microsoft Office set up. There is a danger that such filing structure protocols do not get followed; one member of staff may follow a self-invented system on his or her laptop whilst another follows something completely different. A disaster waiting to happen if not properly controlled.

When disputes arise, the aim is to resolve the problem and find a solution quickly, efficiently, and as cost effectively as possible. This involves establishing what you have been doing on a project for the last two to three years. Rudyard Kipling devised his five 'W's (and one 'H') rule for a reason and it is often used for police investigations and in journalism. It is considered to be the basis for information gathering and problem solving.

Fact finding is no different for construction disputes; unlocking the facts behind who, what, when, where, how, and why is fundamental in reaching a solution for a client. In the modern day, unlocking this information can be difficult (and harder than it used to be) because electronically stored information is not easily retrievable.

iPads (and Post-It pads) will be around for a while longer. When a project is becoming problematic, it may be beneficial to review and consider your document retention policy, in particular those aspects that significantly rely on human interface. Consider the IT departments who never get to know about disputes. They control vast swathes of electronic data, yet have no understanding of the data that needs to be retained for dispute avoidance.

The clear aim is to ensure any dispute is solved by way of an early commercial settlement and this will be achieved by relying on a robust fact-finding process as outlined above. However, should you fail to achieve this and find yourself proceeding litigation or arbitration, your company will be prepared for when your lawyer says your electronic information is crucial and you are under an obligation to preserve and disclose it to the other side.

Maybe the next generation of construction professionals will solve the continual records problem the industry has lived with for so long. ■

## Introducing our latest DIALES technical expert – Dr Martin Woods

**DIALES ARE DELIGHTED TO WELCOME DR MARTIN WOODS, THE HIGHLY REGARDED AND EXPERIENCED BUILDING SURVEYING, DILAPIDATIONS, AND DUE DILIGENCE EXPERT.**

I am delighted to be joining the DIALES technical team to expand its expertise in building defect identification, dilapidation, and due diligence disputes.

In my 25 years as a building surveyor I have assisted tenants and landlords entering,

altering, or terminating lease contracts. I have been involved in excess of 1,000 dilapidations disputes, acting as expert witness in many of the claims.

As a result of the move towards shorter term commercial leases over the past decade, dilapidations claims are increasing dramatically. The potential dilapidations liabilities are currently a significant factor for consideration as part of the due diligence in any takeover or merger.

I foresee a future growth in disputes regarding changing European legislation; in terms of the Energy Savings Opportunity

Scheme (ESOS), the Climate Act requirements, and other energy saving legislation. An example is the Minimum Energy Performance Standards (MEPS) legislation that will prevent many current buildings from being leased or occupied after April 2018. This has already resulted in numerous disputes between landlords and tenants regarding liabilities for the required thermal performance improvements.

Kind regards  
Dr. Martin Woods





# Implication and interpretation - does my contract mean what I think it means?

**STEPHEN HOMER – HEAD OF ARBITRATION AND ADJUDICATION, ASHFORDS, UK OUTLINES THE KEY APPLICATIONS OF IMPLICATION AND INTERPRETATION FOR A COURT LOOKING TO RESOLVE INTENT. HE WARNS NOT TO EXPECT THAT A COMMON SENSE INTERPRETATION WILL PREVAIL.**

Parties to a contract aim to achieve certainty as to the bargain they have reached. However, when unanticipated events unfold it is not uncommon for the parties to differ in their understanding of the agreement between them, and for the courts to be requested to interpret the contract as to its true meaning. Sometimes one party will argue the court should imply a term which has not been expressly agreed in the contract.

This article considers recent judicial developments concerning interpretation and implication, the relationship between the two, and the tests applied by the courts in each case.

## Interpretation of contracts

"The professed object of a common law court in interpreting or construing a written contract is to discover the mutual intention of the parties" (Lord Justice Beatson in *Globe Motors Inc and others v TRW Lucas Varity Electric Steering Limited and others* [2016] EWCA Civ 396).

The court's approach, when interpreting contracts, is to look at the contract as a whole and consider not only the words of the relevant clauses, but also the commercial context. However, in identifying the intention of the parties, the court will apply an objective test of, "what a reasonable person having all the background knowledge which would have been available to the parties, would have understood them to be using the language in the contract to mean" (Lord Hoffman in *Chartbrook Ltd v Persimmon Homes Ltd* [2009] UKHL 38). The court is interested in establishing the understanding of

a 'reasonable person', rather than that of the parties themselves.

By way of example, in his earlier judgment in *Investors Compensation Scheme Ltd v West Bromwich Building Society* [1998] 1 WLR 896, Lord Hoffman stated the court, "is concerned only to discover what the instrument means. However, the meaning is not necessarily or always what the authors or parties to the document would have intended. It is the meaning which the instrument would convey to a reasonable person having all the background knowledge which would reasonably be available to the audience to whom the instrument is addressed." It is this objective meaning which is conventionally called 'the intention of the parties'.

In *Arnold v Britton* [2015] UKSC 35, Lord Neuberger identified six considerations of general applicability when interpreting a contract which are:

- The natural and ordinary meaning of the clause.
- Any other relevant provisions of the contract.
- The overall purpose of the clause and the contract.
- The facts and the circumstances known or assumed by the parties at the time that the document was executed.
- Commercial common sense.
- But disregarding any subjective evidence of any party's intentions.

It has been argued that the process of implying a term into a contract is no more than a facet of interpreting its true meaning; as it will sometimes be neces-

sary to imply a term into the contract in order to make the contract work as the parties must have intended. However, despite some uncertainty following the judgment of Lord Hoffmann, this time in the Privy Council case of *Attorney General of Belize v Belize Telecom Ltd* [2009] 1 WLR 1988 (as to which see more below), the processes of interpretation and implication are, "different processes governed by different rules" (per Lord Neuberger in *Marks and Spencer plc v BNP Paribas* [2015] UKSC 72) and it is only once the court has construed the express terms of the contract that it will consider whether to imply a term.

## Implied terms

Then, in what circumstances will the court imply a term into a contract? Lord Neuberger addressed this recently in *Marks & Spencer plc v BNP Paribas Securities Services Trust Company (Jersey) Ltd & Anor* [2015] UKSC 72, essentially refining the earlier test laid down by the courts so that the necessary factors, before implying a term into a contract, can now be summarised as:

- The term must be necessary to give business efficacy to the contract or it must be so obvious that it goes without saying (it will be rare for one to be present without the other).
- The term must be capable of clear expression.
- It must not contradict any express terms of the contract.

Traditionally, the courts' approach to

implication of terms into contracts has centred around the application of the business efficacy test. The 1889 case of *The Moorcock* [1889] 14 PD 64 provided that a term would only be implied into a contract if it was necessary to give business efficacy to the contract.

The officious bystander test, set out in *Shirlaw v Southern Foundries (1926) Ltd* [1939] 2 KB 206, takes into consideration what the parties would have intended at the outset. A term will be implied if it is so obvious that, if an officious bystander suggested to the parties that the term should be included, "they would testily suppress him with a common 'oh of course'".

As touched on above, recent case law has allowed the Supreme Court to revisit these principles and clarify the position on implication and interpretation, including the distinction between the two.

The Privy Council Case, *Attorney General of Belize and others v Belize Telecom Ltd* [2009] UKPC 10, has been considered to be widely misunderstood to mean that a term could or should be implied if it is reasonable to do so, and that implying a term is part of the process of interpretation of a contract. It was noted that the court has:

"no power to improve upon the instrument which it is called upon to construe... [And] cannot introduce terms to make it fairer or more reasonable. It is concerned only to discover what the instrument means".

The Privy Council held that, "The question of implication arises when the instrument does not expressly provide for what





is to happen when some event occurs." Under these circumstances, the usual approach is that nothing is to happen, as any alternative result would have been provided for in the instrument. However, the court considered a scenario in which any reasonable person, who read the document in question, would consider that the only meaning consistent with the remainder of the document, taking into account the relevant background, would be that something should occur. Only in these circumstances would the court then imply the term. The Privy Council considered that it would be appropriate to imply a term because any reasonable person would consider it necessary.

The requirement of necessity was further confirmed by Mr Justice Edwards Stuart in *Manor Asset Ltd v Demolition Services Ltd* [2016] EWHC 222 (TCC). In this case, the contract had been varied in a way which was inconsistent with other provisions of the contract. The judge reasoned that it must have been the intention of both parties to give effect to the variation, and so the contract was

"The question of implication arises when the instrument does not expressly provide for what is to happen when some event occurs"

interpreted in a way which enabled the new clause to work. This involved either implying a term, or interpreting it in a certain way, which effectively reduced the prescribed period for service of a pay less notice before the final date for payment to nil, which the court did. If the court had not implied this term, the variation would have been inconsistent with the original terms and could not have operated, which could not have been what the parties had intended. Mr Justice Edwards Stuart acknowledged elements of the approach of Lord Hoffman in *Belize Telecom*, but in the light of the qualifications made by Lord Neuberger in *Marks and Spencer*. He stated:

"...the overriding point to be borne in mind before implying any term the court must conclude that the implication of that term is necessary in order to give business efficacy to the contract, or to put it another way, it is necessary to imply the term in order to make the contract work as the parties must have intended."

In *Marks and Spencer*, the Supreme Court stated that whilst interpreting

the words which the parties have used and implying words into the contract, both involve determining the scope and meaning of the contract, these are different processes governed by different rules.

The recent case law shows that the courts continue to take a strict approach to the circumstances in which they will imply a term, and the requirement of necessity has not fallen away, even when a broader approach is applied. When interpreting contract terms, the key consideration continues to be the intention of the parties as described by Lord Hoffman in the *Investors Compensation Scheme* judgment. When implying terms, the courts will respect the parties' freedom of contract to set out their own terms and will only interfere when it is necessary, and not because the words used in the written contract result in a bad bargain for one of the parties. When negotiating contracts it is not safe to assume the law will assist with a common sense interpretation if the agreement is coherent and workable as it stands. ■



# Smash and grab – the Marmite adjudication?

**NICOLA HUXTABLE – OPERATIONAL DIRECTOR, DRIVER TRETT, UK EXPLORES THE 'NICETIES' OF SMASH AND GRAB ADJUDICATIONS AND REMINDS US THAT THOSE INITIATING THESE RAIDS NEED TO BE SURE THEY ARE STRICTLY ADHERING TO THEIR CONTRACT'S RULES.**

Love them or hate them, it looks like adjudications arising as a result of the strict payment scheme introduced by the local Democracy, Construction and Regeneration Act 2009 are here to stay, at least for a while.

Although contractors, subcontractors, and occasionally employers are happy to run them when it works in their benefit, it is the ultimate ambush adjudication and can result in relationships turning very sour very quickly.

The payment scheme requires a valid payment notice to be issued by the paying party followed by the payment of the sum due. Where a payment notice is not issued, the payee can issue a notice in default which will become the sum due and, unless the paying party is on the ball and issues a valid pay less notice, the full sum in the default notice will become the sum due; whether or not this accurately reflects the value to which the payee would otherwise be entitled [See Fig. 1].

Under the strict payment regime, there is no defence for failing to issue a notice, be it a payment notice or pay less notice.

A bit of research on Google and Wikipedia shows the three ingredients needed for a smash and grab:

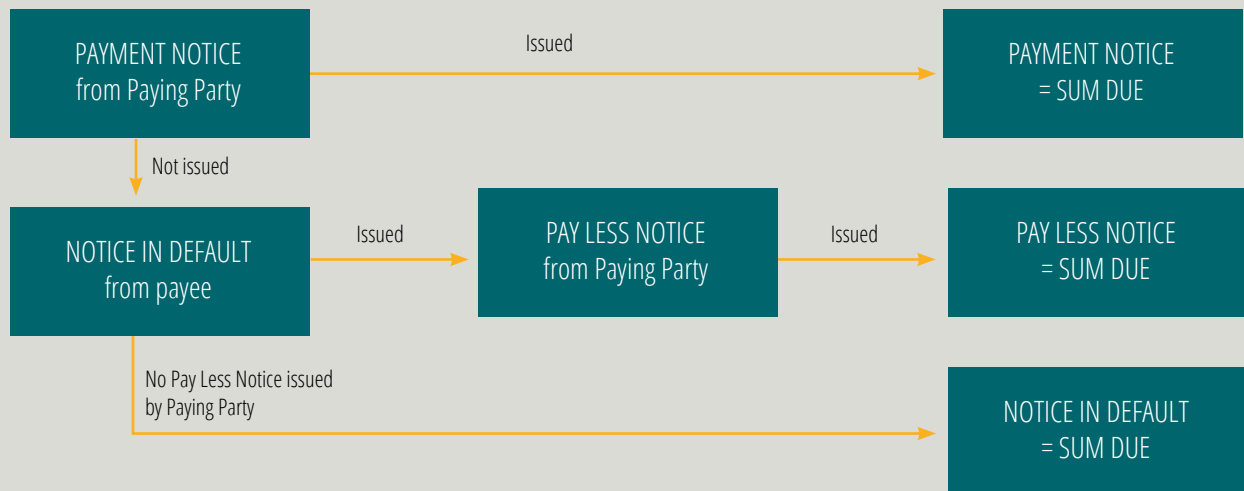
1. The element of speed and surprise.
2. The grabbing of valuables.
3. Making a quick getaway.

## **1. Speed and Surprise**

As there is no defence to the failure to



**FIG. 1 PAYMENT SCHEME REQUIREMENTS**



issue a notice, it is quick and simple to put together the documents needed to start an adjudication and the dispute will have already crystallised. If the paying party have failed to realise that the relevant notices have not been issued, the Notice of Adjudication may well come as an unwelcome surprise; particularly if it is wrapped with a bow and attached to a box of mince pies on Christmas Eve – more common than you would like to think!

## 2. The Grabbing of Valuables

What is more clearly valuable on a project than cash? Reputation perhaps? Either way, a smash and grab adjudication is a threat to both. It is rare that an adjudication is completed within the required 28 days, but in this case, where there is no defence, it is very possible that a party who would otherwise not be entitled to payment can run away with a large amount of cash.

## 3. Making a Quick Getaway

Following the ISG case<sup>1</sup>, the courts are happy to uphold a decision on a smash and grab provided it is on an interim application. After all, isn't that what adjudication was set up for in the first place? Pay now, argue later? Although painful at the time, the financial position can always be corrected in the next payment cycle. But, what about under JCT where payments can only flow one way until the

final account? The payee may have to live with the injustice of a smash and grab adjudicator's decision for the duration of the project, and then for a further six to nine months afterwards.

The argument is different on a final account, where the situation cannot be corrected. In this case the courts are reluctant to enforce a smash and grab decision (Harding and Paice<sup>2</sup>). But, what happens under NEC where there is no final account mechanism? Under the judgment in ISG, it appears that even if all work is complete and no further payments will be due, it is possible for an application for payment to be submitted many months down the line. If the job is finished, this application may well be missed and the opportunity for a smash and grab will arise. This can then be corrected with another interim payment, but theoretically it can go on forever.

The lack of final account provision in the NEC is probably something that needs to be corrected; but for now it must be the sensible thing to sign a full and final settlement agreement at the end of the project to avoid these sticky payment issues.

So, although the smash and grab is a loaded gun option for some, what do the adjudicators themselves think about it? Again, it appears that some love them and some (possibly most) hate them. Most adjudicators are loath to make an unjust decision purely on the basis that one party failed to issue a valid notice. But, as there

...if you want to adjudicate on a technicality, then you have to have followed the contract to the letter.

is no defence, adjudicators will look for a way to find that the documents in play fall foul of the payment mechanism in some way.

A fairly recent example arose when a contractor, working under an amended JCT contract, issued an application for payment within the correct timescales and in the same format as all previous applications, against which he had been paid.

Relationships deteriorated on site and he was told that he was not entitled to further payment. The employer failed to issue a payment notice or a withholding notice against the application, the latest date for payment came and went and no payment was received.

The contractor's application did contain an element of loss and expense to which he may or may not have been entitled. In any event, the employer was in breach and the contractor commenced a smash

and grab adjudication on the basis that his payment application became the default notice and the sum contained within the application became the certified sum. This all seems fairly straight forward and the employer had no excuse for failing to issue the notices.

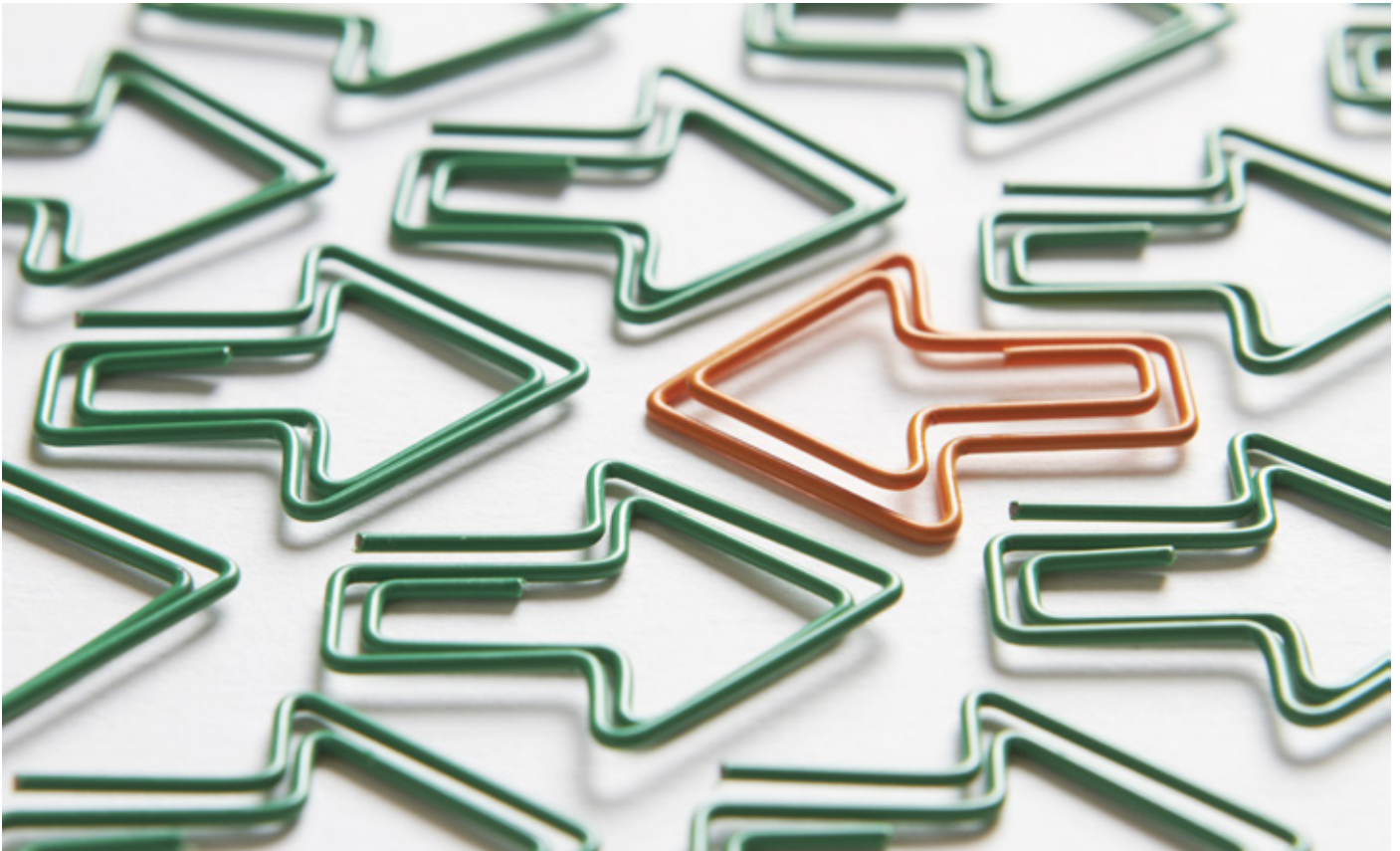
However, the adjudicator decided that the application for payment was not issued strictly in accordance with the contract, which stated that the application had to be issued in hard copy to a named person along with an electronic copy, issued to the project mail box. In addition, six further copies of the application had to be issued to the registered office of the employer.

Regardless of the fact that this process had never previously been followed and the contractor had always been paid, the adjudicator made this decision on the basis that if you want to adjudicate on a technicality, then you have to have followed the contract to the letter.

This seems to be a common approach to smash and grab adjudications. Adjudicators would much rather make a decision on a payment dispute based on the actual value of the account rather than a technicality. Be aware, if you are going to throw a big snowball at the other party, there cannot be any yellow snow included. ■

<sup>1</sup> ISG Construction Ltd v Seewic College [2014] EWHC 4007

<sup>2</sup> Matthew Harding (t/a MJ Harding Contractors) v Paice and another [2015] EWCA Civ 1231



# Contra charges

**PAUL GOGARTY – CONSULTING DIRECTOR, DRIVER TRETT EXPLORES THE VARIED METHODOLOGIES AND APPROACHES FOR CONTRA-CHARGING, SET-OFF, COUNTER-CLAIM, AND ABATEMENT AND THEIR APPLICATION UNDER CONSTRUCTION CONTRACTS.**

Contra charges are controversial. The very mention of contra charges in the UK, or anywhere, is enough to cause a quarrel between the parties to a contract; it has the potential to damage relationships, especially when deductions are made for insufficient reasons.

The raising of a contra charge by the paying party under a contract, often means that a mistake may have been made by the payee and sometimes it becomes personal. There is likely to have been a breach of contract or negligence on the part of the payee, giving rise to the contra charge by the paying party. In the same way that a payee will be expected to justify entitlement and the quantum of a change, or variation, under a contract; a paying party will be required to evidence its entitlement to set-off, contra charge,

or back charge amounts against monies otherwise due to the payee, and also to provide particulars of the amount claimed.

On a typical project, where contracts exist between main and subcontractors, and where damage is caused by subcontractor A to subcontractor B's works on a construction project, the rectification costs will often be claimed by A against the main contractor. In turn, the main contractor will seek the costs claimed by A, with an addition for its own management costs and sometimes delay or disruption related costs, by way of set-off against B. This is because there is privity of contract (where parties to a contract may sue each other but not third parties) between A and B to enable costs to be claimed or paid between them. We are

all familiar with a typical occurrence, where damage occurs to say suspended ceilings or dry-lined partitions during the installation of the mechanical, electrical, or public health services because the latter works are carried out late or out of sequence.

In the past subcontractors on construction projects would sometimes come to an arrangement whereby they would compensate each other for such damage

Provided the costs were not too one sided, a 'knock for knock' basis worked perfectly well.



## ABATEMENT

In contrast to set-off or counterclaim, abatement is a means of appropriately reducing a contract price where payment in full may not be justified. Abatement is in effect an adjustment of the contract price. A pay less notice is not required for an abatement to be effective. However, a paying party has the burden of proof to clearly set out the basis for making the adjustment to the price. For example, the quality of the work may not be compliant with the contract requirements (e.g. the cladding might have been installed with a paint finish whereas a powder coated finish is specified), or the area of paving laid may be less than shown on the drawings. The paying party may insist on a powder coated finish or the full extent of paving being installed, or it may reduce the cost price and accept the non-compliant works by way of an abatement to the price. Under JCT contracts

the paying party may make what is known as an 'appropriate deduction' to compensate for the non-compliance.

For some time, there has been debate and uncertainty as to what constitutes an appropriate deduction in the UK. In the recent case of *Oksana Mul v Hutton Construction Ltd.* [2], Akenhead J explained that "appropriate deduction" means what is appropriate in all the circumstances. This appears not to be too helpful on a first reading but the judge went on to explain that an appropriate deduction can be calculated by reference to one or more of the following, amongst possibly other factors:

- "a. The Contract rates/priced schedule of works/Specification; or
- b. The cost to the Contractor of remedying the defect (including the sums to be paid to third party sub-contractors engaged by the Contractor); or

- c. The reasonable cost to the Employer of engaging another contractor to remedy the defect; or
- d. The particular factual circumstances and/or expert evidence relating to each defect and/or the proposed remedial works."

Many paying parties incorporate terms in contracts to enable abatement. Sometimes by pre-agreed amounts, in respect of failures by a payee to provide documentation on time, for example operation and maintenance manuals, as-built drawings, collateral warranties, or manufacturer's extended guarantees and the like.

Whether or not abatement or set-off is implemented, a paying party has the burden of proof in respect of entitlement or liability as the basis for making deductions and the quantum of contra charges or abatement.

informally, or even resolve the issues by a form of bartering. This would avoid the involvement of the main contractor and all the administration and costs involved. For example, the electrical subcontractor might provide temporary festoon lighting for the ceilings subcontractor; who in return might construct a temporary office for the electrical subcontractor or rectify damage to ceilings by the electrical subcontractor when cutting holes for access in the ceiling on a 'knock for knock' basis. Provided that the costs were not too one sided, it worked perfectly well. It is rare to find this occurring on construction sites today. Instead, it is common to find that a complex system of recording alleged breaches of contract or negligence by various parties is put in place; including the formal notification of alleged breaches and the imposition of contra charges through further notifications from the main contractor to the supply chain below. This contractual procedure is unhelpful to the smooth relationship which is required to complete the works by teamwork, it is also costly and time consuming to implement.

Following notifications of breaches of contract or negligence, a regular monthly account of contra charges is then included by the main contractor in payment notices and pay less notices compliant with the Construction Act [1]. The Act regulates the contents and prescribed periods for pay less notices,

## SET-OFF OR COUNTER CLAIM

Set-off is a defence to money owed and can be deployed to reduce the amount owed or to extinguish it. It is not used where the amount claimed by the paying party is greater than the amount due to the payee. A counterclaim may be for an amount greater than the amount due to a payee. It requires that there must be a breach of contract and damages incurred. A set-off or counterclaim is sometimes labelled as contra charging or back charging. The set-off may be made under the contract or at common law, for example, in case of insolvency under statutory provisions.

Provisions are sometimes incorporated in contracts, whereby the paying party may implement a cross set-off between various contracts between the parties. In other words, a paying party may be entitled to set-off costs incurred due to breach of contract or negligence on contract A, with monies otherwise due on contract B. This may assist a paying party where it has incurred costs on contract A, but there is insufficient outstanding payment due to the payee on that contract.

In any event, as far as the paying party's obligations are concerned, the paying party has the burden of proof. For each and every one of the allegations or claims made by the paying party against the payee, it must prove on the balance of probabilities that:

1. The payee failed in its contractual obligations to the paying party and in exactly what manner it so failed.
2. That the cost allegedly incurred by the paying party, as a consequence of the breach alleged, was incurred as a direct result of the alleged failure of the payee in the manner described.

which must be served if a paying party wishes to deduct sums from amounts otherwise due to a payee under a contract. On some projects the magnitude of the set-off or contra charges can be significant and strongly disputed,

prompting or leaving the payee with no alternative but to refer the dispute to an adjudicator for a temporary but interim binding decision on entitlement and quantum, or to arbitrate or litigate for a final resolution. ■

3. The paying party has incurred the costs claimed.

For example, under a JCT subcontract, the paying party may have various remedies for breach of contract for which it may counterclaim or contra charge the payee in respect of:

- An indemnity for any breach by the payee which is a breach under the main contract; or for losses incurred as a result of a breach of warranty or representation in respect of the Bribery Act; or for losses arising from breach of any third party agreement; or against loss and damage due to negligence or breach of duty by the payee; or in respect of costs payable to other parties as a result of non-compliant work by the payee; or, for example, in respect of liability arising from the removal of non-compliant work and reasonable opening-up works.
- An obligation on the payee to pay direct loss and expense suffered by the paying party as a consequence of the payee's failure to complete its works on time.
- Liability for all additional costs incurred by the paying party as a result of the payee's failure to comply with directions.
- Additional costs and losses incurred by the paying party as a consequence of works not being in accordance with the contract.
- Any sum reasonably estimated by the paying party as a result of interference by the payee of the regular progress of the main contract works.
- The cost of clearing the site of the payee's property where the payee fails to do so.

[1] Under provisions compliant with Part 8 of the Local Democracy, Economic Development and Construction Act in relation to construction contracts entered into on or after 1 October 2011 in England and Wales, and 1 November 2011 in Scotland.

[2] [2014] EWHC 1797 (TCC)

# Brexit and the definition of an expert

**PAUL TAPLIN – DIALES QUANTUM EXPERT, ADDRESSES THE MEASURE OF AN EXPERT, AND THE UNDENIABLE TRUTH THAT AN EXPERT IS ONLY SO IF SOMEONE ELSE BELIEVES IT.**

In June 1, like many other millions of people, was glued to my television as the referendum on whether the UK should or should not remain in the European Union unfolded.

Even if you don't like politics, or have strong views on whether to remain or leave, it was undeniably a roller coaster couple of days (that stretched on throughout the summer).

Whilst I was enjoying my breakfast, watching Sky News, it became clear that the leave campaign was gaining momentum and would ultimately win. The various presenters offered up many reasons as to why the voters had seemingly gone against the majority of politicians and other influential individuals.

And then it came... a presenter stated that the UK people voted against the establishment and ignored the advice of experts. Woah! Hang on a minute... ignored the advice of experts... surely not.

That comment was reiterated a number of times throughout the day, as the shock of Brexit started to sink in and it got me wondering, who are these 'experts' and why didn't the voters believe them?

It became apparent that the 'experts' in question were the financial analysts and advisors who had told the nation that leaving Europe would result in some sort of financial meltdown. Over 17 million people voted to leave, and I'm pretty sure they weren't all financial analysts and advisors. So why would they go against the advice of an 'expert'?

This got me thinking about whether the voters believed these individuals were in fact 'experts' and who defines whether someone is an expert or not?

Bringing this back to construction terms, there are numerous individuals in our industry who claim they are 'experts' whether that be in respect of quantum,

delay, technical, engineering or indeed a multitude of other specialties. But who says so and what are the criteria?

The Oxford English Dictionary defines an expert as, "a person who is very knowledgeable about or skillful in a particular area". This doesn't seem to be particularly helpful, as who deems that a person is very knowledgeable – isn't that subjective?

My 16-year-old son claims to know everything about everything and, if you were to ask him, he'd tell you he was very knowledgeable in all things related to football and cars. But, when pressed on simple aspects it becomes clear that he's neither an expert on football or cars, in fact, it seems to me he's not an expert on anything.

I've heard many people in our industry say that to be an expert you need to have a sufficient amount of 'grey hair'. Now, I don't think that's meant literally but more of a reference to the fact an expert needs to be experienced. Again, that's somewhat subjective. Is five years enough? 10 years? 20 years? And indeed, what kind of experience was gained in those years?

What about qualifications? Are they important? Can you be a quantity surveying expert if you're not a chartered quantity surveyor? Some people will say yes, others will disagree. Again it's subjective.

Lawyers have their own views about what constitutes an expert and, for them, one of the key requirements is the need to have experience of being cross examined. This is because a case can be won or lost on the confidence of the expert when presenting evidence at a hearing.

Within DIALES we try to encapsulate some of the most common requirements that have been expressed to us by lawyers and clients, thus to be a DIALES expert an individual must satisfy the following:

- Have at least 15 years of relevant experience.
- Have been cross examined or completed an approved training course which includes cross examination.
- Spend at least 50% of your time on expert witness commissions.

This means that when lawyers or clients appoint a DIALES expert they have the

comfort of knowing these criteria have been met.

Notwithstanding any of the above, it seems to me that many people can hold themselves out as being an expert, but whether or not you really are one will probably be defined by others. If you are appointed and you demonstrate sound knowledge and expertise in a particular field or area, then it's likely you'll be appointed again. This will then likely gain momentum and in time you will become an established expert in your own right. My point being that, rather than the individual themselves, it's actually the market that will dictate whether you're an expert or not.

Going back to Brexit, it seems to me that the voters decided that the financial experts were nothing of the sort and that their forecast for economic meltdown was based on little more than speculation. This was of course a unique event in UK political history, but to me it again shows that it is the opinion of others that defines whether, in fact, you are an expert or not. ■

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**"You're the expert, and I love what you've done, but I'm going to cram in my own bad ideas here at the end and muck it up, OK?"**



## Q&A: PROFESSIONAL TRAINING AND DEVELOPMENT

**BILL PRYKE – CHIEF EXECUTIVE OFFICER, CHARTERED INSTITUTION OF CIVIL ENGINEERING SURVEYORS (ICES) OUTLINES THEIR PROFESSIONAL TRAINING JOINT VENTURE WITH DRIVER TRETT AND THE BENEFITS OF INDUSTRY SPECIFIC, CONTINUING PROFESSIONAL DEVELOPMENT.**



**DTD:** Bill, you're entering into a training partnership with Driver Trett, what is the benefit to the members of the Chartered ICES?

**BP:** As far as the institution is concerned there is a willingness for us to collaborate with others within the construction industry for the benefit of the public, contractors, manufacturers, the construction industry generally, and also for the members themselves; which is really positive. We understand that it's not a one-size-fits-all approach to meet the needs of a particular organisation or company. By entering into a training partnership with Driver Trett it means that we are extremely flexible with what we can deliver, and where.

**DTD:** Why did you choose Driver Trett as your joint venture partner?

**BP:** It's fair to say that over the last few years we have been very successful in elevating the status of civil engineering surveyors. We have worked very hard to achieve that and now we are in a position to be able to award Chartered Engineer, Incorporated Engineer, and Engineering Technician status. In terms of training, we want to work with world-class training partners and we went through a long process to ensure that we found just that. We have no doubts that the right partnership for us is with Driver Trett.

**DTD:** If someone were to come along to one of the courses on offer, what can they expect?

**BP:** A lot of work has gone on in the background to ensure that the courses are relevant to what actually happens out there on a day-to-day basis. In other words, the content is really meaningful.



During the production of the various courses much time has been spent mapping the membership competencies to join ICES against the training; so you can expect our training to fill a gap in terms of increasing knowledge and awareness for individuals who attend these courses, which is very important.

**DTD:** Do you think that the quality of the training that you are aiming to deliver, and the relevant content, is offering individuals good value for money?

**BP:** We believe so. ICES is recognised as the leading chartered professional body for civil engineering surveyors. We have introduced relevant and meaningful competencies for geospatial engineers and commercial managers, which makes a difference in the training and allows us to raise standards in the industry. ICES and Driver Trett will support individuals and companies within the civil engineering industry in developing and demonstrating professional competence. We understand the civil engineering

industry and are flexible in our approach, ensuring professionals and companies achieve their development goals.

**DTD:** Each of the courses that are on offer include some focus on your core competencies. Once someone has completed two or more of your courses, how well placed would they be to join the institution?

**BP:** By having the courses mapped directly against our competencies, anyone who attends will be in a stronger position to join our institution. Attending these particular courses would be of great benefit to an individual, and of course their company, as it means that they have people increasing their knowledge with continuing professional development (CPD).

There is also a practical side to someone increasing their knowledge and understanding, as achieving competencies and attending these courses fill a particular gap. It's so important that the two merge together and provide one solution in terms of moving someone's

professional development forward. It is important to companies, and society as a whole, that we can produce competent individuals working on various projects.

**DTD:** So you're saying that if you're the chief executive or commercial director of an organisation with a number of people who are working in the civil engineering sector, in a surveying capacity, that putting them through your training courses and membership would add value to that organisation?

**BP:** Absolutely. It is often the case that we receive feedback where tenders have been won as a result of people having been through the training.

Because ICES is a globally recognised professional body and Driver Trett is a globally recognised training provider, the combination of the two together is the perfect partnership to move things forward.

**DTD:** How does the training work, do the individuals come to you or do you go to companies? Where is the training delivered?

**BP:** We're very flexible. It can be delivered all around the country, and indeed worldwide as well.

It can be delivered in-house or externally, and we're there to work in partnership to meet the needs of the industry.

**DTD:** If someone decides after reading this that they want to go on a course and see what it's all about, where's the best place to get the information?

**BP:** The best thing is to email [training@cices.org](mailto:training@cices.org) for more information. ■



Fig. 1 – BMW Sculpture 2016, F1, Le Mans & Mille Miglia cars

# Goodwood Festival of Speed Sculptures

**HOUMAN BAGHI – DIALES STRUCTURAL ENGINEER, EXPLORES THE ICONIC SCULPTURES OF GOODWOOD AND THE ENGINEERING AND ARTISTIC HEROES WHO BRING THEM TO LIFE EACH YEAR.**

The Goodwood Festival of Speed was founded by Lord March in 1993, to bring motor racing back to the historic Goodwood circuit. Now with more than 100,000 visitors per day, it has become a huge outdoor motor show and historic hill climb event that draws automotive enthusiasts to the West Sussex estate from all over the world.

Each year at the Festival of Speed, a different manufacturer sponsors the central display feature in front of Goodwood House. Since the millennium, these sculptures have been conjured up

from the theatrical imagination of the renowned sculptor Gerry Judah.

Gerry's sculptures have become remarkable and outstanding iconic centrepieces in front of Goodwood House. Since 2005, a new association with a team of talented designers and engineers has allowed Gerry's sculptures to push the boundaries, to become more imaginative, more ambitious, and more spectacular. Three of the designers and engineers who formed the nucleus of that team, and have been the sole members since 2012, are working with us at Driver Group today.

This year's sculpture was created by Gerry and the team for BMW [Fig. 1].

Back left, hangs an upside down Brabham BT52 F1 car, designed for the Brabham team by longtime Brabham designer Gordon Murray for the 1983 season and powered by the massively powerful BMW M12/13 turbocharged engine (producing 800bhp in qualifying trim). Front left, and nearly vertical, hangs a BMW V12 LMR Le Mans prototype, which took overall victory at the 1999 Le Mans 24 Hours. Finally, hanging perilously over Goodwood House, is a classic



Fig. 2 Moving cars for Honda in 2005



Fig. 3 Racetrack for Audi in 2009



Fig. 4 Twisting arms for Lotus in 2012



Fig. 5 Leaning slender arrows for Porsche in 2013



Fig. 6 Breathtaking bridge over Goodwood House for Mercedes-Benz in 2014



Fig. 7 Tall twisting DNA for Mazda in 2015



Fig. 8 – Porscheplatz, Stuttgart, Germany



Fig. 9 – Audi Chanchun, China



Fig. 10 – KIA Sculpture – South Korea



BMW 328, 1938 class winner of the Mille Miglia, and similar to the car that took fifth overall and first in class in the 1939 Le Mans 24 Hours.

Credit must also go to metalwork specialists, Littlehampton Welding. Each year they collaborate with Gerry and the team, to produce these breathtaking central sculptures that provide the support for a collection of iconic and, needless to say, priceless cars, and erect them on the front lawn of Goodwood House. The sculptures are a perfect fusion of art and engineering, constantly pushing the boundaries of physics, engineering, and manufacturing whilst being practical and safe focal points of a major public event.

Figs. 2-7 above, show previous spectacular sculptures that have thrilled the crowds which flock to what has become the world's largest motoring garden party.

After the 2013 event, Porsche commissioned a similar spectacular sculpture for the front of its corporate headquarters at Porscheplatz, near Stuttgart, Germany [Fig. 8]. Similarly, some have commissioned entirely new sculptures, as Audi did to celebrate 1 million cars made in

China [Fig. 9], and as KIA have done outside its plants in Seoul and Gwangju, South Korea [Fig. 10].

Our design and engineering team's experience of working, firstly with membrane structures for permanent and temporary applications, and thereafter developing those structural analysis tech-

niques into steel monocoque structures, has led to an unrivalled understanding of structure, materials, fabrication, and construction processes. They have developed software to turn Gerry's highly complex ideas, shapes, and purity of form into elegant structures; where the surface you see is the structure. The sculptures

are not made up of an external cladding applied over an internal structure. They are 98% hollow and would float in a swimming pool.

Building information modelling (BIM) is used between the geometry generating model and analytical 3D model. A hollow monocoque construction is a complex shape to analyse, but ideally suited to finite element and dynamic analysis. The developed software allows for the fine tuning of varying plate thicknesses to mirror the load distribution in the structure. However, none of this is visible from the outside, where all you see is the smooth, sinuous, double curvature, three-dimensional shapes.

The BMW sculpture of three interlocking crescents was constructed in 12 pieces, using 77 tonnes of steel, connected together at two critical and vital junctions. Each crescent is made of three steel plates welded together to form a triangular spike, varying in curve and dimension, with internal baffles and triangular stiffeners. Due to the large size of sculpture and transport restrictions, the design had to allow for fabrication in deliverable pieces of absolute precise geometry, so that all segments could be welded back together accurately on site. Existing ground restrictions in front of Goodwood House meant a small base grillage was designed to sit underneath the sculpture's narrow base-plate, buried just below ground level, to cater for lateral stability in wind. ■



Fig. 11 – Smooth sinuous 3D curved arm in fabrication

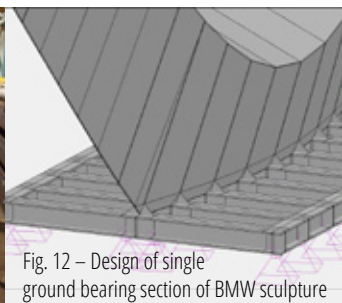


Fig. 12 – Design of single ground bearing section of BMW sculpture



Fig. 13 – Fabrication



Fig. 14 – On-site erection



Fig. 15 – On-site erection



Fig. 16 – Goodwood

All images courtesy and permission of Goodwood Estate and Mr. Gerry Judah

# The new 2015 ICC dispute board rules

**DAVID BROWN – PARTNER, CLYDE & CO, PARIS TOGETHER WITH A DIRECTOR AT DRIVER TRETT, UK INTRODUCE SOME INTERESTING CHANGES IN THE NEW INTERNATIONAL CHAMBER OF COMMERCE (ICC) DISPUTE BOARD RULES. PUBLISHED IN 2015 AS A FOLLOW UP TO THE ORIGINAL RULES FROM 2004, BOTH SERVED ON A TASK FORCE ASSISTING THE DRAFTING COMMITTEE.**

Dispute board (DB) members might be said to be in a unique position. They find themselves in between mediators and conciliators on the one hand, and binding dispute resolvers such as arbitrators on the other. As their name suggests, they are there to decide disputes, but is this all they should do? One of the most interesting considerations with respect to any set of DB rules, is the extent to which they empower DBs to assist parties with potential or actual disputes in other ways.

In the 2004 edition of the rules, the ICC already put forward ground-breaking provisions for a DB to provide various types of informal assistance to parties with their disagreements. The latest edition retains these provisions, but also contains an entirely new provision at Article 16. This empowers the DB to intervene if it considers there to be potential disagreements between the parties.

Thus, the DB may raise the matter with the parties and encourage them to avoid a disagreement, help them define the potential disagreement, or suggest a procedure that they might follow, including informal assistance from the DB.

This dispute avoidance initiative is also to be found in a significant modification with respect to what the term 'disagreement' actually means. Does it encompass disputes? Yes, according to the definition of disputes in the first edition of the rules. The new edition provides differently, since it defines a 'disagreement' as a difference between the parties that has not yet become a dispute and is not capable,



therefore, of being referred as such to a DB.

In our view, what the ICC seems to be doing is recognising the attitude of many active DB members, who see their role as primarily one of enabling parties to avoid formal dispute resolution whether at DB level or in a later arbitration.

The new ICC rules go much further than the well-known FIDIC DB rules when it

comes to facilitating dispute avoidance. It will be interesting to see how far the next editions of the FIDIC forms of contract will follow in the ICC's footsteps!

Despite the increased level of assistance that DBs can offer to assist parties in dispute avoidance and prevention should a dispute crystallise, the DB now has the power, pursuant to an addition to Article 15, to provide provisional relief in the

form of interim or conservatory measures.

This brings the new ICC rules in line with the FIDIC DB rules, which have always given the DB such powers under the procedural rules annexed to the FIDIC General Conditions of Dispute Adjudication Agreement.

This new power also harmonises its DB rules with the ICC's Arbitration Rules, which permits such measures to be given

by its arbitral tribunals.

Now allowing DBs to decide upon provisional relief, should aid the process of enforceability of their 'conclusions' (see below), which have been the subject of hot debate in recent times.

This leads us nicely on to another interesting development in the new rules; that of terminology. The ICC has decided to rename some of the titles given to important elements of the rules.

One of the most noticeable renamings has been that of the DB's 'determination', under the old rules, to 'conclusion' in its new rules. The reason for the DB to now give a 'conclusion' as opposed to a 'determination', is apparently to avoid the mix-up between the DB's determination and the engineer's under the FIDIC Conditions of Contract, as FIDIC's endorsement of DBs led to boards becoming more common under FIDIC contracts and the inevitable confusion of determinations as a result.

Regardless of whether the term 'conclusion' is best suited to the decision of the

DB or not, this source of potential confusion has now been addressed.

Any discussion of modifications to commercial dispute resolution rules would be incomplete without a word or two about fees. First, a useful modification is the addition of a provision making it clear how to proceed in the event that the parties and DB members have difficulty agreeing upon the latter's fees. The solution provided is sensible, namely that the ICC International Centre for Alternative Dispute Resolution (ADR) will resolve the matter with a decision that binds the parties.

The new edition of the rules also seeks to address what has been perceived by many to be a drawback with standing DBs, namely that DBs appointed at the outset of a project may have little to do until a dispute arises, but nevertheless receive a relatively substantial 'retainer' fee for being on stand-by. It is thought that numerous potential users of DBs have been put off by what they consider to be the prospect of having to pay DBs for little

One of the most notable re-namings is from the old 'determination' to the new 'conclusion'.

or nothing unless or until a dispute arises.

The ICC has decided to retain the principle of a fee during this period when the DB may not be required to be particularly active. However, they have renamed it as a management fee instead of a retainer fee, representing the other significant renaming carried out within the new rules.

They have sought to underline the fact that the fee remunerates work carried out by the DB, particularly steps taken to familiarise itself with the contract documents and progress of its performance – in other words, it should not be seen as a standby fee, but one where the DB becomes, and remains, cognizant of the events, proceedings, and progress of the project on which it is managing dispute prevention, avoidance, and resolution.

The new 2015 ICC Dispute Board Rules have followed an evolutive path, seeking to be more in tune with the continually evolving contractual landscape of the modern day, international construction industry. ■

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- Provide technical evidence in dispute resolution fora

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# Disruption and cumulative impact

**JOHN MULLEN – DIALES PRINCIPAL, PROVIDES AN INTRODUCTION TO THE THREADS OF DISRUPTION AND CUMULATIVE IMPACT AND OUTLINES THEIR USE IN ASSESSING CONTRACT CLAIMS.**

Change, under construction contracts, can be in many forms. These include changes to the scope and nature of the physical work, or to the circumstances under which those works are carried out. Changes to scope are usually addressed as a 'variation' or 'change', with the assessment of the financial consequences subject of a specific provision of the contract. Some changes in the circumstances of works can be part of the definition of 'variation' and financially assessed there (for example in clause 5.1.2 of the JCT's Standard Building Contract with Quantities 2011). Alternatively, change might be assessed under a specific provision dealing with the event (for example FIDIC Red Book's clause 2.1, provision for late access to parts of the site). A further alternative might be a claim in damages for breach of contract or under some term implied under the applicable local law. Whatever the legal basis of a claim for change in circumstances, the challenge for quantity surveyors is to quantify the financial effects, according to the provisions of the contract and the law, and to satisfy the burden of proof.

Particularly problematical causes of changes in circumstances giving rise to grounds for a claim include:

- Widespread late provision, by the employer, of such information or site access as to allow the works to be constructed.
- Variations to scope such as their timing, extent, or frequency that give rise to a

wider effect on the circumstances of work.

The direct effects of such events can usually be isolated and quantified against an individual event. This can usually also include any direct disruption. However, what about the indirect effects? For example:

- Where access to the route of a linear project, such as a highway or railway, is divided into a very large number of individual parcels that are provided endemically late, creating ongoing uncertainty as to when works will actually be constructed.
- Where there are a great many individual instructed changes to the design of a project, at times creating ongoing uncertainty as to what works will actually be constructed.

Whilst the direct effect of an instance of late handover of land, or the issuing of a variation, might be capable of due notice and particulars as required by the contract; what about the indirect effects on other parts, or the whole of the works, of lots of such changes? These are likely to become apparent much later, when harder to quantify and more controversial.

The indirect effect of change on the wider scope of construction works is often referred to by terms such as 'ripple' and 'cumulative impact'. Whilst very few people would argue that these do not exist where there is a substantial amount of repeat change, the concepts and asso-

ciated terms tend to be controversial. Furthermore, they are extremely hard to quantify and the greater the degree of change, the more difficult quantification is likely to become. Faced with the difficulty of quantification caused by the extent of employer failures, a contractor may complain that the employer is seeking to benefit from the extent of its own failures.

There are a number of potential approaches adopted in the quantification of the cumulative impact of change, including the following:

- Measured Mile Analyses - However, these rely on there being a 'measured mile' against which areas, periods, or activities, that are said to have been affected, can be compared to. Where 'cumulative impact' is being asserted it is often the case that unaffected comparators do not exist.
- Earned Value Analyses - But, these may also suffer from the lack of 'control' areas, periods, or activities that have been unaffected.
- System Dynamics Modelling - Where a computer model of the project is created based on the key characteristics that drive its performance, such that the claimed changes to those characteristics can be input to isolate their effects.
- Industry studies of the effects of similarly imposed circumstances on other projects.

Much has been written about measured

mile and earned value analyses, but what of 'system dynamics modelling' and industry studies?

A general criticism of all statistical, or computer based, approaches to the valuation of the effects of change involves the term 'garbage in garbage out'. This is particularly so in relation to system dynamics modelling, where the creating of the model and the characteristics on which it is based are essential inputs. The respondent to a claim on this basis, or a tribunal being asked to rely upon it, must be able to understand and check the assumptions made. Effectively, does the model represent what would have occurred had the events complained of not happened, such that imputing those events accurately identifies their effects? In practice this can be very difficult to test and agree. Furthermore, the accuracy of the resulting effect will depend on the accuracy of the events impacted into the model. Inevitably, such models are very complex to create and to impact. Problems particularly arise where changes are required to what is impacted, for example because a tribunal determines that some 'variations' are not claimable. This will mean re-running the model, perhaps a number of times. Due re-interrogation, this can be time consuming and expensive both to do and to allow. The later in a dispute resolution process this is required, the less practicable it becomes.

Industry studies based on previous projects can suffer from similar accusations of 'garbage in garbage out', the difficulties of testing the study for its accuracy, and the practicalities of changing the analysis for different events. Broadly, there are two types:

- Studies of the effects of specific causes

A general criticism of all statistical or computer based approaches... involves the term 'garbage in garbage out'.



of lost productivity, such as overtime working, overmanning, stacking of trades, reduced supervision ratios, increases in work scope, learning curves, and climatic changes, etc.

- Specific studies of the cumulative impact of changes. These tend to be limited to increase in the scope of work and its effect on productivity on all work, whether changed or not.

Those defending claims made on the basis of such studies raise a number of criticisms, including the following:

1. The relevance and similarity of the previous projects in the study to the current project.
2. That such models do not allow interrogation of the details of the previous projects to test their more detailed characteristics and similarity to the project subject of the claim.
3. That the models consider events but not their timing. For example, statistics on the effects of change in work scope

usually apply the overall percentage of change in such as total labour hours. However, in practice, the effect of variations depends, not only on their overall extent, but also their number and timing. A major change to a specification or drawing instructed very early in a project might only affect the contractor's early design and procurement, but have no consequence on construction outputs at all. On the other hand, a small change to the alignment of a road after it has been started could have a significant disruptive effect if resources have been relocated to work elsewhere.

4. The extent of change also involves their numbers. A single large variation, that results in a significant increase of the scope of work to a project, is likely to have rather less 'ripple' effect than dozens of variations of much smaller individual size.
5. That the resulting quantification may be no more than a global claim, with all

the usual criticisms of such claims.

6. That models based on percentage of change in scope of work depend on the accuracy of both the asserted original scope and the scope of change. These elements of the equation can be subject to significant challenge and that may require re-running of the calculations that rely on them.
7. That such studies tend to be of the overall change and the effects on a project as a whole. Thus, such studies may be inappropriate to assess productivity loss on part of a project.

Those touting models and programmes for the quantification of cumulative impact assert that they have been applied successfully, without expressly quoting from legal authorities for their use. Much of the support for the approach is based in the United States, and some observers wonder if their use of juries to try commercial matters lends such approaches a better chance of success than the rigours

of a Technology and Construction Court (TCC) trial in London or an International Chamber of Commerce (ICC) arbitration might. The known outcome of one use of a computer model, for calculating cumulative impact in international arbitration in Europe, was summed up by the claimant contractor's commercial director with the observation, "a fat lot of good that did us".

It continues to be the case that disruption quantification is a difficult area. Cumulative impact is probably its most controversial element. However, disruption caused by multiple breaches by a party needs to be quantified. Future articles will discuss how this might be achieved.

This paper is a broad introduction to this subject and will be greatly expanded and detailed in the forthcoming third edition of the book, *Evaluating Contract Claims* by R Peter Davison and John Mullen. In the meantime, John Mullen would welcome any feedback on the topic – [john.mullen@diales.com](mailto:john.mullen@diales.com) ■

# Records, Records, Records

## The growth of large volumes of electronic records

**DAVID PALENTINE – OPERATIONAL DIRECTOR, DRIVER TRETT, UK EXPLORES THE IMPORTANCE OF GOOD RECORD KEEPING, ALONGSIDE THE INCREASING USE AND BENEFITS OF TECHNOLOGY FOR RECORD STORAGE, RETRIEVAL, AND INTERROGATION IN DISPUTES, ARBITRATION, AND LITIGATION.**

On construction projects we are frequently advised to prepare records, records, and more records – often referred to as Max Abrahamson’s mantra<sup>1</sup>. These could include records prescribed by the terms and conditions of the contract, for example, early warning notices, applications for payment, or a notice of a party’s intention to refer a dispute to adjudication. They can also include allocation sheets, diaries, programmes, site measurements, photographs, as-built drawings, videos, etc.

Often we are asked, “why do we need to prepare records?”. Typically, records are required to notify a party of an event, or likely event, that they need to be aware of and address. Other records are required so that a delay analysis, or a 4D model, can be produced (the 3D model overlaid with an as-planned and as-built programme) and a report prepared to demonstrate an entitlement to an extension of time. Other records are required to substantiate claims for loss and expense, to support a valuation of a variation, or an assessment of a compensation event. Similarly, the same records are required to defend a claim or to support an alternative assessment. They are also required if these claims, assessments, etc. are disputed and are referred to arbitration or litigation. In these circumstances the parties will need to provide certain records as part of the disclosure process.

In the past, records were often prepared by hand, or on typewriters, prior to being



sent out by post or circulated internally in an internal post envelope, with a copy kept in the central filing cabinets. These days, many records are produced electronically by using different types of software packages and devices including computers, tablets, and smart phones. These documents are then circulated at the touch of a button by email or via the internet, with a copy held on a server or in ‘the cloud’. Documents that are received as a hard copy are often scanned and saved onto servers, to minimise the need for physical storage cabinets and archives or to create paper free offices. Either way, be it hard copy or electronic, it is not uncommon to see increasing volumes of different types and quality of records being produced, issued, and used on construction projects.

As the volume of records have increased, so has the need to create and store records that can be easily and quickly accessed, used, shared, and searched. As a result of this, the use of document management systems and trial management systems are becoming more

common. In the event that any matter is referred to litigation or arbitration, you will find that practice directions and protocols have been prepared, and electronic disclosure systems have been designed, for managing the disclosure of electronic documents (e-disclosure).

### Disclosure of electronic documents

Due to the advent of electronic documents and electronically stored information, some courts are now providing practice directions for disclosing electronic documents. This includes Practice Direction Part 31B – ‘Disclosure of Electronic Documents’ of the Civil Procedure Rules which are used in civil cases (including construction disputes) in England and Wales. According to clause 5(3) of the practice direction, ‘Electronic Documents’ are defined as ‘any document held in electronic form’. This includes email, text messages, voicemail, word processed documents and databases, and documents stored on portable devices such as memory sticks, mobile

phones, etc. It includes documents that are stored on servers and back-up systems and documents that have been deleted. It also includes meta-data (the date the file was created, etc.) and other embedded data which is not typically visible on screen or a print out.

The practice direction requires the parties to discuss the disclosure of electronic documents at an early stage in all cases which are (or are likely to be) allocated to the multi-track, i.e. claims over £25,000. These discussions will include the need to preserve documents, the scope of the search for electronic documents, the format in which they will be provided to the other side for inspection, and where required questionnaires will be completed.

To assist the parties and their representatives in this process various protocols have been prepared including the Technology and Construction Solicitors’ Association (TeCSA), the Society of Construction Law (SCL), and the Technology and Construction Bar Association (TECBA)



e-disclosure protocol which is supported by the judges of the Technology and Construction Court (TCC).

## Electronic disclosure systems

These systems and software packages tend to follow the electronic discovery reference model (EDRM) which is a process of identifying, preserving, collecting, processing, reviewing, and producing the electronic documents. They have been designed to:

- Handle mass volumes of electronic documents and data that have been distributed to various people and stored on different types of hardware or equipment in numerous locations.
- Collect electronic documents without causing the meta-data such as the creation, modified, or last access dates to be changed.
- Strip out duplication and email threads.
- Reduce the volume of data that needs to be reviewed for relevance and privilege.
- Provide an efficient and economic way of managing disclosure which helps to achieve the overriding objective set out in Part 1 of the Civil Procedure Rules, namely to enable the court to deal with cases justly and at proportionate cost.
- Provide predictive coding tools, which is an automated way of scanning data for clusters of words and phrases and scoring them for relevance to the issues in the case (traditionally a very time consuming and expensive exercise that lawyers would do by reviewing one document after another until all the records had been reviewed).

As predictive coding is relatively new, it was considered by the judge, Master Matthews, in February 2016, in the case of *Pyrrho Investments Limited and MWB Business Exchange Limited* [2016] EWHC 256 (Ch). This was a multi-million pound dispute where there were some 17.6 million documents to be considered as part of the disclosure process. Following a process of electronic de-duplication, the number was then reduced to some 3.1 million documents. Nevertheless, these had to be reviewed for relevance and possible disclosure. After considering the cost benefit of using predictive coding software, and the experience gained in other jurisdictions, Master Matthews approved the use of predictive coding in this case. In the judgment, Master Matthews listed ten factors in favour of approving the use of predictive coding software in the disclosure process and none against. Those factors in favour included:

1. There is no evidence to show that the use of predictive coding software leads to a less accurate disclosure being given than, say, manual review alone or keyword searches and manual review combined.
2. There will be a greater consistency in using the computer to apply the approach of a senior lawyer towards the initial sample (as refined) to the whole document set, than in using dozens, perhaps hundreds, of lower-grade fee-earners, each seeking independently to apply the relevant criteria in relation to individual documents.
3. The number of electronic documents

which must be considered for relevance and possible disclosure in the present case is huge.

4. The cost of manually searching these documents would be enormous.
5. The cost of using predictive coding software would be less expensive.
6. The value of the claims in this litigation is in the tens of millions of pounds and therefore the estimated cost of using the software is proportionate.

In this judgment, Master Matthews referred to the US Federal Case of *Moore v Publicis Groupe*, 11 Civ 1279 (ALC) (AJP), where the magistrate judge in that case described the use of predictive coding as, "...relatively easy..." whilst noting it may not be appropriate for all cases. Therefore, at this time it will probably be used for large cases where the quantity of data is huge. However, as with all such developments, it may not be long before this becomes standard, given Master Matthews' view at bullet point two above.

## Record Management Generally

As the number of electronic records grow, the need to manage them in an efficient, effective, and cost proportionate manner becomes even more important. Failure to do so can result in parties spending unnecessary time and money due to wasted effort in:

- Locating key evidence buried in endless chains of emails.
- Locating evidence that cannot be found due to, for example, staff leaving.
- Filling in gaps in evidence due to elec-

## WHAT IS A DOCUMENT MANAGEMENT SYSTEM?

In summary, a document management system is an electronic filing cabinet that allows you to organise and securely store electronic documents and scans of paper documents. These can be searched by using sophisticated character recognition search engines. They can be server or cloud based and have various functions that allow the access to certain documents to be restricted; it monitors who and when documents are viewed, tracks edits being made to documents, and controls and regulates when out-of-date documents can be deleted. In essence these systems and electronic platforms are designed to assist organisations to manage the creation and flow of documents through the provision of a centralised repository.

tronic records being lost as a result of lap-tops being stolen or poor, or non-existent, back-up systems.

- Working out which version of an electronic document was actually sent following numerous revisions and edits.
- Gaining access to portals containing shared folders where the owner has subsequently denied you access, etc.

Furthermore, poor record management can, as it has been found in the past, detrimentally weaken your chances to demonstrate an entitlement or defend a claim.

As the construction industry continues to see the volume of electronic records increase, and changes to the way we produce, store, and share records; it is humbly suggested that the importance for good records, good records, and more good records will become even greater. ■

<sup>1</sup> "A party to a dispute, particularly if there is an arbitration will learn three lessons (often too late) the importance of records, the importance of records and the importance of records". Max Abrahamson in his book *Engineering Law and The ICE Contract*.

## WHY USE A TRIAL MANAGEMENT SYSTEM?

Trial management systems also exist that allow large volumes of documents to be accessed, managed, and used during trials. For example, in the case between *Berezovsky v Abramovich* [2012] EWHC 2463 (Comm), a decision was taken to use a cloud based trial management system, instead of preparing a trial bundle for the litigation that ran to some 280 A4 volumes of paper. This allowed Mrs Justice Gloster,

in the Commercial Court, to effectively conduct a paperless trial within the allotted timetable and with the maximum efficiency, as stated at paragraph 94 of the executive summary of the judgment:

"...Perhaps most importantly, the extensive documentation was presented in a highly organised and easily accessible web-based electronic format, with the

result that, apart from reliance, to a limited extent, on hardcopy versions of the written arguments, and the expert statements, I was able to conduct what, at least so far as I was concerned, was a paperless trial. There can be no doubt that this enabled the trial to be concluded within the allotted timetable, and with the maximum efficiency..."

# Aristotle and the acrobats

## The need for a diverse team

**ALASDAIR SNADDEN – COUNTRY MANAGER, DRIVER TRETT, SINGAPORE  
EXPLORES THE NEED FOR DIVERSITY IN CONSTRUCTION AND THE STRENGTH  
OF A TEAM OVER THAT OF DISPARATE INDIVIDUALS.**

Looking at how the construction industry tries to positively evolve can be fascinating. Previously, I explored tangible changes in methodology, such as use of building information modelling (BIM) or more modular forms of construction (Driver Trett Digest, Issue 3, June 2013). But what about our future personnel requirements; how should these advance?

Clearly, working together in various types of team has been, and is always going to be, necessary. Be it pre-contract, post-contract, or handling claims and disputes there is an inevitability that, without working closely with others, nothing is achieved.

Cooperation is paramount. It is ever more crucial that we draw from varying backgrounds, demographics, gender, heritage, and race to ensure our industry advances.

### **Guidance from Aristotle – what makes a good team?**

Perhaps one of the most famous, poignant, and often quoted extracts taken from Aristotle is, “the whole is greater [more] than the sum of its parts”. A lateral interpretation of this, relating to teams, could be that, regardless an individual’s capabilities, it is

how people work together (as the whole) that ultimately leads to the greatest return.

Notwithstanding this, there is a more literal point not to be overlooked. That is, the larger the sum of the parts, the better chance the whole has of being even greater.

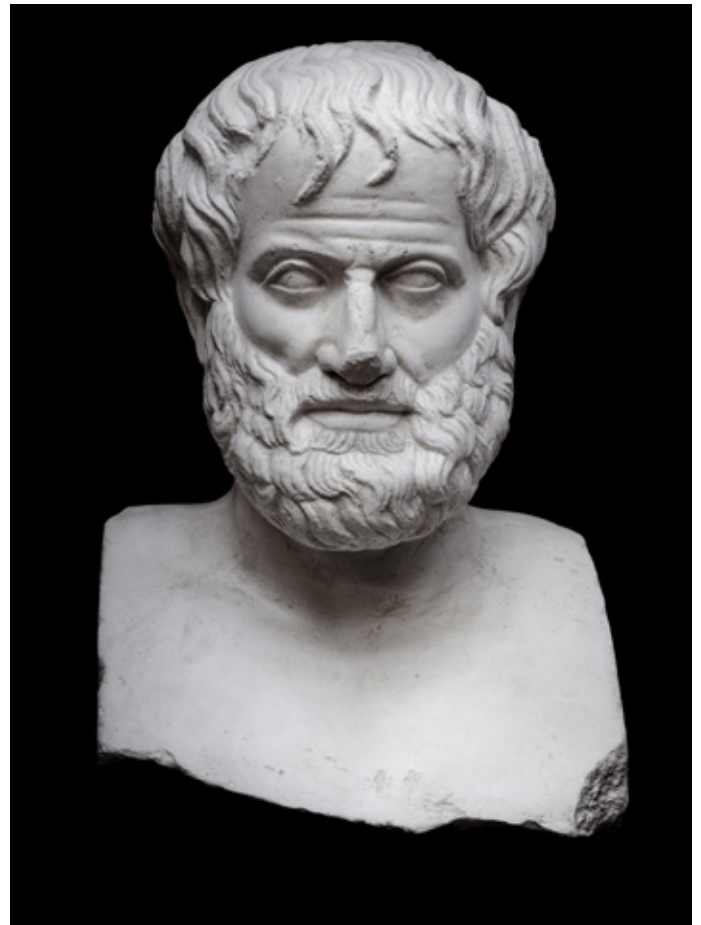
To illustrate numerically, if we had two constituent parts each with a value of one, a total sum (or the whole) equalling three or more would be good, as it is greater i.e.  $1 + 1 = 3$ . But perhaps harder to achieve than getting five parts to equal six.

Logically, it would make sense to ensure that our team members are of the best abilities and are able to interact effectively (i.e. communicate), this can then translate more easily to provide a team of even greater value.

### **Finding the greatest sum – getting the best from a diverse team**

As I have used numbers to emphasise my point about Aristotle, there is temptation to look at empirical data or studies to quantify and justify the effects that diversity has in creating the best team.

Although there are an abundance of studies and authorities to demonstrate the benefits of diversity, there is a fundamental and common sense issue beyond



the need for any data interpretation. That is, if you expand your reach to include and consider as many different people as possible, the net effect is that you create the greatest probability of finding the required skills, when compared to depending on a small group of people. Thus, giving the team a better chance to succeed.

The arts often prove useful in demonstrating how well diversity works, with Cirque du Soleil proving an eclectic example of success. A phenomenon, attracting audiences worldwide with spectacular shows; Cirque du Soleil showcases the ‘individuals’ performances that have propelled it to become a global success. Whilst individually spectacular, the combination of these great acts, in one show, certainly surpasses anything the performances could do in isolation from each other. Perhaps illustrating Aristotle’s point at its finest.

When in Singapore, a director of Cirque du Soleil gave a television inter-

view. When asked if they simply replace an injured or ill artist with a similar act, the response was a firm no! It was explained that Cirque du Soleil search globally to find their performers, and that the acts are so unique and complex that it would be impossible to readily replace them. Instead, when the need arises, they look to introduce new acts that can be seen as exceptional in their own right, even though they might not resemble, in the slightest, the one replaced.

What this illustrates is that if you only choose from a limited pool, you restrict your chances of finding a special talent for the team. Indeed, looking for a person with the specific characteristics of another could be a misguided and unrewarding task. Certainly, had Cirque du Soleil limited their search to a certain type of act, it’s unlikely that its world renowned reputation would be what it is today. You can also waste time looking for what you want, whilst ignoring the talent that is out there.



## Is more diversity necessary in the Construction Industry?

Yes, the need to drive diversity forward is evident. Notwithstanding initiatives, be they legislative or not, construction in its various guises has been over-flowing with a lack of diversity throughout its history. For example, in shipbuilding, a long standing superstition held that no woman should board a vessel under construction. It was considered bad luck and people believed the vessel would be destined to sink. In Australia, it was only in the late 1980s that legislation was changed to allow women to enter a mine.

As well as clearly being unjust, limiting the talent pool in such ways seems the archetypal way of 'shooting oneself in the foot', particularly when so many construction challenges are far from conquered.

Take the example of resolving construction disputes through arbitration. The proceedings involve numerous parties, from representatives of the claimant and the respondent including lawyers,

barristers, factual witnesses, and expert witnesses; altogether delivering a cacophony of information and opinion to represent the case to either a panel or singular arbitrator. The arbitrator must then provide the award. In essence, all these parties need to do their part, as a collective team, to ensure a conclusion is found to the dispute in hand.

Unfortunately, in many instances, this process proves unsatisfactory to its parties and practitioners. Even though arbitration was supposed to be quicker and cheaper

...if you only choose from a limited pool, you restrict your chances of finding a special talent for the team.

than litigation, its reputation is quite the opposite. For example, parties and their representatives are often left frustrated by the length of time it takes for an award to be given, if given at all. In fact, the recently enacted Arbitration and Conciliation Act 1996, in India, placed a maximum 18-month time limit on the arbitrator to issue an award, to try and overcome this issue.

This illustrates that it is unlikely that consistently relying on limited resources, and failing methods, will deliver more efficient solutions to these problems (in fact didn't Albert Einstein say the definition of insanity was, "doing the same thing over and over again and expecting different results"?). Emphasis must be placed on making sure that the net is cast widely in the search for talent and that the pool must be as wide as possible, in order for the best people, with the most appropriate capacity and capabilities, to be made available to handle the difficult challenges ahead.

## How can we ensure a diverse team is found?

Ideally diversity would happen organically. However, in reality it is likely to require a more pro-active and overt approach.

It must be remembered that the construction industry has historically faced a lack of diversity. The effects of which are profound. For example, Arbitral Women (an international body who promote and enhance the involvement of women in international dispute resolution <http://www.arbitralwomen.org/>) identified how unconscious biases exist. This can go as far as being neurologically rooted and our actions can prejudice, or fail to consider people, subconsciously.

This being the case, it seems only logical to make sure established processes and practices are put in place to overcome this and encourage diversity. For arbitration, Arbitral Women has been at the forefront of a pioneering 'equal representation in arbitration pledge'. This is being supported by institutions, individuals, governing bodies, and committees working within arbitration to ensure they take clear steps, which make sure women are being considered as arbitrators. Having such implicit requirements appears to be crucial, if we are to take full advantage of what diversity will bring to the team.

## My inspiration for the cause of diversity

When I first joined Driver Trett in Singapore, only one of our consultants was not a British-white-male (or as the media like to call them 'male, stale, and pale'). Since then, the team has evolved to deliver a wider age demographic (20s-60s), improved gender balance, and a wide range of nationalities including those with an English, Chinese, Indonesian, Irish, Malaysian, Portuguese, Scottish, Singaporean, and South African background. Unquestionably, this diverse team, with their various skills and abilities, have grown in to a stronger team, able to deliver and exceed our clients' expectations and build a reputation to match.

I have no doubt that diversity will be at the heart of our future successes. ■



# How safe are you from fire?

STUART MACDOUGALD-DENTON – DIALES TECHNICAL EXPERT, EXPLORES THE IMPACT OF FIRE PROTECTION AND ESCAPE ON CONSTRUCTION PROJECTS AND THE REGULATIONS IN PLACE TO ENFORCE FIRE SAFETY.



## Safety of the building you are in

Fire safety is a critical aspect of building design. Its intention is to protect people first rather than property. In this article I set out a brief reminder of the basics of fire safety in building design and construction.

Large buildings in single occupancy, most buildings with areas in different usages, and all buildings in multiple occupancy, are divided into fire compartments. Each fire compartment is required to be separated from the next by walls and floors which provide appropriate levels of fire separation. It follows that staircases, atria, ducts and the like, which pass through the fire compartments, also need to be enclosed with walls to provide the same level of fire protection. Additionally, some rooms within buildings are required to have fire separating walls between them. Corridors, lobbies, and staircases that form part of a fire escape route also need to be protected from the spread of fire.

In the UK, the level of fire separation required, measured by the time that a fire can be contained between compart-

ments i.e. 30mins, 1hr, 90mins, 2hr, etc., is governed by the building regulations. Similar regulations exist in most other parts of the world and there are also other regulatory standards that apply to the control of the spread of fires in underground structures, processing plant facilities, etc.

Fires rarely spread rapidly if the fire separating walls and floors are properly designed and constructed. However, all too often I see fire walls and floors that are incomplete, inadequately constructed, and where both are penetrated by building services without adequate steps being taken to maintain the required level of fire separation.

## Escape during construction

In the UK, the Health and Safety at Work Act, the Regulatory Reform (Fire Safety) Order Regulations, and the Construction (Design and Management) Regulations, all place duties on the main or principal contractor to take fire precautions that will ensure the safety of any of his employees, third parties, and the public, and that the

premises are safe. Similar fire regulations apply in many other countries worldwide.

The regulations do not simply require that fire is prevented, but that the risks from fire are also prevented. In practice, this means that it is not enough to simply prevent fire from happening, by minimising combustible materials and sources of ignition, but that necessary fire precautions also have to be in place 'in the event of a fire'.

Guidance on the fire precautions that need to be implemented to protect the project-under-construction 'in the event of a fire' are set out in the Health and Safety Executive's Guidance Note 169 (HSE GN168). This guidance note is divided into three parts:

**Part 1** Fire risk assessment.

**Part 2** Detailed guidance on fire risk assessment and fire precautions.

**Part 3** Legal and enforcement responsibilities.

Once a project reaches the stage where areas are enclosed, maximum escape distances have to be complied with. This

may mean installing temporary, sacrificial fire doors ahead of the permanent ones, or even temporary compartment walls.

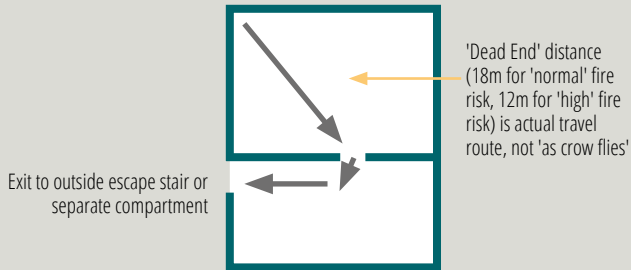
It is important to be aware that the building, once completed, may incorporate sprinklers or smoke extraction which allows escape distances to be increased. However, no fire engineered solutions will be available during construction, so even more elaborate temporary measures might have to be employed, such as temporary escape staircases.

Also, if at any time the sequence of works results in a staircase or other escape route becoming obstructed, such as by scaffolding erected for painting, then either a new temporary staircase or site working area restrictions may have to be put in place.

The diagrams on P.25 illustrate some of the HSE GN168 recommendations for maximum escape distances during construction. ■

**Further aspects of this topic can be explored in our Digest Bytes series, see P.29 for further details.**

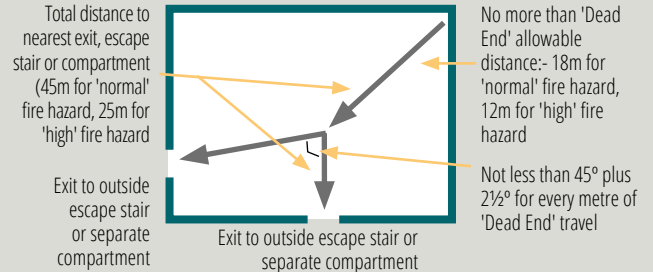
**FIG. 01: SINGLE MEANS OF ESCAPE – 'DEAD END'**



Maximum Travel Distances (Table 1, from HSE GN168)	Fire Hazard		
	Low	Normal	High
Enclosed Structures:			
Alternative Escapes	60m	45m	25m
Dead End	18m	18m	12m
Semi-Open Structures:			
Alternative Escapes	200m	100m	60m
Dead End	25m	18m	12m



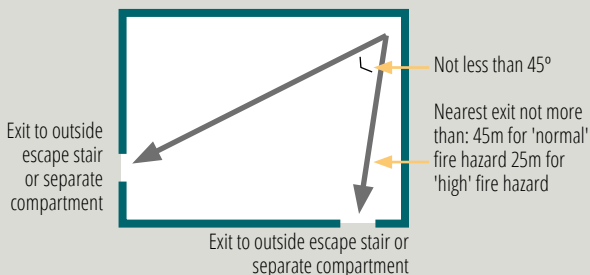
**FIG. 04: TWO 'ALTERNATIVE' (CLOSE TOGETHER) MEANS OF ESCAPE**



Maximum Travel Distances (Table 1, from HSE GN168)	Fire Hazard		
	Low	Normal	High
Enclosed Structures:			
Alternative Escapes	60m	45m	25m
Dead End	18m	18m	12m
Semi-Open Structures:			
Alternative Escapes	200m	100m	60m
Dead End	25m	18m	12m



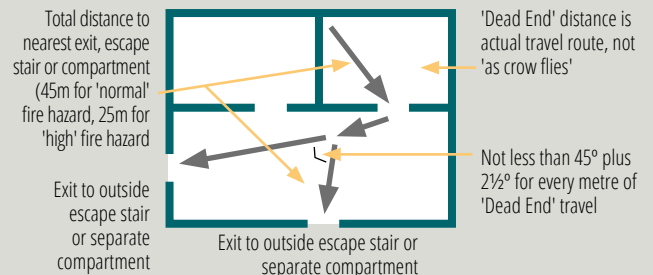
**FIG. 02: TWO 'ALTERNATIVE' MEANS OF ESCAPE**



Maximum Travel Distances (Table 1, from HSE GN168)	Fire Hazard		
	Low	Normal	High
Enclosed Structures:			
Alternative Escapes	60m	45m	25m
Dead End	18m	18m	12m
Semi-Open Structures:			
Alternative Escapes	200m	100m	60m
Dead End	25m	18m	12m



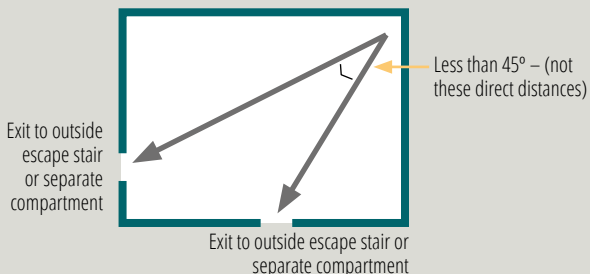
**FIG. 05: ESCAPE ROUTES WHEN PARTITIONS CONSTRUCTED**



Maximum Travel Distances (Table 1, from HSE GN168)	Fire Hazard		
	Low	Normal	High
Enclosed Structures:			
Alternative Escapes	60m	45m	25m
Dead End	18m	18m	12m
Semi-Open Structures:			
Alternative Escapes	200m	100m	60m
Dead End	25m	18m	12m



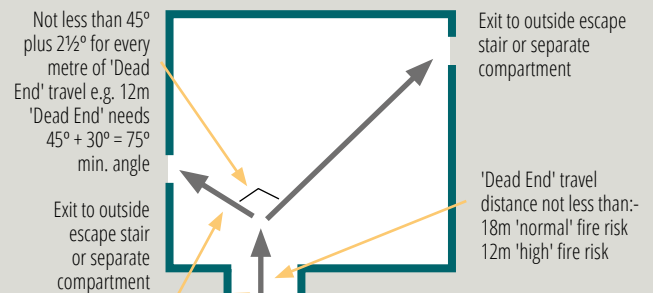
**FIG. 03: TWO 'ALTERNATIVE' (CLOSE TOGETHER) MEANS OF ESCAPE**



Maximum Travel Distances (Table 1, from HSE GN168)	Fire Hazard		
	Low	Normal	High
Enclosed Structures:			
Alternative Escapes	60m	45m	25m
Dead End	18m	18m	12m
Semi-Open Structures:			
Alternative Escapes	200m	100m	60m
Dead End	25m	18m	12m



**FIG. 06: ANOTHER POTENTIAL 'DEAD END' SITUATION**



Total distance to nearest exit, escape stair or compartment (45m for 'normal' fire hazard, 25m for 'high' fire hazard - e.g. if 'Dead End' is 12m, remaining escape distance not to exceed 13m in 'high' fire risk buildings)



# Curtain walling

## Majestic beginnings to a modern minefield

**BEN CHAMBERLAIN - DIALES TECHNICAL EXPERT, INVESTIGATES THE IDIOSYNCRASIES LEADING TO FAILURE OF CURTAIN WALLING.**

It is important for systems to be correctly specified and tested to ensure they meet the requisite compliance, but without competent workmanship, however well the system has performed in testing, potentially serious and extremely costly defects could arise.

### History

The development of the 'framed building' allowed the external walls of buildings to become more independent, as the requirement for them to be load bearing diminished.

The famous iron framed Crystal Palace [Fig. 1], originally built in Hyde Park, London, in 1851 for the Great Exhibition, is seen as the first 'curtain walled' building. Some say that, from a technical point of view, there is little in common with modern day skyscrapers. I disagree. Indeed, whilst the technology of the modern aluminium systems to control water penetration, thermal gain, and movement have become more sophisticated, the concepts are very similar: the use of floor to ceiling glass, maximising light, no reliance of the façade to support floors, and the use of repetitive large format façade components. Crystal Palace was dismantled and rebuilt in Sydenham, South London.

The birth of Modernism, and the increased use of reinforced concrete and steel frames in construction, encouraged the development of lighter and lighter envelope treatments. The curtain walls were made from steel mullions and the plate glass panels were bonded to the mullions with asbestos or fibreglass modi-

fied compounds. This can be seen at the Bauhaus in Dessau [Fig. 2].

The Secretariat building of the United Nations headquarters, designed by Le Corbusier and Oscar Niemeyer, was completed in 1952 and is widely regarded as the first building in New York City to use curtain walling.

However, Lever House, designed by Gordon Bunshaft on Fifth Avenue, New York, was completed using stainless steel mullion sections later in 1952 and became the first 'sealed' glass building.

During the 1970s, more and more curtain walling was being manufactured using aluminium extrusions. Aluminium can be extruded into nearly any shape required for design and aesthetic purposes. Today custom shapes, depending on quantity, can be economi-



Fig. 2 Glass curtain wall in steel mullions of the Bauhaus, Dessau, Germany

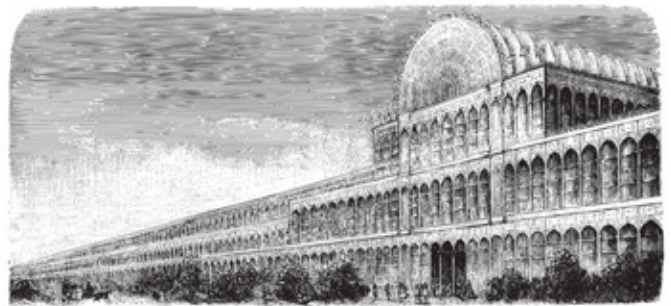


Fig. 1 The Crystal Palace, London.

cally manufactured with relative ease.

Sealing and glass technologies have also improved, and are still improving, minimising any issues related to water or air penetration, thermal gain or movement.

Curtain walling has been at the forefront of architectural design as it allows:

- The building to maximise its internal areas.
- Reduction in cost of the load bearing structure, by reduction in structural depth.
- Maximisation of natural light penetration and the subsequent reduction in running costs.
- Reduction in the construction programme, due to large component sizes and simultaneous trade deployment.

### Main types of failure

As the curtain wall is not load bearing and only requires to support its own weight, its key function is to keep the weather out and to protect the occupiers from the external elements. Water penetration and poor air tightness, through and around the system,

are the key failures of most types of systems.

Thermal forces on the system also create problems with the issue of differential thermal movement and the adequate allowance of movement tolerances. Although rare, this issue can lead to potential catastrophic outcomes with glass and solid cladding panels falling out of the system's framing. The third commonplace problem that leads to failure is the poor integration of fire protection, omitting cavity barriers that close the voids at the slab edge and compartment walls.

### Water penetration

The system as a whole, if specified, designed, tested, and correctly installed, should withstand the specified climatic conditions; and in some parts of the world other natural phenomena, like seismic forces. The edges of the system are the most vulnerable, where they interface with adjacent structures and other trades. This is where the water ingress problems are most likely to materialise.

The issue of water and air penetrating the 'sealed' system is heightened by air pressure differences between the inside



and outside of the building; where air and water are pulled from high pressure (outside) to low pressure (inside). Orientation then has an effect, as one façade will be subject to higher/positive pressures (pushing) than another, depending on wind direction. Eddies develop as the wind moves around the building creating small areas of less high pressure. The leeside (the sheltered elevation of the building) creates low/negative pressures (suction) [Fig. 3].

Water can be 'sucked' through hairline gaps when the air pressure differential is sufficient.

The most common reason for water ingress through the system is via the gasket. This defect would generally be attributed to the curtain wall installer. Proprietary systems will have been subject to intensive testing to ensure that water penetration is mitigated, and only workmanship can be blamed.

However, if the system is bespoke or semi-bespoke (using a proprietary system but altering the aesthetic appearance) there are greater chances of failure of the system, due to poor specification and design, as well as workmanship. Bespoke designs would require rigorous testing to ensure they meet performance specification criteria. A test panel, incorporating the majority of details proposed, should be built at a test facility. Fig. 4 shows the wind testing facility at 'Wintech', a façade testing facility, using an aeroplane engine to generate the positive pressure against the mock-up façade. Water is then sprayed into the airstream and a review and analysis can be made to determine any 'weak' points in the design and how to remedy them.

Although this testing may identify most of the design issues which may lead

to water ingress, it cannot 'catch' them all. There are many examples of leaking curtain walling which had gone through and passed these types of tests. This can be due to different reasons, including climatic circumstances which had not been displayed in the test, details that had not been tested, or poor installation on site. The bespoke system would not have had the benefit of continued improvement over time, as the proprietary system would.

However, the majority of cases that concern defects associated with water ingress are at the edges of the curtain walling system, where it interfaces with other trades. There can be a breakdown in the understanding of which trade is responsible for what sealing. This information must be 'crystal clear' within the performance specification and subcontract packages to ensure complete airtightness. Even with a good level of understanding, this area is still the weak point of the whole system, as the weather membrane (the EPDM [ethylene propylene diene monomer (M-class) rubber]) needs to be bonded to the adjacent material, without any breaches, and this bond must stand the test of time.

Water penetration is by far the most common defect exposed, due to the fact that it manifests itself as areas that show signs of damp. When one starts investigating the concerns related to the water ingress, other defects related to entirely different issues are often found. This is a serious concern, as these otherwise unnoticed issues, if not discovered, could mask major problems that may lead to the failing of the system, including the advancing of fire spread through the building.

## Air tightness

Air tightness and water ingress, through the curtain walling, go hand-in-hand; as if water can find a route in, then air can find even smaller gaps to penetrate. Also, poor air seals impair the pressure equalisation of the system, thereby 'drawing-in' more water.

This issue has a direct relationship with sustaining compliant U-value figures (thermal insulation). Any air ingress into the system, and then behind any internal finishes, will have a negative impact

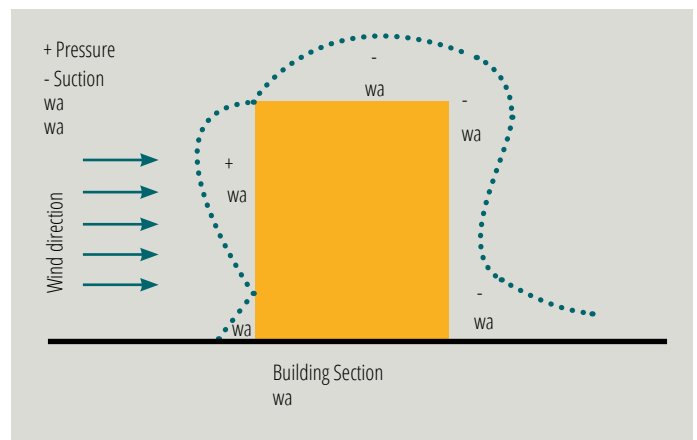


Fig. 3 Positive and negative pressure created by wind on a building



Fig. 4 Prop engine at Wintech façade testing facility

on thermal performance. This in turn increases heat loss/gain increases energy use, and therefore increases running costs.

Air pressure around the buildings, as with water ingress, plays a major factor in the level of air infiltration. High pressure façades will have increased cold air forcing through the fabric of the façade to the inside, where on the leeside the warm internal air is being sucked to the outside. Both scenarios can cause major deficiencies in specified internal thermal requirements.

If the issues related to air tightness have been addressed then any problems related to water penetration would also be solved.

## Breach of fire compartmentation

Curtain walling, forming the external façade, generally does not need to be fire resistant (there are times when it does, these relate to building adjacencies, proximity to escape routes, etc.), although they still require an appropriate level of

detailing to limit fire spread.

The main area of fire protection within curtain walling are the fire cavity barriers. These are usually located at the slab level, or at compartment walls, to close the void between the slab or wall edge and the curtain walling system. As the void is restrictive, the cavity barrier's installation is usually the responsibility of the curtain wall installer.

This type of defect is extremely difficult to discover. When they are discovered in a completed installation, on the whole, defects of this kind are found when investigating other defects with the installation or adjacent elements; or ultimately, in forensic situations after a fire. ■

Further related content can be explored in our Digest Bytes series visit <http://www.driver-group.com/global/knowledge/articles/> and download 'How to minimise defects' or request a PDF copy from [info@drivertrett.com](mailto:info@drivertrett.com)

The development of the 'framed building' allowed the external walls of buildings to become more independent...

# Meet the team in Western Canada

**DRIVER TRETT SET UP THEIR OFFICES IN THE WESTERN REGION OF CANADA AT THE BEGINNING OF 2016. THE DIGEST (DTD) HAD A DISCUSSION WITH ALI FARD (AF) ABOUT THE COMPANY'S PERFORMANCE AND FUTURE PLANS IN THIS REGION.**

**DTD - Can you tell us a little more about you?**

**AF** - My name is Ali Fard. I have been with Driver Trett since the beginning of 2016 as the director of the operations in the Western Region, including British Columbia, Alberta, and Saskatchewan. I have been in the construction consultancy business for over 20 years, primarily providing construction claims management and dispute avoidance services, in various jurisdictions, including Canada, UK, Middle East and Africa.

**DTD - In which Canadian locations are Driver Trett's offices?**

**AF** - We currently have three offices in Canada. Our office in Toronto was set up two years ago by our Vice President Ron Fernandez, who is in charge of the company operations across the country. Our Western Region business, i.e. the Vancouver and Calgary offices, were set up at the beginning of this year when I joined the company.

**DTD - What advantages do you offer to the Western Region market?**

**AF** - The strengths and advantages of a consulting firm are usually defined by its knowledge base and its individuals. Driver Trett has a solid track record in the construction claims business and has been in this market for about 40 years. With numerous offices, and more than 500 experts and claims professionals, Driver Trett is one of the largest, if not the largest, claims practitioner in the world.

Our team in the Western Region consists of a number of first-class consultants with significant local and international experience in this business. Key individuals in the team include:



Ali Fard



Derek Sayers

- Derek Sayers, with over 25 years of experience and a solid track record as a contracts and claims manager for major oil and gas projects, both inside and outside of Canada.

- Samuel Bentil, with extensive experience in the mining industry.

I believe that the level of local and international experience that we bring to the table gives our clients a major benefit



Samuel Bentil

over working with our local competitors.

**DTD - What are the main challenges for you in the market?**

**AF** - There are a number of challenges and opportunities that I can think of. The one I would most like to highlight is that many of our potential clients are not well aware of the value that our services can bring to the table during the negotiation

stage. In most cases, clients come to us when their negotiation efforts have been exhausted and they are looking for experts for the purpose of more formal dispute resolution mechanisms, such as arbitration or litigation. In fact, there is a lot that can be done before the negotiations formally start. Settlement negotiations would be much more effective where the parties have presented their cases with an acceptable level of substantiation and analysis, by preparing and submitting a consolidated claim document or defence. I have seen quite a few cases where the parties have exhausted their negotiations without having spent sufficient time and effort on putting together a presentable and substantiated case. Certainly, we can serve our clients to help them prepare and present their cases more effectively, with the aim to resolve the disputes earlier and in a more efficient manner.

**DTD - How do you see the future of your business in the Western Region and what is your strategy?**

**AF** - We are excited to be in this market at this time. We have found a warm welcome from our potential clients, i.e. law firms, owners, contractors, and subcontractors. There is clearly a need for our services that is not currently being fulfilled. This is exemplified by the fact that, after just a few months in the Western Region, we already have a number of the region's key players in our client portfolio who would be willing to return for more work.

Our strategy is to build up and grow a strong team, and to provide consistent and high-quality services, within arm's reach of our clients.

**DTD - Thank you for your time.**

**AF** - Thank you! ■

### BYTE 1: FIRE SAFETY IN DESIGN AND CONSTRUCTION

Further to his article on P.24 of this Digest, DIALES technical expert, Stuart Macdougald-Denton further elaborates on the key design and construction elements that contribute to fire safety.  
<http://www.driver-group.com/global/knowledge/articles/>



### BYTE 2: HOW TO MINIMISE DEFECTS

Further to his curtain walling article on P.26 of this Digest, DIALES technical expert, Ben Chamberlain outlines some effective approaches to minimise related defects.  
<http://www.driver-group.com/global/knowledge/articles/>



### IN THE NEXT ISSUE

The next issue of the Digest, as always, will be covering all industry sectors and include news and articles from around the globe. Please keep an eye on the website [www.driver-group.com](http://www.driver-group.com) to keep up to date with ad hoc articles, Digest previews, seminars, and training events. The Digest will always aim to be topical, and respond to requests and questions from our readers through the articles we publish. If you would like to submit a question or an article request to the Digest team please email [marketing@drivertrett.com](mailto:marketing@drivertrett.com) with DIGEST in the email subject line. We are always pleased to receive feedback from our readers and welcome the opportunity to develop the Driver Trett Digest into a valuable read for those involved in the global engineering and construction industry.

## WHAT'S NEW WITH DRIVER TRETT

Keep up to date with our latest news and events. For more details of the services and solutions that Driver Trett can deliver, please visit our website [www.drivertrett.com](http://www.drivertrett.com). Regular news and event updates are made to the website so be sure to visit, or follow us on <https://www.linkedin.com/company/driver-trett> to keep up to date with our latest seminars and news.

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