National Construction Contracts and Law Survey

2015

We would like to thank the following organisations for supporting this report by circulating the survey on our behalf:

"Survey respondents, as well as the UK Government, see the value of collaborative working. We found that most people have been involved in some collaborative working, and most prefer working that way."

Richard Waterhouse
CEO, NBS and
RIBA Enterprises

Introduction

I'm pleased to introduce our third NBS report into UK Construction Contracts and Law. We issue this report as the construction industry is in a phase of strong growth, with British construction output in 2014 being stronger than at any time since the 2008 recession. This growth began in the South East, led by the housing sector, and is now moving to all UK regions and to a wider range of sectors.

Although we have issued these reports in different economic climates, the central themes remain consistent: the need for collaboration, the damaging effect of disputes and the often adversarial character of construction. These themes are not new: Egan and Latham clearly described them more than twenty years ago. What is new is the assortment of ways in which, together, we can create, aggregate and analyse construction information. We now have innovative ways to address old problems.

So whilst the report gives us a detailed analysis of a number of important issues for the construction industry, I would like to concentrate my opening remarks on three: disputes, collaboration and BIM.

It is disappointing to see that the number of disputes remains at comparable levels, and that, as a whole, the industry is much more likely to see the number of disputes increasing rather than decreasing. Whilst in the recession this was attributed to a lack of work (and so low-value contracts only being made profitable through disputes), now it is attributed to there being plenty of work. There appears to be no incentive to build relationships across the construction team as there is always another contract to pick up. This suggests that it is not a changing market that causes disputes, but a persistent industry culture.

Collaborative working, where responsibility, risk and reward are proportionately shared and collectively owned, is often a better way to deliver client requirements. It may serve to reduce or even eliminate disputes and the associated costs and disruption. The Olympics demonstrated to the world our ability to collaborate successfully, without an adversarial spirit, to deliver exemplary buildings.

Survey respondents, as well as the UK Government, see the value of collaborative working. We found that most people have been involved in some collaborative working, and most prefer working that way. But nearly two fifths did not work collaboratively, and less than one fifth always did. Even where collaborative working does take place, collaboration itself is often not clearly described; the most common form of collaboration is one of 'an ethos of mutual trust and understanding'.

The good news is that change is coming. By 2016 all government-funded construction projects will require 3D collaborative BIM, irrespective of project size. So collaboration is at the heart of the Government's construction strategy. BIM allows for collaboration to be well described, for it to move beyond a shared project ethos, to a clear description of who is responsible for what, when, and how that responsibility integrates with the responsibilities of others in the construction team. BIM can, does, and will provide increasingly better descriptions of buildings, and the responsibilities for design and construction. The NBS BIM toolkit is one way in which these descriptions can be clearly given, in a standard, sharable format.

The report suggests that the legal framework within which construction takes place will need to evolve to recognise and accommodate the changes BIM brings. Currently only 14% tell us that BIM is fully integrated in contracts.

The 2016 BIM mandate is just the start of the transformation of the industry. While not yet fully defined, Level 3 BIM will be next. Level 3 will mean full collaboration between all disciplines, using a single, shared project environment. As we have seen with Level 2 BIM, those who are early to adopt new working practices are those who see the financial benefit most quickly. So too with Level 3 BIM: those who move to fully digitised, collaborative working that takes place within a fit-for-purpose legal and contractual framework will be at an advantage. Those who maintain a non-collaborative approach, using disputes to gain additional revenue contract by contract, may find the projects of the future closed to them.

Payments in practice: Timing is everything

Jennifer Badham
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withersworldwide

Jennifer Badham

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Payment disputes are commonplace in the construction sector and all too often arise from, or are exacerbated by, the relatively complex payment provisions in the contract. The current statutory payment requirements, as reflected in standard forms and bespoke contracts in use, apparently trip both employers and contractors up. A number of claims have made their way through the Technology and Construction Court in recent months where one party is seeking to rely on the procedural errors of the other party to prove or defend claims for significant sums. Importantly, the courts have confirmed that parties to a contract should follow the terms of the contract to the date and to the letter. There is little room for interpretation.

Due dates for payment

JCT contracts include a mechanism for the parties to calculate the due date under the contract in any given month or, alternatively, if using the JCT Design and Build Contract, the parties are able to agree stage payments, meaning that payment is due on the particular dates listed in the contract. The key objective is to ensure that the contract contains a clear mechanism so that both parties are aware of the contractual due date for payment. While this seems an obvious point, often contradictory or unclear wording inserted into the relevant provision (either by amendment, or in a bespoke agreement) can make the due date difficult to pin down. For example:

"The first date is 2 weeks and thereafter the same date in each month or the nearest Business Day in that month'"

The question here is two weeks from when? The date of the contract, the date when works first commence or another date entirely? It is impossible to say. Ideally, the parties should include a clear date or specify the first or last working day in the month. The due date for payment is a critical element in the payment mechanism. Without a clear date, both parties will find it difficult to operate the payment mechanism as intended, as it is the date from which the other steps in the payment process are calculated.

Applications for Payment

Although there is no mechanism set out in the Housing Grants Construction and Regeneration Act 1996 as amended (the Construction Act), many contracts require the unpaid party to notify the paying party or specified person of the sums that it considers will be due to it on the payment due date and the basis on which that sum is calculated. These are usually known as 'applications for payment'. The application date varies between contracts, for example no less than seven days before the payment due date in the JCT Standard Building Contract and 'before, on or after completion of the relevant stage or monthly date' in the JCT Design and Build Contract. Employers and contractors should therefore check the payment provisions carefully to ensure that they comply with any specific timelines.

"Importantly, the courts have confirmed that parties to a contract should follow the terms of the contract to the date and to the letter. There is little room for interpretation."

Relevant survey statistics →

Time and money are the primary causes of dispute. Twenty percent found rules governing payment to be a challenging legal issue, and 16% cited 'lateness in payment' as a factor impeding project progress.

In Henia Investments Inc v Beck Interiors Ltd [2015], the court suggested that as the wording of the construction contract provided that an interim application could be submitted at any time more than seven days before the payment due date, in theory, this meant that a contractor could submit all its applications for payment on day one of the contract, although it was unlikely that 'sensible contractors would do this'. This is in contrast to the recent judgement of Coulson J in Caledonian Modular Ltd v Mar City Developments Ltd [2015], who held that a party could not apply for payment early, as that would be inconsistent with the 28-day payment cycle they had agreed. In this case the facts were as follows:

- The contractor issued an application for payment in January 2015 for a net payment of £1.5 million. The application was in the same form as the previous 14 applications, in that it was accompanied by a letter attaching the detail of the interim application and setting out the total amount due, the amount previously certified and the net payment due. The letter also identified the date on which a payment notice was to be received by the contractor and the date for final payment.
- On 5 February the employer issued a pay less notice showing a balance of £6,317 as due to the contractor.
- On 13 February the contractor emailed a number of documents to the employer including a 'final account application summary'. The employer queried what these documents were. The contractor later sought to rely on these documents as interim application 16.

Coulson J held that the documents sent on 13 February were not a valid application for payment as the contractor knew the documents were simply updating the value of its final account and each update could not be held to be an application for payment. Importantly, it would defy 'common sense' and would be contrary to the Construction Act to suggest that the 13 February documents gave the contractor an undisputed entitlement to over £1.5 million. The majority of that claim was the subject of a valid pay less notice, and so a contractor cannot make a new claim every few days in the hope that the employer will 'take his eye off the ball and fail to serve a valid pay less notice', giving the contractor a 'wholly undeserved windfall'.

The failure of the contractor to submit its application for payment on the correct date in accordance with the terms of the contract proved fatal to the attempted 'smash and grab' adjudications on the basis of a lack of a valid payment notice. Contractors should therefore pay close attention to the terms of the contract and ensure that all applications for payment are submitted on time.

In Henia, Akenhead J confirmed that it is critically important that a party submits its application for payment in accordance with the timescale in the contract and, perhaps more surprisingly, in a way which makes it clear that the application has been submitted. For Akenhead J, as serious consequences flow from applications for payment (for example, the payment can become due by default if an interim certificate is not issued in time), it is of critical importance to be able to determine whether a document filed by a contractor is an interim application for payment.

In Henia, Beck submitted its 18th application for payment valuing works up to 30 April 2015. Beck failed to submit an application for payment in May and sought to rely on its April application as a valid 'default notice' for the May due date. As the application was stated on the face of it to be 'No.18' (which would relate to the April due date under the contract and was also stated to value the works up to the end of April), the court was unwilling to believe that application No.18 was intended to value all works to the end of May. Furthermore, Beck had not explained to the Contract Administrator that application No.18 was its May application for payment.

In both Henia and Caledonian Modular, the court showed a willingness to look beyond the timing of the notices to their content and the course of dealings between the parties. Contractors should ensure that any applications for payment are not only issued on time but are clearly expressed to be the relevant application, either on their face, or in accordance with the course of dealings between the parties.

"Contractors should therefore pay close attention to the terms of the contract and ensure that all applications for payment are submitted on time."

NBS BIM Toolkit

The NBS BIM Toolkit provides an easy way to define who is doing what and when on your Level 2 BIM projects and offers:

- A digital plan of work to define the who, what and when of construction project information
- A library of 5,700+ construction definitions
- Downloadable, fully-maintained Uniclass tables including buildings, landscape and infrastructure
- Easy-to-use manufacturer Product Data Templates that reflect minimum Level 2 BIM requirements

Visit the NBS BIM Toolkit website and start using it on your projects today.

theNBS.com/toolkit

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Pay Less Notices as a challenge to valuations

Unless an employer under a construction contract issues a valid pay less notice within the timescales set out in the contract, it must pay the notified sum (the amount specified in the payment notice) on or before the final date for payment. In an adjudication, usually referred to as a 'smash and grab' adjudication, the adjudicator may order the employer to pay the notified sum without considering whether the contractor is entitled to a lesser sum.

Employers usually seek to reduce the notified sum by issuing a pay less notice which takes into account cross claims or deductions to which the employer may be entitled under the contract, such as liquidated damages. In Henia, Akenhead J confirmed that pay less notices may also be used to challenge the valuation certified by the contract administrator or the valuation within the interim payment notice (as applicable), noting that the wording of the contract expressly referred to the pay less notice as specifying the sum that the employer considered to be due.

This judgment is potentially very helpful to employers under construction contracts, as it suggests that an employer might submit a valid pay less notice under the contract where the employer disagrees with the valuation of the contract administrator. Although the contract administrator is engaged by the employer, his or her valuations should be an independent opinion of what is properly due under the terms of the contract. While contractors may feel short changed by a contract administrator's valuation, employers sometimes feel that the contract administrator has been too generous. Henia rebalances this dynamic by confirming that an employer may issue a pay less notice based on its own valuation.

Due to the relative complexity of the payment provisions in construction contracts, there is plenty of scope for contract administrators to be caught out. The judgment in Henia will be useful to an employer where an interim valuation/ certificate is issued late. If a valid pay less notice is not then submitted on time, the sum due to the contractor is the sum applied for by the contractor. This judgement potentially provides the employer with an opportunity to correct the contract administrator's mistake in failing to submit the valuation on time and to value the works at a level the employer thinks appropriate. Of course, it is still open for the contractor to challenge the pay less notice submitted by the employer and it should be remembered that the employer must submit a valid pay less notice (that is, served within the timeframe stipulated in the contract). Late service is not permitted.

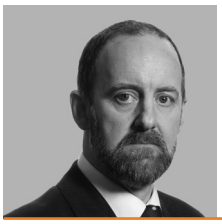
Conclusion

Although the Construction Act was intended to improve the payment process and protect cash flow through the supply chain, contractors, employers, employers' agents and contract administrators do find it challenging to operate the provisions. The recent cases demonstrate the importance of having a clear picture of the payment process under the relevant contract: not only the due date and final date for payment, but also the steps which surround them (from initial applications for payment to interim certificates and pay less notices). It is essential that parties to a contract issue clear and precise notices on time to avoid delayed payments and/ or lengthy and expensive disputes.

"Although the Construction Act was intended to improve the payment process and protect cash flow through the supply chain, contractors, employers, employers' agents and contract administrators do find it challenging to operate the provisions."

Looking back (and forward): developments in BIM 2014/2015

Simon Lewis
Partner, Construction and Engineering team, Bond Dickinson LLP



Bond Dickinson

Simon Lewis

Simon Lewis is a partner in and head of the Construction and Engineering team at Bond Dickinson. He has over 25 years' experience of dispute resolution in the construction sector, encompassing a wide variety of standard and bespoke building and engineering contracts utilising adjudication, litigation, arbitration (domestic and international), expert determination and various forms of alternative dispute resolution. He is a Visiting Fellow at the Faculty of Engineering and the Environment at Northumbria University, and also administers the construction law module of a Master's degree for the School of Law. He writes and lectures regularly on a wide range of construction subjects. He has a particular interest in BIM and cyber security issues.

The publication of the National Construction Contracts and Law Survey, in addition to providing a very useful and welcome snapshot of the construction sector, is an opportunity to stand back a bit and look at the way that things have been developing across various aspects of the sector over the last year. In the case of BIM, we now stand at the threshold of the first and perhaps best known milestone, which was originally set in the Government Construction Strategy published on 31 May 2011, of requiring the use of collaborative 3D BIM on Government projects by 2016.

Looking back over the last year, developments in relation to BIM fall principally into two categories: first, the completion of what might be described as the underlying contractual and administrative structure for undertaking a BIM-enabled project from beginning to end, and secondly, looking ahead to what might lie in store not only for BIM but also for the digital economy in the construction sector in the future. In short, consolidation of the Level 2 position and anticipation of what Level 3 and beyond entails.

Completing the structure: PAS 1192-5

The contractual and administrative structure underpinning a BIM-enabled project is supplied by a series of Publicly Available Specifications (PASs) which provide the details of the BIM process and set out a series of common definitions and procedures to be read in conjunction with the BIM project documents. PAS 1192-2 deals with the capital expenditure stage of the project and PAS 1192-3 with the operational stage, while BS 1192-4:2014 covers the employer's information exchange requirements using COBie (Construction Operation Building information exchange).

Completing this suite of underlying information is PAS 1192-5, which was issued in May this year (http://shop.bsigroup.com/forms/PASs/PAS-1192-5/). This PAS, however, is slightly different. The clue is in the title. It provides a 'Specification for security-minded building information modelling, digital built environments and smart asset management'.

This PAS goes beyond BIM and looks forward towards developments in the digital built environment that have been foreshadowed in the Digital Built Britain report (see below).

Furthermore, the PAS looks at asset management and cyber-security issues beyond just the ambit of BIM itself. As explained in the Introduction, implementing the measures outlined in the PAS will assist not only in reducing the risk of loss or disclosure of sensitive information which could impact on safety and security but also the loss, theft or disclosure of commercial information and intellectual property.

Central to the PAS are sections 4 and 5. Section 4 sets out the security context and section 5 deals with understanding the overall security threat, and recommends the use of what is known as a 'security triage process' to ascertain whether or not a security-minded approach should be applied to a built asset and associated asset information. Depending upon the outcome of the triage, you can either adopt a 'baseline security approach', which basically means the reasonable security processes you already have in place, or if the result of the exercise indicates that a more heightened level of security needs to be undertaken, you need to move on to sections 6 to 12. Even if the result of the triage indicates that you only need baseline security measures, you may consider it prudent to adopt some of the heightened security measures described in the PAS anyway.

Sections 6 to 12 deal with the heightened security-minded regime which should be put in place if required. This includes the formulation of a Built Asset Security Strategy, linked to a Built Asset Security Management Plan, and consideration of the Built Asset Security Information Requirements which should be fed into the Asset Information Requirements also being prepared as part of the ongoing Asset Information Model. All of these steps should be facilitated by the appointment of a Built Asset Security Manager (BASM). On smaller projects this role is likely to be performed by an existing consultant such as the architect or engineer, but on a larger or more complex project it may be a full-time post. The BASM does not perform any design role within a project: their responsibility is entirely focused upon the formulation and execution of the required security-minded approach.

Relevant survey statistics →

A third reference BIM within their contracts and almost a quarter (23%) reference the outputs of a BIM. Yet only 14% tell us BIM is fully integrated in contracts. Only 12% provide or receive a BIM. This suggests that there is work to be done for the construction industry and the legal community, not least before the 2016 deadline.

Clearly, the security triage is something that needs to be carried out at the earliest possible opportunity: if at all possible, when the organisational plans and objectives for the project are being formulated. Obviously, if you are acquiring an already existing asset then the security triage needs to be performed as swiftly as possible.

Whenever the triage is undertaken, the employer or asset owner should record the outcome for each built asset to which it is applied, even if there is no identified need for more than baseline security measures. It would be useful to have the record of this process available for any future owners of the asset.

There is a lot of information to be digested in PAS 1192-5 but it is important and well worth reviewing, even if you come to the conclusion that no further action needs to be undertaken. The more we advance towards the 'Digital Built Britain' envisaged in the recent reports discussed below, the more likely it is that this security-minded approach will become an absolute necessity.

Looking to the future

One of the more interesting publications to be issued over the last 12 months in relation to BIM is Built Environment 2050: a report on our digital future. This is a report by the BIM 2050 group, which comprises 18 young construction professionals from all areas of the industry. The group was asked to research and report on what an interdisciplinary scope of work might look like as construction technology develops to BIM Level 3 and beyond towards 2050. The report focuses on three key areas: education and skills, technology and process, and the culture of integration.

Quite rightly, the report is optimistic about the industry's capacity to rise to the challenges presented by the digital revolution, of which BIM is only one small part. Hidden away in the text, however, are some fairly bleak messages: more than one essay refers to the anticipated 50% decline in the requirement for skilled labour by 2050, and whilst there is the suggestion that there will be a concomitant rise in information management and computational design roles over this period, I doubt whether these roles will be filled by those no longer able to find a job in the skilled labour sector. Indeed, the need for fundamental educational reform is very forcefully made in the essay dealing with education and skills. There is also the spectre of what is referred to as 'jobless growth': a growth in output without a corresponding growth in employment. Having said all this, there is no doubt that BIM and the other technological developments examined in the report will fundamentally alter the construction sector and, if approached in the right spirit, will alter it for the better.

For those interested in looking a little less further ahead than 2050, at the end of February the Government launched its strategic plan for BIM Level 3, known as Digital Built Britain (DBB) (http://digital-built.britain.com).

Whilst a time-specific commitment similar to that made by the Government for Level 2 for 2016 is conspicuously absent from the strategic plan, importantly the plan confirms that the significant progress made to date by BIM will be supported going forward by a new round of investment which will be used to fund a series of key measures, including:

- The creation of a set of new, international 'Open Data' standards to facilitate sharing of data across the market;
- The establishment of a new contractual framework for projects procured using BIM to ensure consistency and encourage collaborative working;
- The creation of a cultural environment which is cooperative and based upon learning and sharing;
- Training the public sector client in the use of BIM techniques; and
- Driving domestic and international growth and jobs in technology and construction.

Inevitably, perhaps, I found myself searching through the 2050 report and the DBB to see how they might impinge upon my activities. In the 'commercial' section of the DBB, there is a reference to developing collaborative models of working and contracts which will focus on the capture of performance intelligence and project feedback, and the employment of the data-based briefing process. The Built Environment 2050 report envisages an integrated horizontal and vertical business model and supply chains that transact in real time (known as nano-second procurement). It is no surprise that some fairly radical rethinking of contractual structures and obligations is going to be necessary as we move to Level 3, driven by the requirement to review insurance arrangements so that ring-fencing of liability (still a feature at Level 2) is replaced by a project insurance approach. Intriguingly, the DBB also mentions the development of paperless contract models and international contract models for Level 3 working. Also paperless? That would, at least, make my office tidier. ●

"It is no surprise that some fairly radical rethinking of contractual structures and obligations is going to be necessary as we move to Level 3, driven by the requirement to review insurance arrangements."

National Construction Contracts and Law Survey: Summary of findings

Adrian Malleson
Head of Research, Analysis and Forecasting, NBS

Introduction

This report gives the findings of the third NBS National Construction Contracts and Law survey. We carried out the survey in the summer of 2015 (from July to September), so the results tell us about people's legal and contractual practice from summer 2014 to summer 2015.

Whilst this is an NBS survey, we have involved many people across the industry to get as broad a view as possible, and to make sure that the survey, and its findings, are as independent as possible. We are very grateful to the organisations, listed at the start of this report, for their help in publicising the survey and encouraging professionals to take part. We're also grateful to those who took part in the survey: we know, not least from the findings, that this is a busy time for those involved in construction generally, and those in the legal sphere particularly.

We're pleased to say that almost one thousand (981) people responded to the survey. Thank you.

Attaining compliance with contractual and legal obligations, as well as dealing with disputes, are integral parts of the construction process. But information about what is happening across the industry is not readily available. We carry out this survey in an attempt to provide that information. We explore a number of main themes:

- Procurement methods;
- Which contracts people use and how they use them;
- The legal issues that people face;
- The nature and effects of disputes and how people seek resolution;
- Collaborative working and Building Information Modelling (BIM).

The future of the construction industry is (and long has been) collaborative. The legal process is very often (though not always) combative. The report brings together the views of the three main groups involved in the construction process: clients, contractors and consultants. Often their views are very similar. At other times they diverge significantly. Where there are significant divergences, we describe this. Perhaps in understanding the issues faced by each group, each may collaborate better.

Respondents

We designed the survey to elicit views among the different groups within the construction sector. As in previous surveys, clients, contractors and consultants all took part. At 61%, consultants make up the greatest proportion. When talking about consultants, we include the design team, surveyors, and specialist consultants. Contractors made up a quarter of respondents, and clients 15%. Clients tended to be large clients: those commissioning, and perhaps maintaining, larger projects or estates.

The quantity and diversity of respondents make for a broad range of ages, organisation sizes, professions and institute memberships among those who took part.

The survey responses gave us a view of both public and private sector activity; around half the contracts people told us about were publicly funded and around half private. British construction output is more weighted towards private output than this, though a greater proportion of private work is smaller, and so perhaps less legally complex.

How would you best describe your role/the role of your organisation in the construction industry?

Client	15%
Contractor	25%
Consultant or Advisor	61%

Procurement Methods and Tendering

Procurement

Procurement is one of the five barriers to innovation identified within 'Construction 2025'.

"The nature of construction procurement frequently restricts collaboration between client and supply chain…"

The procurement method chosen sets out the framework within which clients, consultants and contractors establish and legally describe their often complex relationship within a project. The chosen procurement method will, at very least, influence the contractual framework of a project, and may, to a large extent, determine it.

We found that traditional procurement methods are used most often. Forty seven percent told us that it was their most used method. Traditional procurement methods may not, though, be the best route to collaborative innovation.

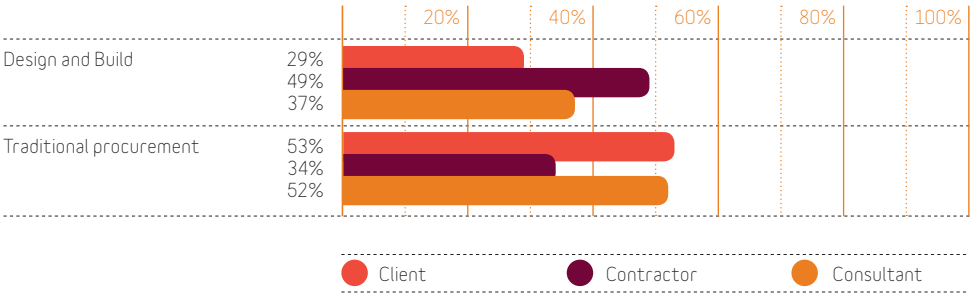
Design and build, with 39%, is the procurement method people are next most likely to use. Projects are procured in other ways, but much less so. Methods such as management contracting, construction management, measured term, cost plus, PFI or PPP, and partnering/alliancing are niche; none of them are used most often by more than 3% of respondents.

We do find that contractors, unsurprisingly, are more apt to use design and build, and consultants and clients tend more towards traditional procurement.

We can see an ongoing decline in traditional procurement. In 2011, 72% of consultants used it most often. In 2012 this declined to 61%; now it is 52%. Similarly, for clients: we have moved from 59% to 57%, and now to 53%.

"The survey responses gave us a view of both public and private sector activity; around half the contracts people told us about were publicly funded and around half private."

Which procurement method was most frequently used in projects you were involved in, during the past 12 months?



"Whilst this is an NBS survey, we have involved many people across the industry to get as broad a view as possible, and to make sure that the survey, and its findings, are as independent as possible."

Tendering

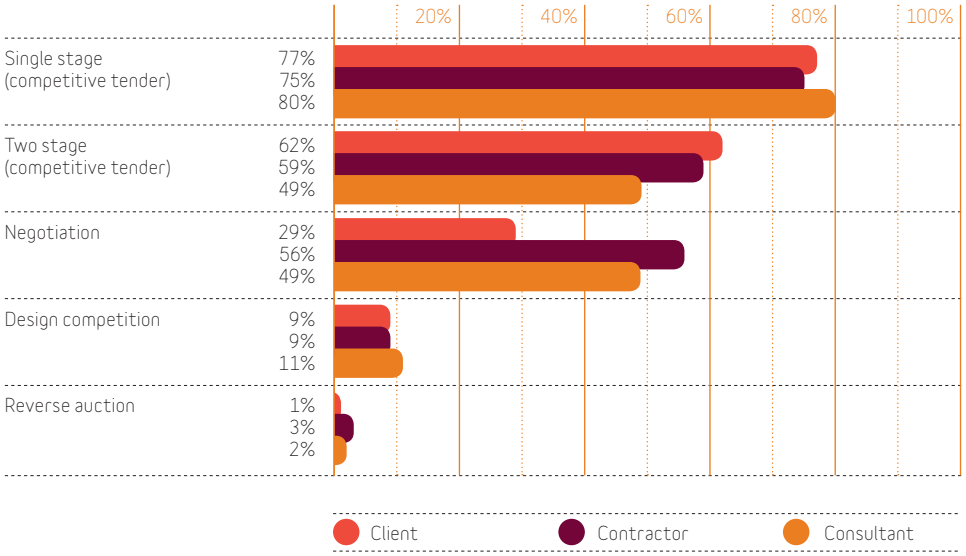
We asked which tendering processes people have used on their projects. Over three quarters have used single stage tendering, and a majority have used two stage tendering. However, this does not preclude the use of other methods. We do see negotiation being used by many, and around one in ten has been involved in a design competition in the last year.

Whilst we have seen a shift in procurement methods, the ways in which people tender for projects has remained broadly consistent with previous years.

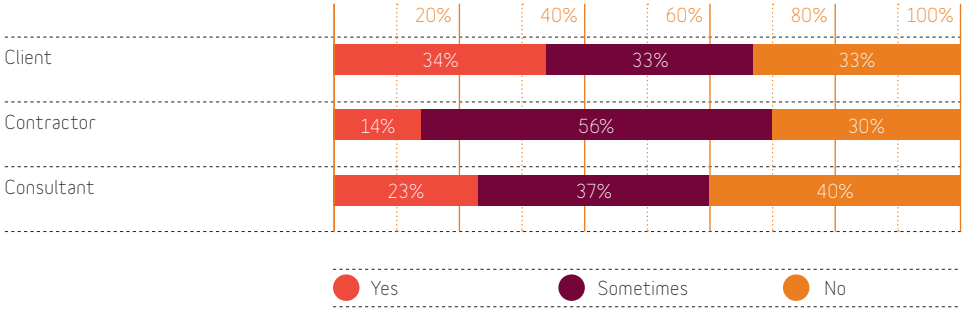
As we move towards a digitised construction industry, driven in part by the Government's construction strategy, we might expect a widespread adoption of electronic tendering. Well, not quite. Whilst a majority use electronic tendering 'sometimes' or 'always', over a third (36%) have not used electronic tendering in the last year. Clients (34%) are those most likely to use electronic tendering always. Consultants (40%) are most likely not to have.

We also asked about the pricing mechanism that people employ during the procurement process. As in previous years, people are most likely to use the 'fixed price or lump sum' mechanism. Target cost and re-measurement are used 'most often' by over 10% overall. Nearly a quarter (22%) of clients and one in five contractors have used target cost as a pricing mechanism at least once in the last year.

Which of these tendering methods were used, during the past 12 months?

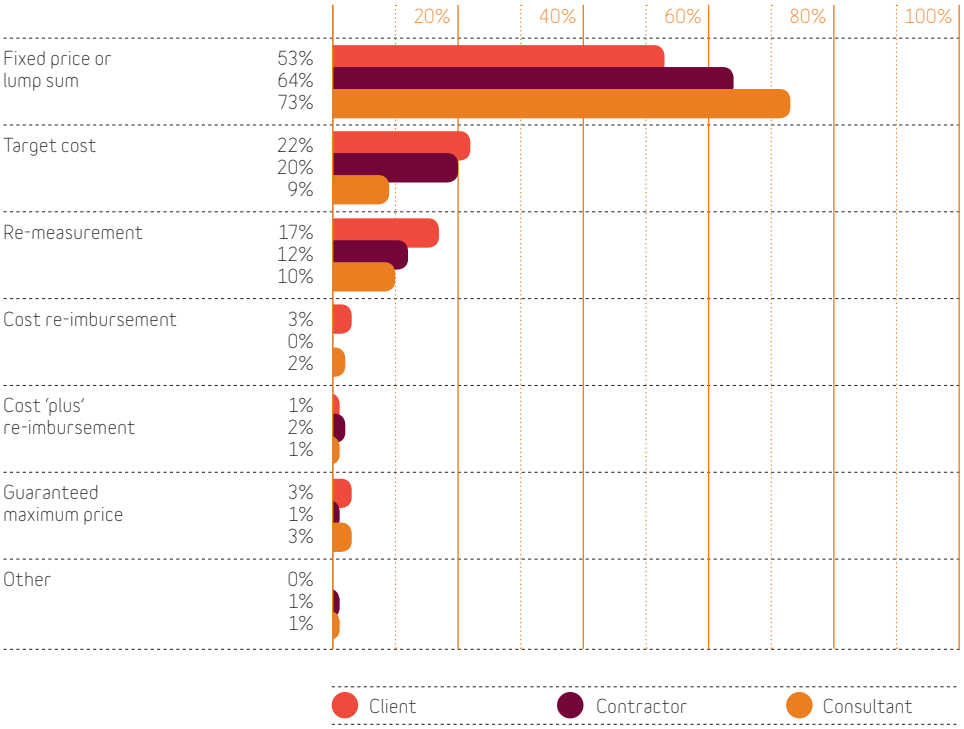


For the projects you were involved in during the past 12 months, was electronic tendering used?



"Over three quarters have used single stage tendering, and a majority have used two stage tendering. However, this does not preclude the use of other methods."

Which pricing mechanism was most often used for your contracts, during the past 12 months?



"The goal of collaboration within the construction team is long standing. It is a way of improving efficiency, creating better outcomes for clients and accelerating innovation."

Collaboration

"Government will require fully collaborative 3D BIM (with all project and asset information, documentation and data being electronic) as a minimum by 2016"

The goal of collaboration within the construction team is long standing. It is a way of improving efficiency, creating better outcomes for clients and accelerating innovation. Latham identified this; it's not new.

As we move towards BIM, our focus is once again drawn to collaboration; BIM now provides us with the information, tools, standards and structures for greater collaboration. Indeed, collaboration is a precondition for achieving the higher levels of BIM.

So, we ask, are we seeing collaborative practices embedded in the legal and contractual frameworks the construction industry is currently using?

"I think collaboration is improved when the Contract that is in use is drafted to support things such as mutual trust and incentivises all parties to work collaboratively. It's almost impossible to expect collaboration when using an adversarial type contract."

First, we asked whether people are employing collaborative techniques. We found that only a minority (18%) are doing so in all the projects they are involved in. A majority, however, do collaborate on some or all projects (62%). And yet, significant numbers (38%) tell us that they did not employ collaborative techniques on any of the projects they have worked on in the last year.

Did you adopt any collaboration techniques, in projects that started in the past 12 months?

Yes - in all projects	18%
Yes - in some projects	44%
No	38%

As we see in the graph to the right, over a quarter of clients and contractors (28% and 26% respectively) and over two fifths of consultants did not adopt collaboration techniques on any project that started in the past 12 months.

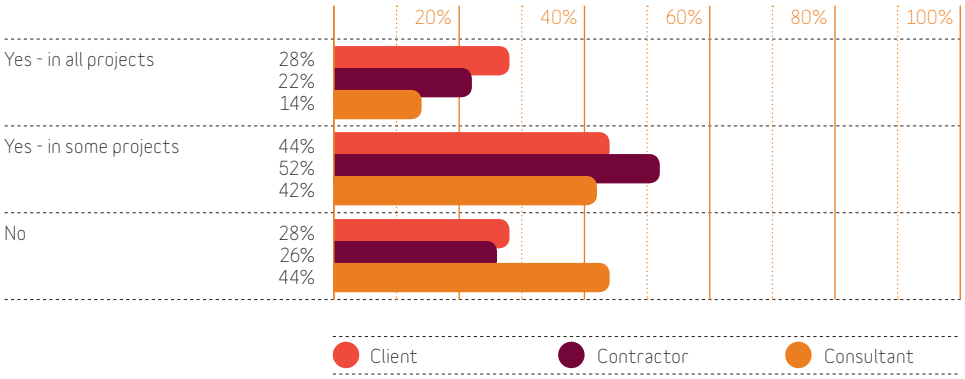
Of those who did collaborate, collaboration extended to both low and high value projects, though high value projects were significantly more likely to employ collaborative techniques.

Collaboration can take many forms: some more structured and prescribed than others.

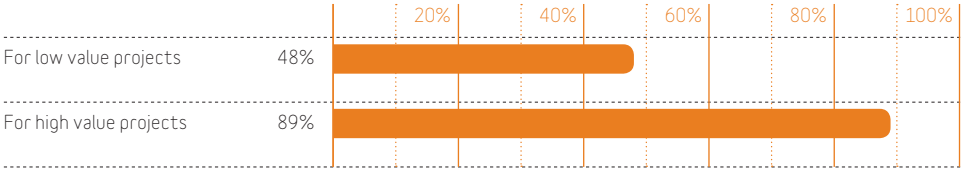
Most common is a contract that includes an ethos of 'mutual trust and cooperation'. This has risen from 61% in 2012 to 67% this year. We do question whether the inclusion of an 'ethos' in a contract is sufficient to delimit, maintain and enforce collaboration throughout the life of a project. A third had adopted a more structured approach, adopting a 'formal partnering agreement' (33%).

"It is essential to define what is 'collaborative'. It is essential to establish the techniques used for collaboration really are satisfying all parties"

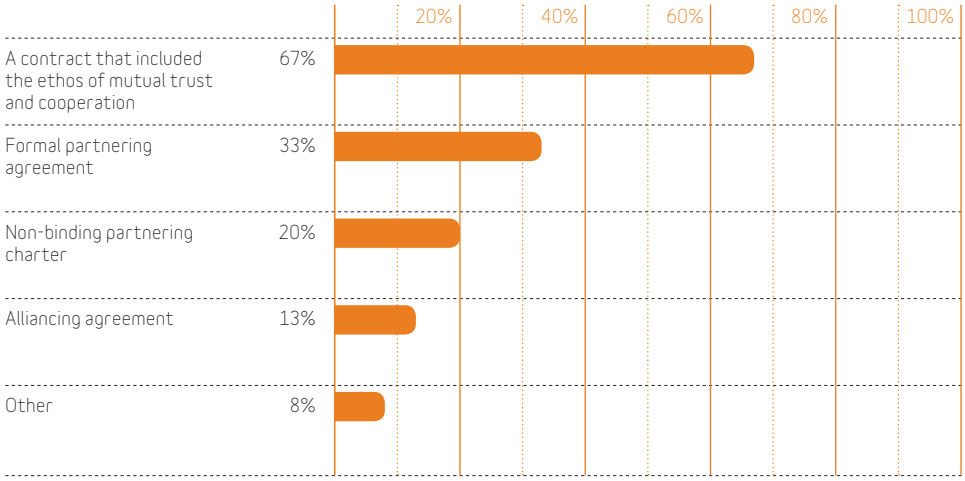
Did you adopt any collaboration techniques, in projects that started in the past 12 months?



Was collaboration used...



What form did your collaboration take?



"Of those who did collaborate, collaboration extended to both low and high value projects, though high value projects were significantly more likely to employ collaborative techniques."

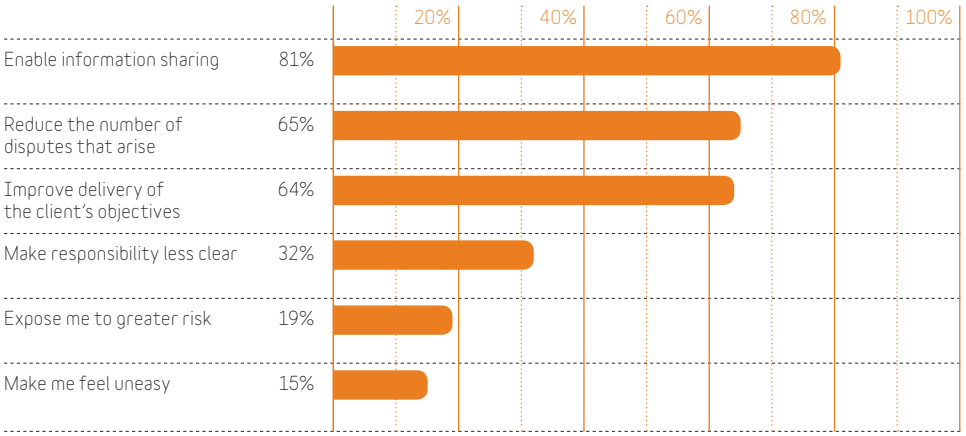
"Collaboration is culture, it requires greater commitment and a different mind-set. It is not something that is defined by procedures or rules, it is a skill set."

Given that collaboration is not universal, we wanted to see whether this is because of an antagonism towards it. However, we found that people are generally positive towards collaborative practice. Eighty one percent agree that collaboration enables information sharing, 65% agree that it reduces the number of disputes, and 64% agree that it improves client outcomes. A minority feel that collaboration exposes them to greater risk (and perhaps with a greater degree of risk comes greater reward). Less than a third feel it makes responsibility less clear. Given these findings, the emphasis the government currently places on collaboration looks right.

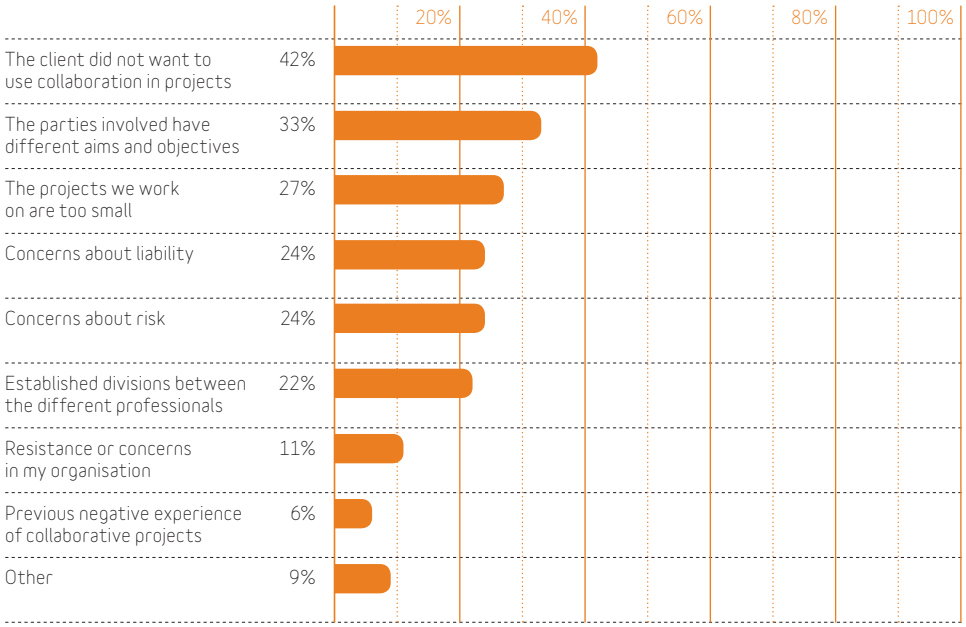
So whilst collaboration is welcomed in principle, significant numbers do not work collaboratively. Why? Client demand comes out as the most cited reason, with 42% telling us the client didn't want to use collaboration (even though collaboration, respondents suggest, improves client outcomes). Differing aims and objectives comes next, with a third citing this reason.

On the other hand, it is notable that internal resistance or divisions between the professions are towards the lower end of reasons given. Construction professionals are willing to work together as projects require, and companies don't resist this. Most encouraging is that only 6% cite a negative previous experience of collaboration as a reason for not doing so again. We might infer that previous collaborative working is often a positive experience.

Collaborative projects



What prevented you from becoming involved in, or using, (more) collaboration in projects during the past 12 months?



"A minority feel that collaboration exposes them to greater risk (and perhaps with a greater degree of risk comes greater reward). Less than a third feel it makes responsibility less clear."

Collaboration and BIM

"Collaboration will come with more transparency in information systems, where all involved have opportunity to see their role and their obligations in more or less real time. A good tool for this is BIM."

By 2016 all projects that are funded by central government will require collaborative 3D BIM. Time is short for BIM adoption, and for projects to embed it within an appropriate contractual and legal framework.

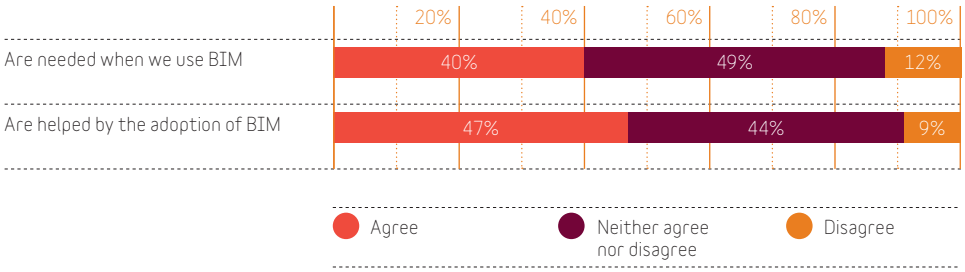
We found that people are more likely to see BIM as an enabler of collaboration than not. Nearly half, 47%, see collaboration as helped by BIM, and only 9% don't; that still leaves 44% who have no feelings either way. The benefit of BIM to collaborative practice has yet to be fully demonstrated (or communicated). Forty percent feel that when they use BIM, they need to do so within a collaborative project (suggesting that a significant number of people feel that if it's not collaborative, it's not BIM).

Building Information Models will increasingly have a legal standing, as the information about a building is moved from disparate data stores into a central, collaborative model. Presently, most participants see BIM as having at least the same contractual status as drawings, with most agreeing that a BIM is as contractually binding as drawings are.

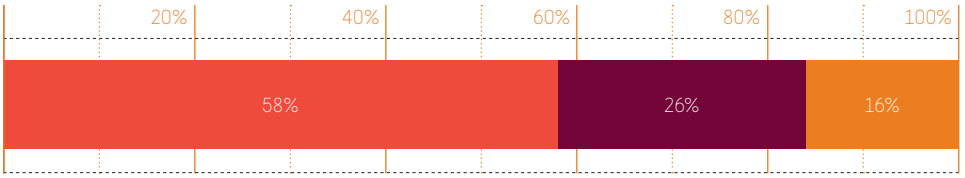
But a BIM is much richer than a drawing, containing detailed information about the properties and performance of a building, and its constituent parts, as well as maintenance requirements. It is a richness that grows and develops through a project, rather than being complete at a particular stage. Increasingly, then, the legal status of that developing information will need to be contractually stated.

A third reference BIM within their contracts and almost a quarter (23%) reference the outputs of a BIM. Yet only 14% tell us BIM is fully integrated in contracts. Only 12% provide or receive a BIM. This suggests that there is work to be done for the construction industry and the legal community, not least before the 2016 deadline.

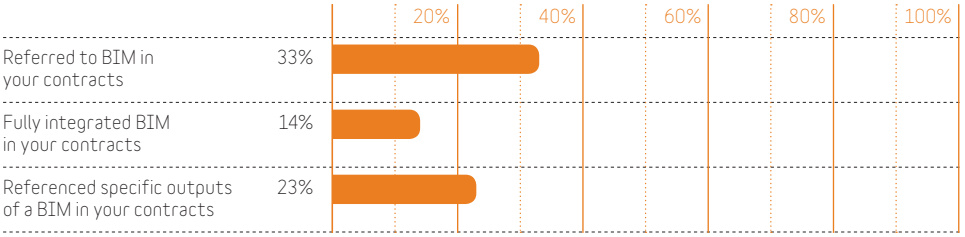
Collaborative projects...



In my organisation we recognise a BIM as contractually binding, in the same way as specifications or drawings.



BIM and Contracts: Please state whether, in the past 12 months, you have...



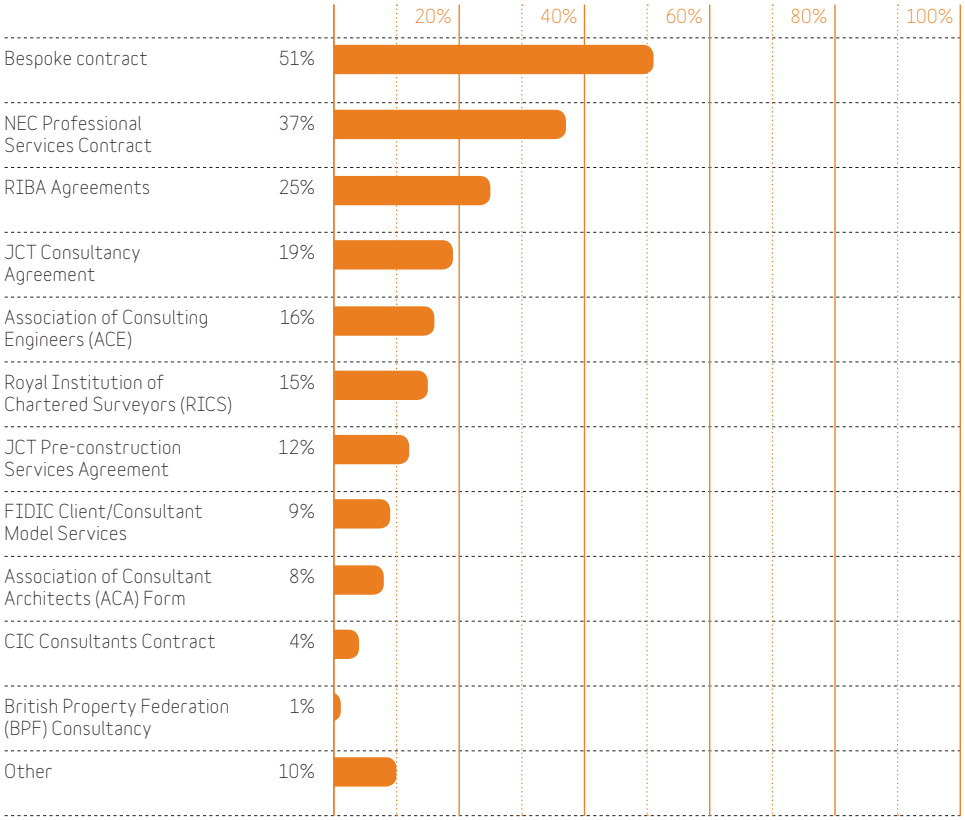
Contracts and Forms of Appointment

We have run this survey three times, so we are able to see changes in the forms of appointment and contracts people use.

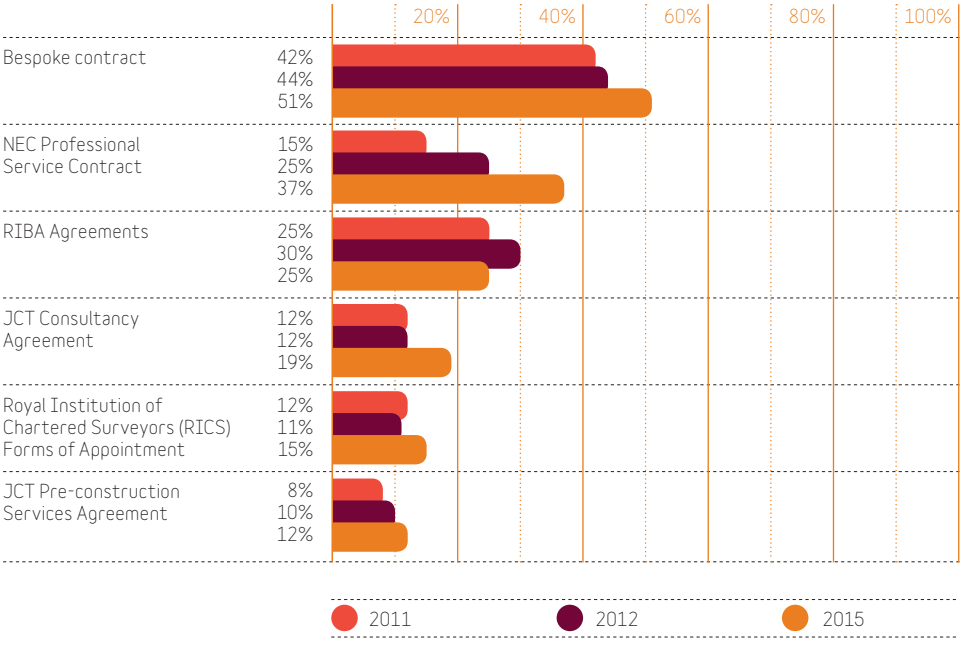
Forms of Appointment

There have been some significant changes in the forms of appointment that people use. Bespoke contracts are rising in use, despite the risks inherent in bespoke contracts. The NEC Professional Services Contract has, among our respondents, seen a significant growth in use, up from 15% in 2011 to 37% in 2015. It now has more users than the RIBA Forms of Appointment. The JCT Consultancy Agreement shows a modest increase; now at 19%.

Which forms of professional appointment were used in your projects in the past 12 months?



Which forms of professional appointment were used in your projects in the past 12 months?



"There have been some significant changes in the forms of appointment that people use. Bespoke contracts are rising in use, despite the risks inherent in bespoke contracts."

"Contract suites that are best able to support collaborative working are the ones which are growing in use"

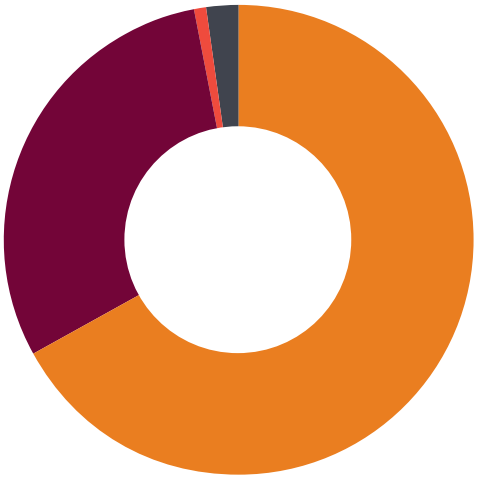
Contracts

The norm, as perhaps it should be, is for parties involved to sign contracts before construction starts. Just over two thirds (67%) tell us they typically sign contracts before construction commences. That still leaves 30% who sign only after work has commenced. Three percent either do not typically sign contracts or do so only after completion. This must be a cause for some concern.

When we look at which contracts people do use, we can see a shift in contract use, with NEC contracts becoming more often used, JCT contracts less so, and the use of bespoke contracts staying broadly static.

"JCT is reasonable and fair to both parties and used and understood by both. NEC contracts universally include collaborative working and working with mutual trust."

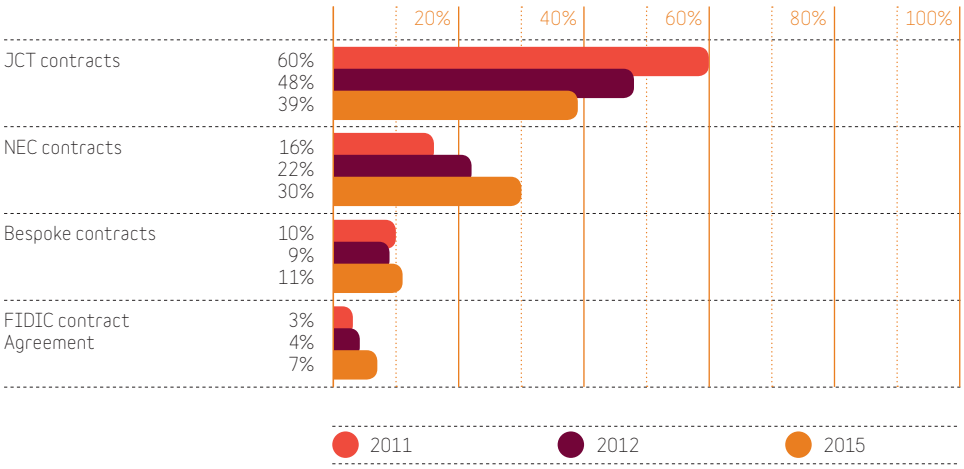
The shift is not small. Since 2011, there has been an increase of 14 percentage points in the number of people telling us they use NEC contracts most often. The number for JCT contracts has fallen by over a third in the same period. The number who use FIDIC most often, albeit a small proportion overall, has more than doubled. Those contract suites that are best able to support collaborative working are the ones which are growing in use.



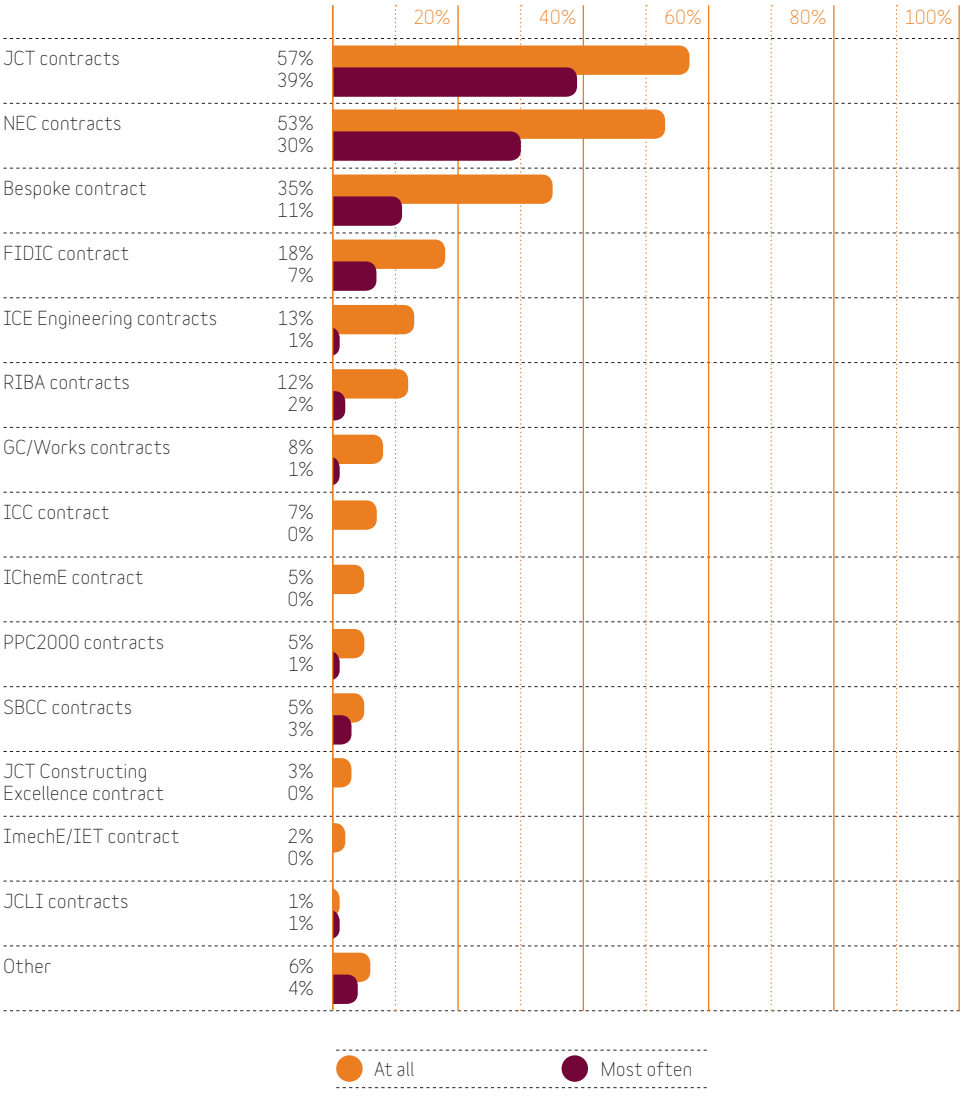
What is the typical stage at which most of your contracts are signed?

Before construction commenced	67%
After construction commenced but before completion	30%
After completion	1%
Never signed	2%

Which suite of contracts have you/your organisation used most often?



Contracts used at all/most often, during the past 12 months?



Contract users don't only use one contract though. The graph to the left shows the numbers of those who have used a particular contract at least once, and we can see that many use a range of contracts throughout a year. The newly released RIBA contract shows healthy levels of early adoption, with 12% using it at least once, and some (2%) having it as their most used contract.

The choice of contract suite is closely related to project value. RIBA contracts have their place in small-value works, typically under £250K, such as residential and small commercial projects. This is what they were written for.

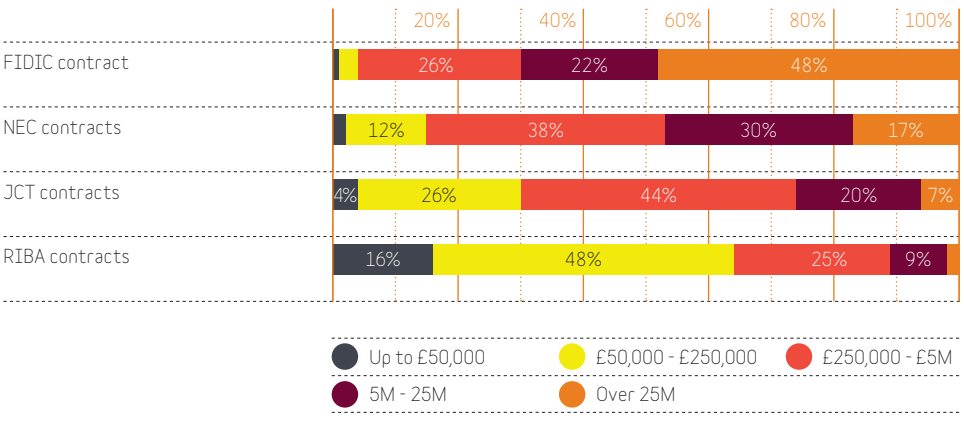
"The RIBA contract suits our work."

JCT contracts are also selected for smaller projects, but with a broader value range, typically up to £5 million. The NEC suite covers medium to large projects (47% over £5m) and FIDIC, for very large projects, often overseas (48% over £25m).

"Mostly worked internationally in Middle East where FIDIC is expected."

As professionals carry out a range of projects of different values and in a range of locations, we can expect them to use a range of contract types.

What is the average value of the projects that you use that type of contract for?



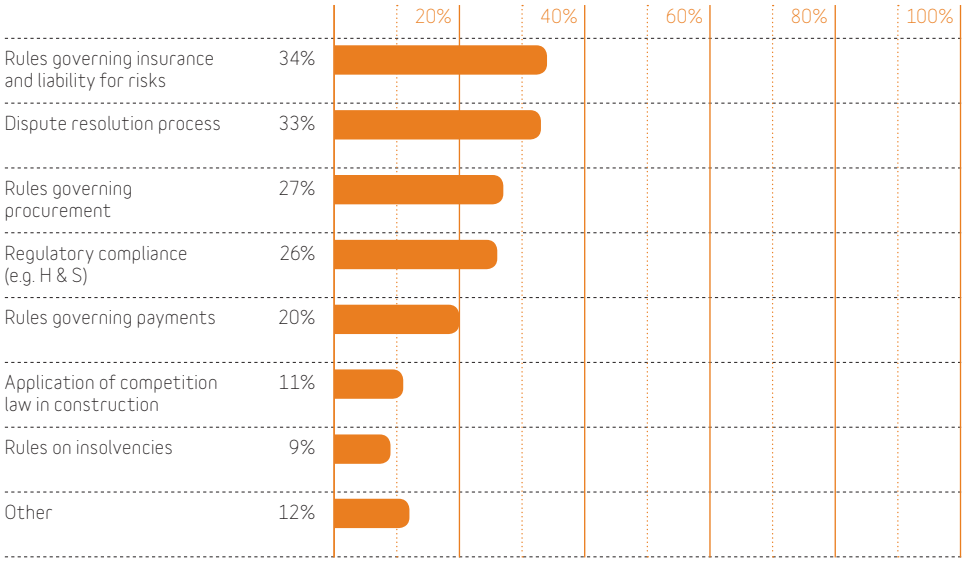
Legal Issues

Whilst it is informative to see what suite of contracts people use, along with which forms of appointment, this does not help us understand the potential points of legal conflict contracts are there to militate against. Therefore we asked people about the legal issues that they face and, during construction, what gets in the way of buildings being built - which matters impede project progress.

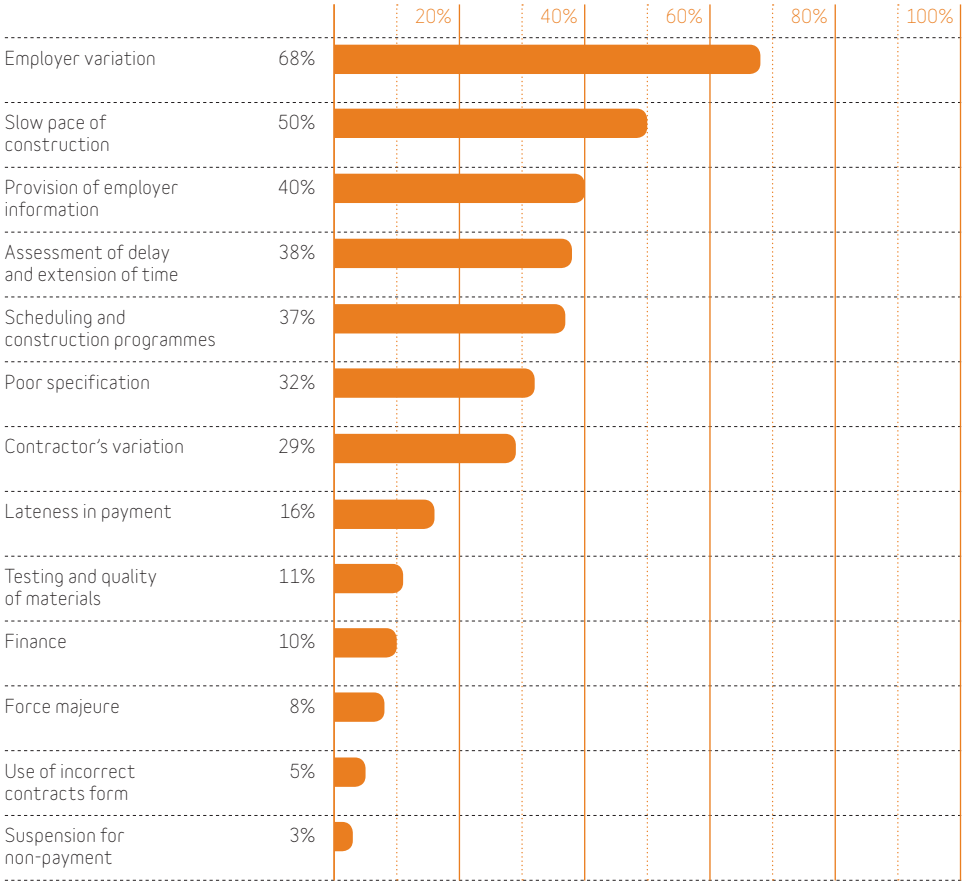
The legal issues people found to be 'challenging' include: 'rules governing insurance and liability for risks' (34%), 'dispute resolution process' (33%), 'rules governing procurement' (27%), 'regulatory compliance' (26%) and 'rules governing payments' (20%).

Looking at matters that impede project progress, employer variation is the most common, with over two thirds (68%) citing this. Other matters that are significant are shown in the graph to the right and include: slow pace of construction, provision of employer information, assessment of delay and extension of time, and poor specification. What is to be done, information about it, and when it is to be done: these are the impediments.

What legal issues did you find to be challenging, during the past 12 months?



During the construction phase of the project, which of the following matters impeded project progress, during the past 12 months?

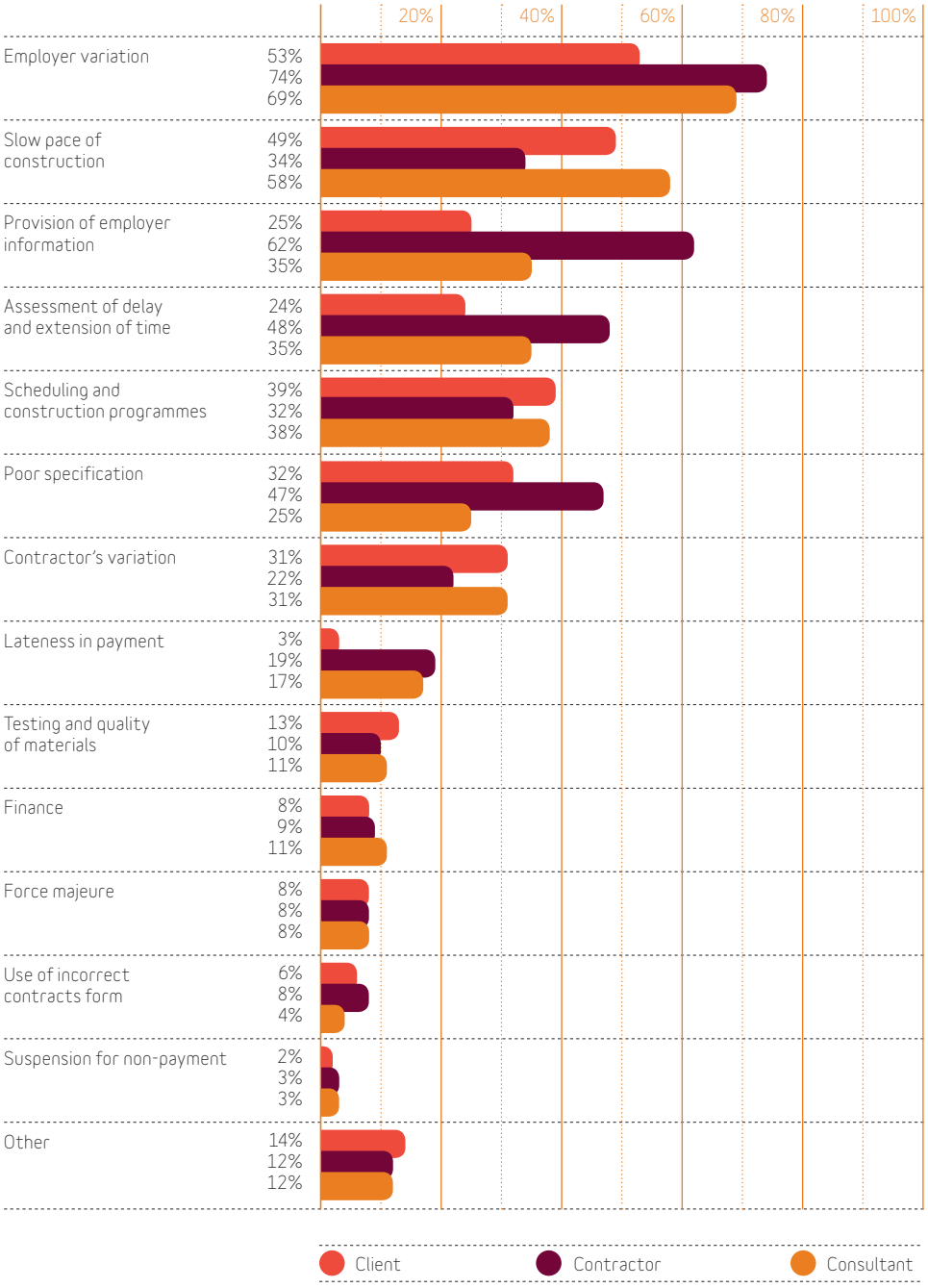


As we have seen in previous surveys, the assessment of the issues that affect project progress differs significantly by client, contractor or consultant. People are less likely to identify an issue they have primary responsibility for as impeding project progress. This may not only be true of the construction sector.

Clients are the least likely to mention employer variation, lateness of payment or provision of employer's information. Contractors are the least likely to mention contractor's variation or the slow pace of construction. Consultants are the least likely to mention poor specification.

Where poor specifications are cited, they are most likely to be specifications that are re-used and re-purposed from previous projects, or where they are produced in-house in a non-standard system such as Word.

During the construction phase of the project, which of the following matters impeded project progress, during the past 12 months?



"People are less likely to identify an issue they have primary responsibility for as impeding project progress. This may not only be true of the construction sector."

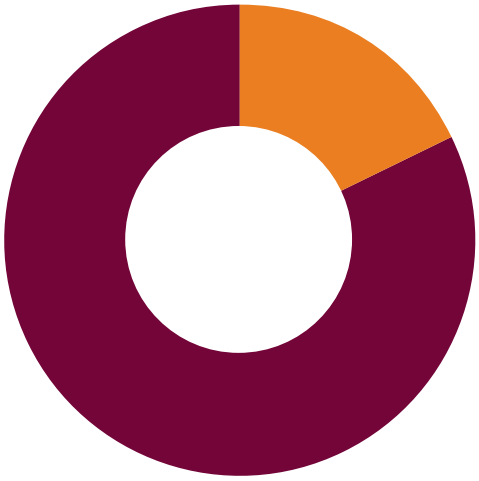
"In 2013 the UK exported more than four times more in architectural services (by value) than it imported. Many large contractors have bases in the UK that work extensively overseas."

International Projects

Whilst the UK consistently runs a trade deficit with the rest of the world, a marked exception to this is our creative industries. As well as part of the construction sector, architecture is a creative industry; UK architecture has a global reach. In 2013 the UK exported more than four times more in architectural services (by value) than it imported. Many large contractors have bases in the UK that work extensively overseas. With this as a background we wanted to look at international working, and the legal challenges it gives us. First we asked whether people were involved in UK-managed contracts that involved international work. Eighteen percent were.

Working in this way has its challenges. The most significant challenge was cultural difference (56%).

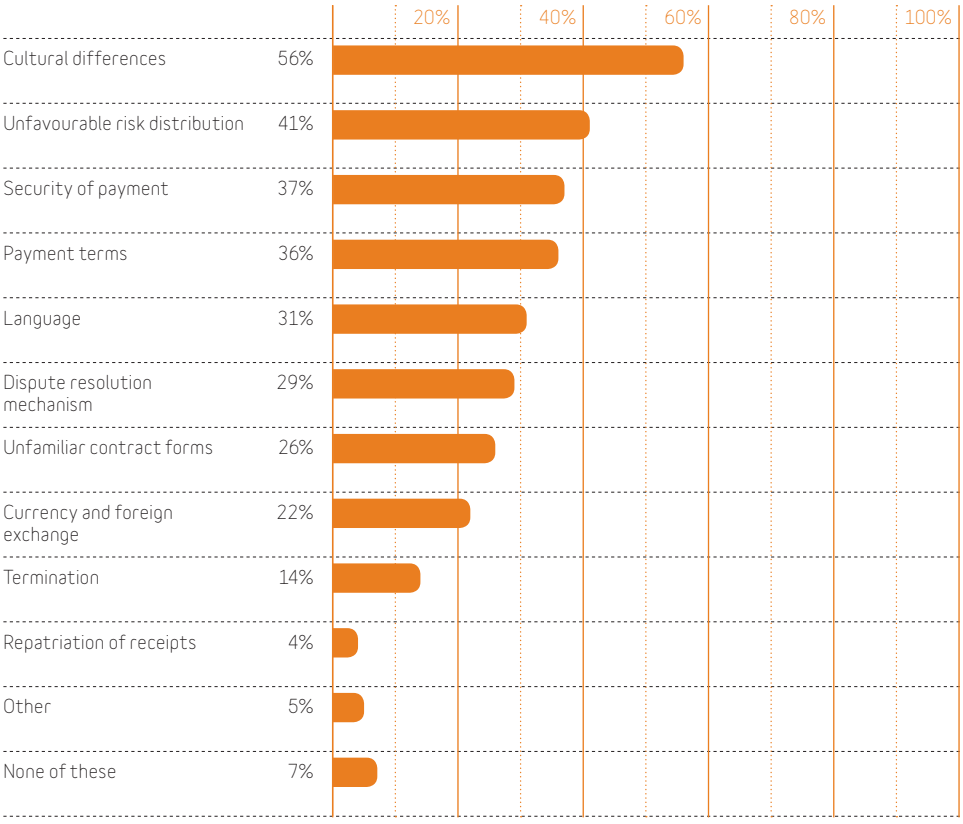
There are others. More than a third of respondents mentioned 'unfavourable risk distribution', 'security of payment' or 'payment terms'. More than a quarter mentioned 'language', 'dispute resolution mechanism', or 'unfamiliar contract forms'.



Did any of your UK-managed contracts involve international projects (projects outside the UK, in the past 12 months)?

Yes	18%
No	82%

What did you find to be the most challenging legal issues in completing these international projects?



Disputes

People are more likely to say that the number of disputes is increasing rather than decreasing. There are fewer people feeling that disputes are on the rise than in 2012, but the change is marginal. Half tell us the number of disputes has stayed the same. Less than one in ten feels that the number of disputes has decreased over the previous year.

"As the financial market has risen, the building industry has as well. More work equals more disputes"

Fewer people tell us the number of disputes is increasing, and fewer people tell us that they were involved in no disputes.

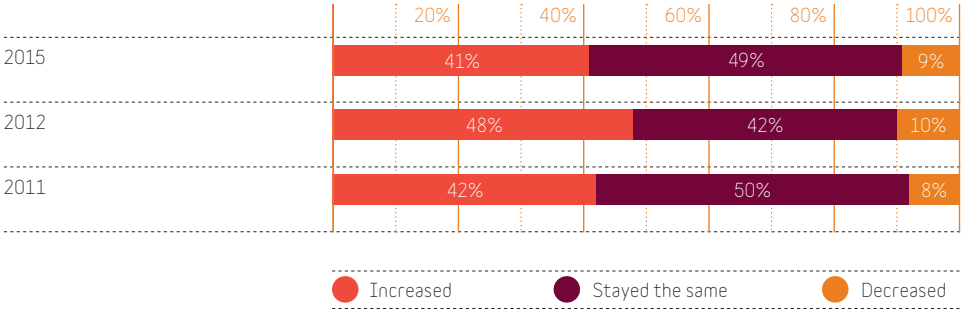
"Contractors submit sub-economic tenders and then claiming anything at all that might lead to them recovering some of their losses"

"Aggressive stance taken by clients to change, and in agreeing final accounts, means disputes are inevitable'"

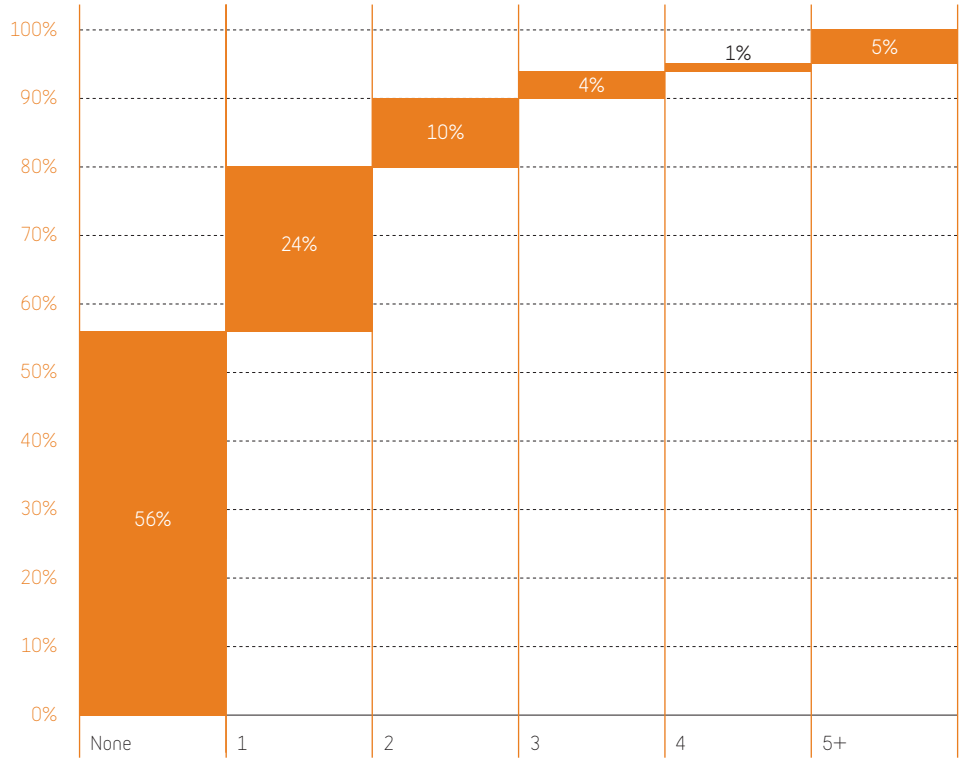
In 2012, 71% told us they did not have a contract going into dispute. In 2015 this number has dropped to 56%. So, among respondents, 44% had to deal with at least one dispute in the last year; one in ten had to deal with 3 or more. Disputes are almost a routine part of doing business within the construction sector.

Time and money are, predictably, the primary causes of dispute, with extension of time being the most common issue among those who had been in disputes, followed by valuations of the final account, and valuation of variations.

Thinking about the construction sector generally, during the past 12 months, would you say that disputes in the sector have?



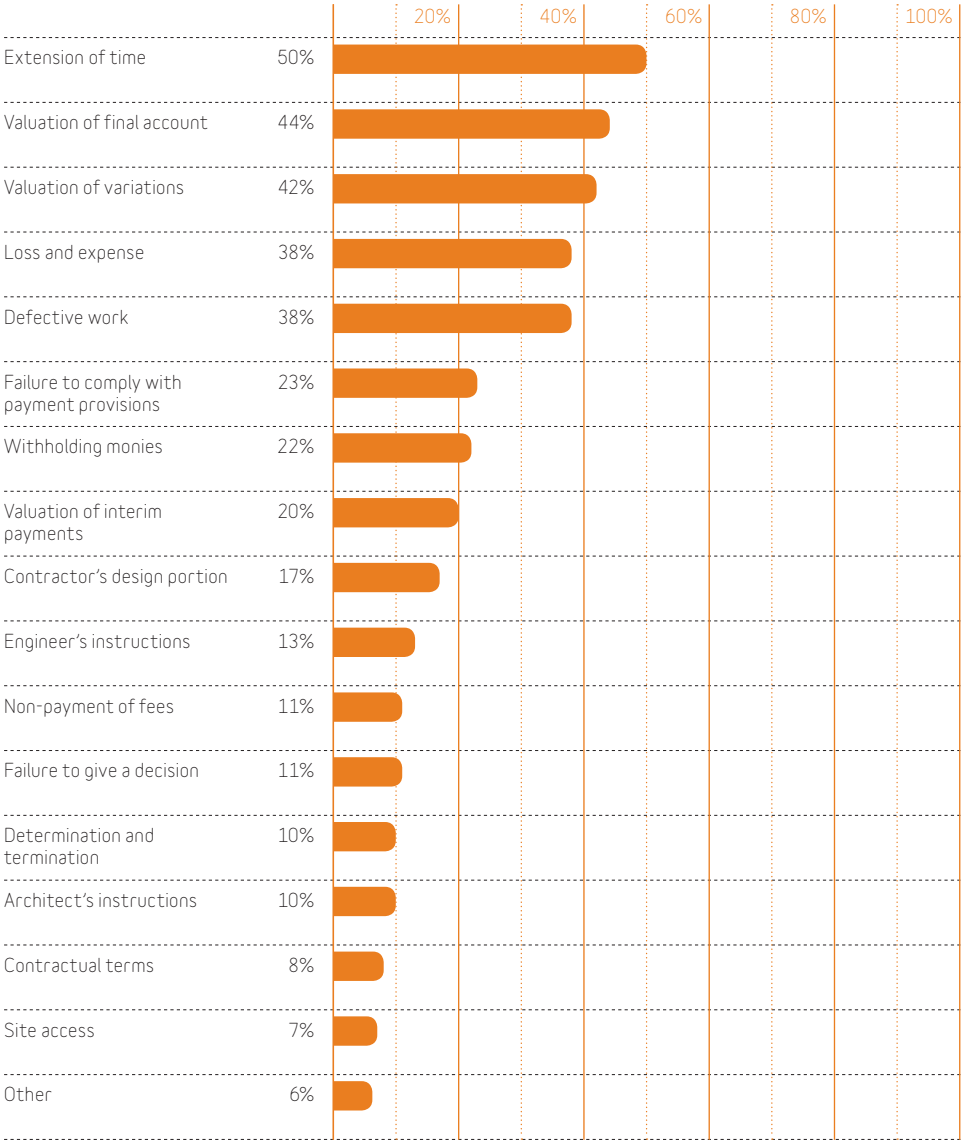
Thinking about the contracts you were involved in, approximately how many of these went into dispute during the past 12 months?



"There are fewer people feeling that disputes are on the rise than in 2012, but the change is marginal."

"The value of disputes is far from trivial. More than half of the disputes people told us about had a value greater than a quarter of a million pounds."

What were the main issues in dispute during the past 12 months?

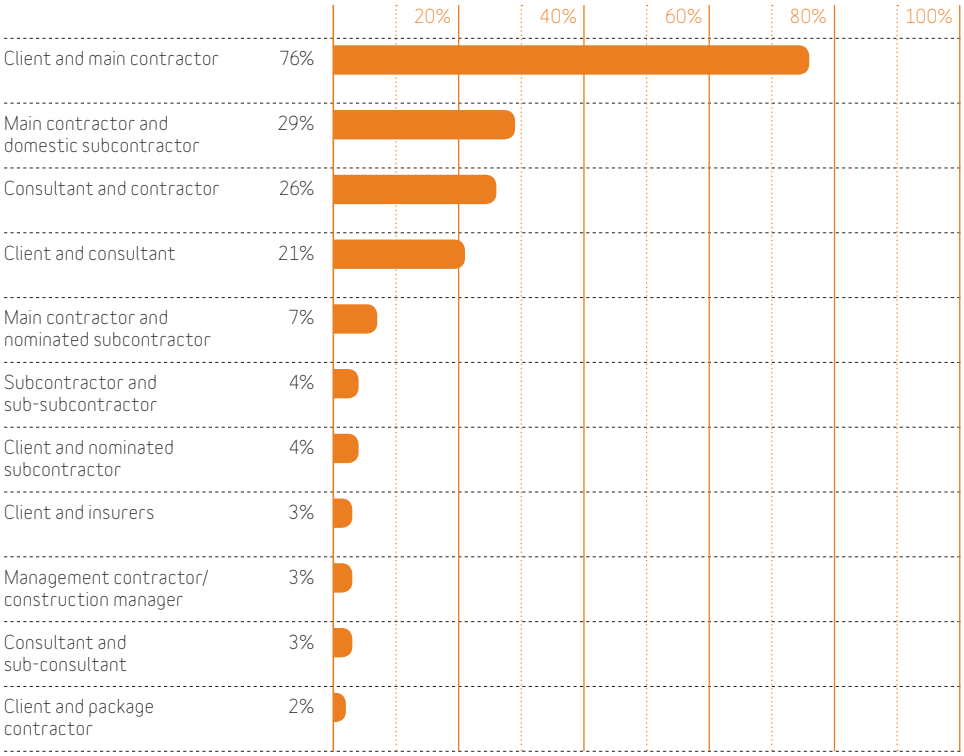


Disputes most frequently occur between the client and the main contractor. But there are many other types of party in dispute with one another. The main contractor and a domestic subcontractor were in dispute in 29% of cases, and the consultant and contractor in 26% of cases.

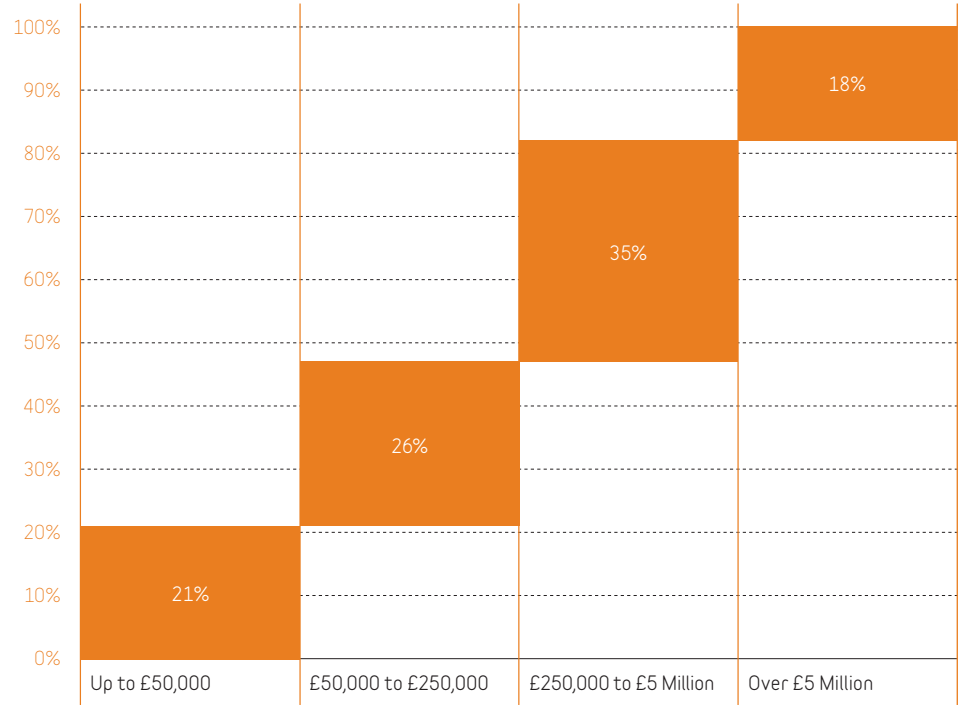
These are the causes of, and parties to, the disputes. Let us now look at their value, their timing, and their effects.

The value of disputes is far from trivial. More than half of the disputes people told us about had a value greater than a quarter of a million pounds, and 18% had a value greater than £5 million.

Who were these disputes between?



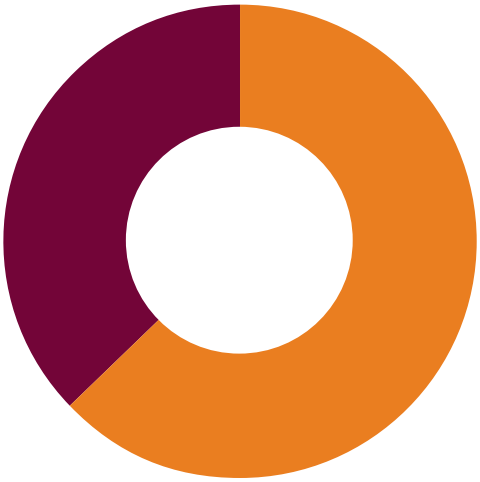
Approximate value of disputes that started in the past 12 months.



Disputes are more likely to occur during construction: 63% were initiated during the currency of the works whilst the remainder, 37%, were initiated after practical completion.

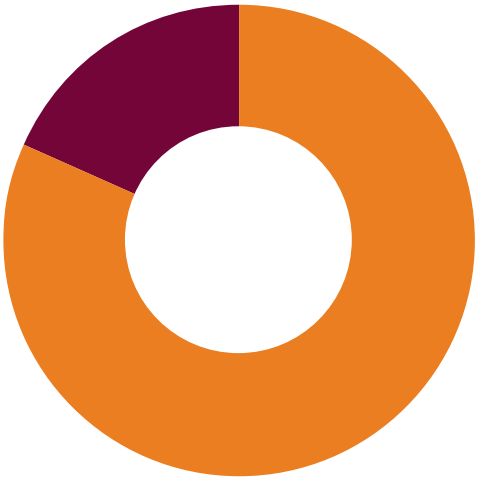
For most, the dispute did not result in construction activity coming to a halt, but for almost one in five (19%), the dispute meant that the work was suspended or stopped.

This data underlines the damaging effects that disputes can have. They are frequently disruptive and involve significant sums. Therefore, it is important that, where possible, disputes are avoided. We look at this next.



The stage at which the dispute occurred

During the currency of the works	63%
After practical completion	37%



Whether construction works continued during the dispute

Continued	81%
Stopped/Suspended	19%

Dispute Resolution

Well-formed contracts offer opportunity for a dispute avoidance procedure to be described and agreed. We asked which avoidance procedures were included in contracts. The most common procedure included in contracts is negotiation at site level (58%). Other procedures are contractually described, and these are given in the graph to the right.

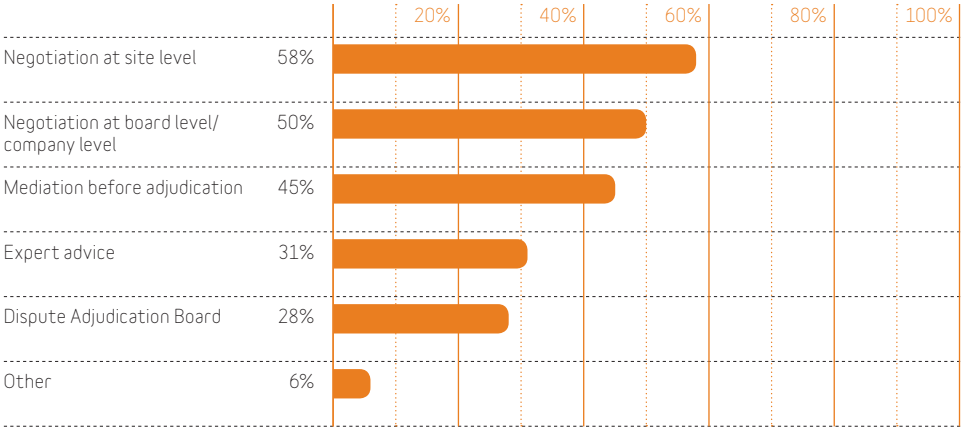
Where parties have failed to avoid dispute, they may appoint someone to help resolve it. There are three processes for doing this. They are:

- Nominated body (40%)
- By agreement of the parties (26%)
- Named in the contract (33%).

Since 2012, we see people have become more likely to refer to someone named in the contracts, and less likely to rely on non-contractual agreement between the parties.

Where both dispute avoidance and resolution have failed, the final tribunal of choice for one third is court, whilst two thirds use arbitration. This has remained the same since 2012.

Which, if any, of the following dispute avoidance procedures were included in the contracts/projects in dispute?



For projects going into dispute, what process is usually followed in appointing someone to help resolve the dispute, such as an adjudicator, arbitrator or mediator?

By agreement of the parties	26%
Named in the contract	33%
Nominated body	40%
Other	1%

What was the final tribunal choice in most cases?

Court	33%
Arbitration	67%

"Respondents are warm to collaboration, at least in principle, and are looking to educated clients to require it. More people are using contract suites that provide a framework for collaboration."

Closing Remarks

"If BIM starts to be specified more by clients, then there will be a greater degree of collaboration."

Our third survey has come at a point of significant change for the UK construction industry. From April next year, 3D collaborative BIM will be required on all centrally funded projects. In our National BIM Survey we have been able to track year-on-year the growth of BIM. Early adopters are leading change in how buildings are designed, in how information is gathered and used and, perhaps most significantly, in collaboration among the design team and beyond.

In construction contracts and law, we have yet to see such significant change; the construction sector can be viewed as a fundamentally adversarial rather than collaborative one, where narrow margins are expanded through dispute procedures. The number and value of disputes we see reported in this survey give weight to this view.

And yet some findings in this survey give us an inkling of change ahead. Respondents are warm to collaboration, at least in principle, and are looking to educated clients to require it. More people are using contract suites that provide a framework for collaboration. As we move out of recession, meeting increased construction demand will require new ways of working; as we saw with the Olympics, very large projects are best delivered within a truly collaborative framework.

"Clients' lack of understanding of BIM, and lack of BIM spec in the contract, is a great obstacle."

Next year's BIM mandate is not the end of the journey. The government has seen, and made visible to all, the cost savings BIM can bring. Clearly defining and mandating level 3 BIM is on the horizon. Here we will see the requirement for full collaboration between all disciplines, using a single, shared project model; it looks like this will need full integration within the contractual framework, a framework that requires, and delimits, collaboration.

Contracts for the Future

Richard Saxon CBE
Chairman, Joint Contracts Tribunal

The next few years will mark a period of substantial change and challenge to the world of contracts. The main reason is the arrival of digital working methods: first BIM, then the Internet of Things, which enable quite different ways of obtaining and using the built environment and need new styles of agreement to work together. Whilst Level 2 BIM is designed to avoid the need to change the contractual landscape, the next stage of development will require changes.

The report 'Digital Built Britain' was published by the BIM Task Group in March 2015. It did not raise much coverage as everyone was focusing on the arrival of the mandate to use BIM Level 2 from April 2016. But DBB, as I will call it, looks at the current pattern of technological innovation and sees a more complex and exciting future than was seen in 2008 when the famous Bew-Richards diagram was first promulgated. The Bew-Richards Ramp, as it became known, suggested a progression from 2D CAD through to Level 2 BIM then upwards to Level 3. Level 2 is based on separately authored models from each participant, federated by a viewer software. This leaves liability and intellectual property clearly with each firm, and works with contracts and insurance products based on a century of paper practice.

Level 3 was expected to involve moving on to shared models, held in the cloud and fully interoperable. That is likely to become technically possible in a few years. It would require teams to share liability and IPR as advanced collaborative working softens the ability to define who contributed which elements. Recognising that, the concept used in Belgium of Integrated Project Insurance (IPI) is being trialled under a government-sponsored scheme. If IPI proves workable, it will require new forms of agreement between members of the supply team and with the client. In summary, IPI will require the client to insure themselves against all risks whilst the supply team forms an alliance to deliver at or below budget. They remain at risk for under performance to a level similar to the excess they might have paid under PII policies, but beyond that the insurer covers any loss, without recourse. The insurers protect themselves by doing due diligence on the design and risk management of the project. Defect cover is included in the package, obviating the need for warranties. IPI can make the dysfunctional concept of PII redundant and offer true protection to the client. It also helps the team collaborate fully as each member doesn't have to protect their own interests. Integrated teams will probably work together from project to project, sharing gain and pain and learning. Trust, built up by working with trustworthy information and capped risk, will grow.

Looking beyond the insurance dimension, the 1998 Egan Report suggestion that we stop tendering on price comes back into view. Egan, a motor industry boss, thought that our design-bid-build method was the source of our terrible productivity. In manufacturing, one assembles the team for its qualities, knowing beforehand the desired performance and the affordable cost. The team then works together to hit or beat the targets, learn from outcomes and move on to the next project. The Japanese have built this way for a long time.

Richard Saxon CBE

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"Whilst Level 2 BIM is designed to avoid the need to change the contractual landscape, the next stage of development will require changes."

Relevant survey statistics →

Building Information Models will increasingly have a legal standing, as the information about a building is moved from disparate data stores into a central, collaborative model. Presently, most participants see BIM as having at least the same contractual status as drawings.

Digital Built Britain foresees four steps of change over the period before 2025: Level 3 BIM, smart buildings and cities, new business models and global opportunity. Remember that the Construction Industry Strategy of 2013 hopes for massive performance improvements from the industry by then: 33% lower costs (including for lifetime cost), 50% faster delivery and 50% less carbon emissions. This will not be achievable by simply hoping that the present working method will improve incrementally. Radical change will be needed. That radical change will be enabled by Information Technology but will also require a vision for new ways of delivering built environment services.

DBB sees the rapid arrival of the Internet of Things. IoT will enable much smarter buildings and cities, stretching productivity and performance. In buildings, we have not been getting what we paid for. Building performance usually falls below the design targets for several reasons: the design can be naïve; the construction stage can dumb down the design and execute it poorly; the handover stage can be weak, leaving a badly run facility. Feedback is typically non-existent, so the performance gap is tolerated, both in utility costs and functional weakness. IoT will give us massive feedback and automated control. Coupled with a good BIM-based process, the installation of low-cost sensors and actuators in every device and system in a building will offer us a monitored process to deliver the target performance, and a monitored product to operate and maintain the building.

DBB then expects new business models to emerge. Just as information-rich jet engines are no longer bought by aircraft makers but leased as 'power by the hour', so space could be provided on a performance contract. It's obvious that office tenants don't want the full repairing lease anymore: the proportion of space taken as serviced offices is rising fast. Build-to-Rent homes are serviced space. Design, build and operate will be one of the new business models. Construction and FM contracts need to integrate.

The Government's talk of moving to 'outcome-based' briefs suggests that public buildings and infrastructure could be procured to deliver social, environmental and economic performance, not predesigned for a price-seeking tender process. Whole-life performance is quite a different animal to capital performance, and we are now getting the tools to ask for that. Performance focused on the occupier's desired outcomes suggest very different contract requirements.

The final part of DBB looks at the global potential. Britain is a very small part (2%) of the world construction market in the next decade, yet our professionals are sought out worldwide and are leading development of these high-tech ways to deliver more for less. The idea of a purely UK-centred contractual approach will be less relevant going forward.

I took the chair at the JCT in March 2015 and hope to keep a focus on the future opportunities for UK construction. The next generation of legal and insurance tools needs to help us to deliver the potential called for in Construction 2025. ●

"IoT will give us massive feedback and automated control. Coupled with a good BIM-based process, the installation of low-cost sensors and actuators in every device and system in a building will offer us a monitored process to deliver the target performance, and a monitored product to operate and maintain the building"

Design liability, avoiding common pitfalls

Sarah Lupton
Partner, Lupton Stellakis Architects

When setting up the contractual framework for a construction project, it is vitally important to assign design liability accurately, both in terms of who is responsible for each design decision (i.e. the extent of liability), and the nature of that responsibility (i.e. the level of liability). This article explores cases where the extent or level has not been clearly set out, sometimes with unexpected results.

Extent of liability

Under most current procurement arrangements, including 'traditional' procurement, parts (sometimes numerous and extensive) of the project are to be designed by the contractor or, more often, a specialist sub-contractor. Standard form contracts allow for this wide range of practices, with most including flexible options allowing for contractor/sub-contractor design input, and offering back-to-back sub-contracts and warranty forms. However, clear allocation of decision-making depends on the specification and other documents tying in with the standard form provisions, and on subsequent behaviour reflecting what was anticipated in the package.

Walter Lilly & Co v Mackay [2012] concerned a project for three luxury houses, which began on site with very little finalised design information, and with most of the contract figure comprising provisional sums. The form of contract was JCT Standard Form of Building Contract 1998 edition, incorporating the Contractor's Designed Portion Supplement (CDP). The Employer's Requirements for the CDP were 'to be agreed' and the specification stated that 'The following works may be designed by the Contractor', with a list of around 25 possible CDP items.

Following commencement, the architects failed to give clear instructions as to which parts were to be designed by the contractor (save for piling), despite several written requests from the contractor (it was suggested by the judge that this failure was due to concerns that the price would rise). The court decided that clear written notification was required to bring an item within the CDP, and that the contractor was therefore not liable for the design of crucial defective elements. The fact that the contractor had in some cases been instructed to enter into sub-contracts where the specialist firm undertook to develop the design did not affect this liability. Neither did the fact that the contractor had from time to time put forward design proposals in an attempt to overcome difficulties.

In National Museums and Galleries on Merseyside v AEW Architects and Designers Ltd [2013], the contractual arrangements were similar to those above, but with much clearer information being available before construction commenced. Unfortunately, though, architects AEW failed to specify what might appear to be a very detailed matter: the tolerance between sets of pre-cast concrete steps. In fact, none of the consultants addressed this point, which resulted in serious problems at the interfaces of steps and seats leading to the main entrance. The architects tried to argue that this detail was the contractor's responsibility. However, the item was not part of the CDP, and the judge would not accept this argument, stating that:

"In relation to the gaps, AEW suggests that the design of the steps and seats was part of the works which the Contractor was required to design. This is, simply, wrong. The construction contract identifies those parts of the Works which the Contractor was required to design or have design involvement with as: "steelwork connections, reinforcement placement & scheduling, general glazing & curtain walling, roof cladding, fixing wind posts, structural glass and glazing". This is described in the contract as the "Contractor's Designed Portion" and it is simply in relation to those works that the Contractor has any design responsibility'."

Level of liability

There are generally considered to be two distinct levels of design liability: an undertaking to use reasonable skill and care, and a strict obligation to achieve a result (the second is often referred to as a 'fit for purpose' obligation, but it is not necessary for these words to be used to create a strict duty). Where the contract is silent on the matter, the normal implied level for a consultant is the former, and that for a contractor is the latter. However, there have been recent cases where the result has differed from this default.

In Trebor Bassett Holdings Ltd v ADT Fire and Security plc [2012], ADT was engaged to design and install a fire protection system in a popcorn factory. Following installation, smouldering popcorn fell into a hopper and an incorrectly

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Seventeen percent cite the Contractor's Designed Portion as a main issue in a dispute.

Eighty-one percent agree that collaboration enables information sharing. Less than a third feel it makes responsibility less clear.

positioned fire detector failed to trigger the suppression system. The resulting fire spread and destroyed the entire premises. The specification, which formed the basis of the contract, included the key clause:

ADT Fire and Security CO2 fire fighting systems are designed, manufactured and installed to suit the specific requirements of the risks to be protected and comply generally with the requirements of BS5306 Part 4.

Despite the wording of the clause, the Court of Appeal decided that ADT's liability was limited to using reasonable skill and care. The Court was reluctant to equate the design of a system to that of a component or structure (which would have attracted a strict obligation), and in any event found that the purpose had not been made sufficiently clear to give rise to such a duty.

In Trebor Bassett, the express contract terms were minimal, but in other examples there were extensive but conflicting obligations, requiring a party to use reasonable skill and care, and to achieve a particular result. For example, in Costain Ltd v Charles Haswell & Partners Ltd [2009], the engineers' terms of appointment stated:

"The Consultant warrants that:

7.2. In the provision of the Services the Consultant shall exercise all reasonable professional skill, care and diligence.

7.4. Any part of the works designed pursuant to this Agreement if constructed in accordance with such design, shall meet the requirements described in the Specification or reasonably to be inferred from the Tender Documents or the Contract or the written requirements of Costain…"

The court construed these statements as creating a strict liability for design (although not for other Services), stating that:

"…it is perfectly normal, in any given case, for such a professional man to give express warranties which impose strict liability or a performance obligation such as that the finished building will be reasonably fit for a specified purpose."

An interesting contrast to this can be seen in MT Højgaard A/S v E.On Climate & Renewables UK Robin Rigg East Ltd [2015]. Here the claimant contractor (MTH) entered into an agreement with the defendant employers for the design, fabrication and installation of the foundations for 60 wind turbine generators for an offshore wind farm in the Solway Firth. Following installation of the turbines, movement was discovered in the grouted connections between the foundation monopoles and the transition pieces that supported the generators.
The key clause in the contract stated:

"8.1 GENERAL OBLIGATIONS

The Contractor shall, in accordance with this Agreement, design, manufacture, test, deliver and install and complete the Works:

(i) with due care and diligence expected of appropriately qualified and experienced designers, engineers and constructors (as the case may be).

(xv) so that the design of the Works…shall satisfy any performance specifications or requirements."

The Employer's Requirements stated:

"3.2.2.2 Detailed Design Stage

The detailed design of the foundation structures shall be according to the method of design by direct simulation of the combined load effect of simultaneous load processes (ref: DNV-OS-J101). Such a method is referred to throughout this document as an 'integrated analysis'

The design of the foundations shall ensure a lifetime of 20 years in every aspect without planned replacement…"

Unfortunately, the international standard DNV-OS-J101 was fundamentally flawed, so that adhering to it inevitably resulted in a faulty connection. The court therefore had to decide whether MTH's obligation was limited to using reasonable skill and care (discharged by following the standard) or whether it was under a strict obligation to achieve a service life of 20 years. The court at first instance decided that the words of clause 3.2.2.2 were clear and imposed a strict obligation. It noted that 'it is not uncommon for the obligations to exercise reasonable care and to achieve a particular result to exist side by side in construction and engineering contracts, and that the two obligations are not mutually incompatible'.

In doing so it relied on the Canadian case Greater Vancouver Water District v North American Pipe and Steel Ltd [2012], where a contractor was held liable to comply with a performance warranty, despite being required to use products that would make it impossible for that performance to be achieved.

In practice most drafters would assume that a clause such as 8.1 imposes an obligation to fulfil all of the duties listed below it, however the Court of Appeal took a different approach, and the decision was overturned. The Court pointed out that the sub-paragraphs 'do not contain or require any free standing warranty or guarantee of the kind that there was in The Steel Company of Canada Limited or Vancouver Water District, two authorities on which the judge placed particular reliance'. Taking account of the hierarchy of the various contract documents, and preferring a more global approach, it decided that on balance the contract required only due care, professional skill, and adherence to good industry practice.

Conclusion

All of the above cases depend on particular facts, but serve to point out that standard rules regarding liability are always subject to re-interpretation in a changing procurement context. What is also clear is that is not safe to make assumptions about design liability based on a party's expertise, its typical role, its normal level of responsibility, or the decisions it actually makes on a given project. The contracting parties must in all cases spell out what is intended within the contract documents. In particular, the hierarchy of clauses within each document, and the relationship between documents, should ensure that allocation of detailed design tasks and level of responsibility for each is crystal clear, with no gaps or overlaps. ●

"The contracting parties must in all cases spell out what is intended within the contract documents."

Can BIM solve construction disputes?

Roland Finch
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The Government Construction Strategy, published in May 2011, talked a lot about BIM, but not very much about disputes. There is, in fact, only one mention, and even that only refers to the cost of resolving disputes over post-handover defects being higher than the cost of fixing the defects themselves.

At the time, I recall being slightly surprised that this statement was not challenged on the grounds that, strictly speaking, 'contractual' handover cannot take place until all known defects have been rectified, but I suppose this misses the point. The theme of the Strategy was looking at how to make improvements to existing processes, so taken in context, it is probably a relief that the document doesn't just label our industry an adversarial, dispute-ridden mess, which the Government once more has to rescue.

Instead, the Strategy chooses to accentuate the positives, focusing on collaboration, which together with sharing, communication, integration, partnerships and innovation represents some of the other means by which waste and inefficiencies can be driven out and value improved.

The contribution of BIM

So where does BIM fit into the Construction Strategy? Well, at its most fundamental level, BIM is a tool which assists the process. BIM is all about collecting, handling and manipulating information. But information itself isn't new - and neither are models as a means of conveying that information to others. Models are everywhere, and have been for some time.

The big advance in this area, however, is in technology and the use of software, which allows visualisation of the proposed job. But it also means rapid checking of data to see that it is complete, and confirm that it is correct - or at least to warn users that it is incomplete or incorrect. It can be used to identify anomalies, compare scenarios, and provide a means for fast data transfer that was impossible just a few years ago. A properly designed model will therefore ensure that the information it holds will be available to the person who needs it in the right format, at the right time and crucially, with speed and accuracy.

And will this reduce disputes? In principle, yes. If we accept that uncertainty is one of the major causes of disputes, then BIM should certainly reduce that aspect. It is worth noting, however, that the use of a BIM cannot in itself resolve the difference: it requires people to do that. So although there are lots of tools which will identify and highlight discrepancies in the model, it will be left to the contributors to decide between them which part needs to be changed in order to correct the discrepancy.

Perhaps just as importantly, it should be recognised that there are some causes of dispute which the model cannot assist with. Although the availability of clearer information should mean that the person carrying out the work will be in a better position to assess and price the risks associated with carrying out the work, it doesn't mean that they will get it right, or that the conditions they do it under will not change. The NBS Contracts and Law Survey highlights programming issues and Client variations as being among the most common causes of dispute. Add to these things like valuation of work completed and assessment of extension of time, and it's difficult to see where the model can assist with these problems.

What the model can do is allow information to be structured in a more efficient way. And that means that when it comes to things like programming and valuation of the work then the participants should have the best means at their disposal to allow them to carry out that task, with the result that there should be fewer disagreements.

Another huge advantage of using a model is that it represents a single source of information. BIM means that data from several places has been brought together in the same place. This data may come from Architects, Engineers, Surveyors and Planners, but it will all have been coordinated, clash-checked, organised and integrated before being included in the model itself. The subsequent 'architectural' plans, 'engineering' layouts, schematics, elevations, schedules and room data sheets will all be extracted from the model, but crucially use the same base data. It follows that the absence of conflict in the information given to the Contractors means that there should be no problems to resolve during construction.

Roland Finch

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People are more likely to see BIM as an enabler of collaboration than not. Nearly half, 47%, see collaboration as helped by BIM, and only 9% don't; that still leaves 44% who have no feelings either way.

In addition, because that information will be held in the same format, there should be no difficulties associated with converting it or transposing it from one medium to another. The extra bonus of using a model for the whole project is that when something is changed in one place, that change is automatically transferred to all the other relevant parts of the model; so if, for instance, the dimensions of a door are amended on a drawing, or its fire rating, or even its colour, then the associated door schedule and the specification would also be updated simultaneously. This means that the potential for getting something wrong (such as when taking something from an Engineer's drawing and manually incorporating it in the Architect's plans) is therefore removed. Furthermore, the changes can be tracked and highlighted, so the problem of interpreting ambiguous 'revision notes' describing things like 'general amendments' is banished forever.

Of course, all this requires something which our industry is not necessarily renowned for: discipline. In order for the model to work effectively, it must contain everything that it requires to do so. This means that, using the door as an example, all the properties which are required for that particular stage in the project timeline are completed. It may not be necessary at RIBA Plan of Work Stage 2 (Concept) to know the precise colour and finish, or the type of door furniture, but this will be essential for Work Stages 4 and 5 (Technical Design/ Construction).

As we all know, this should be the case regardless of method, but the difference is that a model, because it is self-checking, will not allow access to the next stage until all the mandatory 'fields' are completed. This is one of the principal features of electronic data input, and should be embraced as a benefit, but all too often it is viewed as a hindrance.

It should be easy to see that the use of models can greatly assist with accuracy of information, and in turn reduce the opportunity for mistakes which ultimately lead to problems.

Conclusion

It is perhaps a sad fact to note that disputes are almost accepted as being an 'occupational hazard' within the construction industry, included in the risk analysis and priced for accordingly. We only need to look at the proliferation of 'alternative' dispute resolution methods to realise that it is big business for some. In fact, it could be argued that the focus has shifted to making disputes easier to resolve than they are to prevent.

If it is possible to paraphrase the words of the politicians, we should be tough on the causes of disputes: anything else is failing to address the real issues. And one of the biggest causes of disputes is inconsistency and poor quality of information.

BIM on its own will not resolve disputes: that much is clear. However, by providing an environment where the right information is available to the right person at the right time, it can play a significant part in preventing them. And fewer disputes mean lower costs.

Clients, and in particular the 'Government' client have recognised the benefits which BIM can bring. Technology has facilitated coordination and information transfer, so all that is left is to get that information right in the first place and make it work.

That is our challenge. ●

"Another huge advantage of using a model is that it represents a single source of information. BIM means that data from several places has been brought together in the same place. This data may come from Architects, Engineers, Surveyors and Planners, but it will all have been coordinated, clash-checked, organised and integrated before being included in the model itself."

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