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## 'Perspective'

These articles are a compilation of Perspective Newsletter, our quarterly digital publication and part of Probyn Miers knowledge sharing policy directed to the construction industry and our clients. Perspective brings you news, information and points of view on topical issues relevant to architects, engineers, surveyors, construction lawyers, contractors, insurers and all of our colleagues in the industry. The articles, intentionally short, are the bases for further in-depth discussions at in-house talks and workshops that Probyn Miers runs for our clients. Our articles are published in other journals with prior agreement.

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# BIM and Professional Risk – Update

By Frank Newbery

First Published June 2013

Following publication of the UK Cabinet Office's Government Construction Strategy in May 2011 there has been rapidly growing awareness and adoption of BIM throughout the UK construction industry, albeit with varying levels of skill and commitment.

An inhibiting factor in the uptake of BIM for building projects has been the absence of consensually recognised protocols or contractual provisions to frame the more collaborative and integrated working relationships that BIM inherently demands.

Design professionals in particular have been concerned that, in taking on BIM projects, they might be taking on new and inadequately defined obligations and liabilities. Amongst PI insurers, a few have become sufficiently acquainted with BIM to offer viable forms of cover, but much general uncertainty has persisted.

An interrelated group of recent publications may do much to remedy this situation. These are principally the CIC BIM Protocol published by the Construction Industry Council, and PAS 1192-2 Specification for information management published by the British Standards Institution under CIC sponsorship. Satellite documents include the CIC Best practice guide for professional indemnity insurance when using building information models ("CIC PI Guide"). All of these documents are available as free downloads from the CIC, BSI and BIM Task Group websites.

The CIC BIM Protocol is intended to be annexed to building contracts and professional appointment terms, thereby providing all of the participants in a building project with a common framework and understanding of their obligations in supplying information and developing the BIM model. The Protocol's scope is explicitly limited to BIM "Level 2", in which different consultants develop separate models for integration within a Federated Model, rather than "Level 3", in which all consultants work on the same single Model.

The Protocol's core text is only some five pages, but detailed definitions of the various parties' obligations must be considered and set out in an appended Model Production and Delivery Table ("MPDT"). This table identifies which parties are to deliver which categories of information at progressive stages of a project, and to what level of detail. A further appendix of Information Requirements must also be compiled to establish common technical, management and commercial standards. Although not strictly required, the official guidance strongly suggests that PAS 1192-2 is the appropriate standard to be adopted for information management.

A key feature of the Protocol is that it requires the Employer to appoint an Information Manager. This can be a stand-alone professional role, but the guidance envisages that it would more usually be carried out as an additional service alongside other consultancy or management services. The CIC has published an Outline scope of services for information management for guidance. This defines the role as principally one of coordinating and integrating data with no design or design-checking responsibility for the building's developing form.

It is to be expected that many larger and more BIM-attuned Employers, particularly in the public sector, will develop their own preferred versions of MPDT and Information Requirements. Insofar as these frameworks may already have been established, architects entering into professional engagements should obtain full details and examine the obligations closely and carefully with their insurers.

The CIC PI Guide is intended to provide broad guidance to insured professionals concerning procurement and preservation of adequate cover in relation to BIM engagements. In so doing it usefully indicates what types of professional risk are seen to be particularly associated with BIM. Most noticeably, the Guide strongly emphasises that the insured must be certain and clear that any BIM engagement is "Level 2", not "Level 3", (see above), and has robust audit trails and change control systems. In addition, the following points should also be considered when managing work in a BIM environment :-

- Ensure your own work model can be fully distinguished and separated from the project's Federal Model.
- Ascertain and confirm exact appointment conditions, including what BIM protocol will apply. (The CIC
- BIM Protocol is viewed favourably. Beware of unfamiliar "bespoke" protocols).
- Consider and confirm whether or not you are taking on the Information Manager role.
- Confine any service in this category to procedural checking rather than design checking.
- Consider and confirm whether you are taking on responsibility for model integration and clash detection

- Confirm if you are employing a BIM Coordinator as a sub-consultant or “hosting” the BIM environment
- Beware of designing too much too soon. Keep to the Level of Detail prescribed under the Protocol for each project stage.
- Ensure that any sub-consultants will work compatibly with the Protocol requirements.
- Implement a thorough regime of recording information issue and revision numbering for future traceability.
- When receiving or passing on models, check if there are any obstructive licensing restrictions.
- Beware of over-reliance upon automated checking software e.g. for Building Regulations compliance. The software manufacturers will usually exclude any liability.

When taken together with these basic principles, the latest protocols and guidelines may be considered to be current best practice.

**Frank Newbery** is a Chartered Architect with over thirty years' experience in the construction industry. He has been active in expert witness consultancy since 2004. He is experienced in all the key professional tasks including client liaison, design, planning and building control consents, technical detailing and production information, contract administration and obtaining resolution of defects. Frank has given expert evidence in court and has been a key participant in several mediations. In recent years Frank has taken a special interest in the evolution of BIM procedures and conventions, and gives public presentations on the topic.  
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## Digging Through History: *Obrascon Huarte Lain S.A. v Her Majesty's Attorney General for Gibraltar*

By Christopher Miers

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What allowance should a contractor reasonably make in its tender for excavating in a site which may contain contaminated land? And what happens when it has no record of the allowance which it made, and yet wishes to bring a claim for the conditions found? These issues were brought to life in the case of *Obrascon Huarte Lain S.A. v Her Majesty's Attorney General for Gibraltar* [2014] EWHC 1028 (TTC) [1], which involved the construction of a road and tunnel under the eastern end of the runway of Gibraltar Airport. [2] Plans from the 19th Century showed rifle butts and rifle ranges located along the line of the proposed tunnel; and aeroplanes had been landing, taking off and refuelling there for over 70 years.

The key concern was contaminated land and unexploded ordinance: following the site investigation, an engineer commented that the top layers of the site were all man made, with most of the work having been done during the construction of the airfield and in a hurry. He noted that “it is possible to find almost anything within this layer. The whole area of the airfield has the potential to contain some ground contamination, i.e. Hydrocarbons.”

The contract was let under the FIDIC Yellow Book terms for a Design Build Project. As readers may be aware, under this contract there is express provision for the contractor to be granted an extension of time, and payment of additional cost, if completion is delayed by the contractor encountering ‘Unforeseeable Physical Conditions’ [3]. Unforeseeable is defined in the contract as “not reasonably foreseeable by an experienced contractor by the date for submission of the Tender.” [4]

The project did not proceed as expected: after over two and a half years of work on a two-year project when little more than 25% of the work had been done, the contract was terminated. This dispute concerned primarily the entitlement to terminate, and involved a number of associated issues including the reasonable foreseeability of the extent of contaminated ground which the contractor had to excavate and dispose of.

The challenges faced by a contractor bringing a claim for unforeseeable ground conditions in these circumstances were highlighted in the judgment of Mr Justice Akenhead. His task of determining what an experienced contractor would have allowed for by way of the quantity of contaminated ground which it would have to excavate was hampered the complete absence of evidence as to what provision had actually been made by the contractor in its tender. He commented “There was, surprisingly, no evidence from witnesses or documentary evidence from OHL [*Obrascon Huarte Lain S.A.*] as to what those then involved with the tendering process for OHL actually foresaw; it is surprising because so much of the dispute between the parties relates to what was or was not reasonably foreseeable by an experienced contractor by the date of submission of the tender... The consequence must be that the court cannot and does not infer that OHL itself did not in fact prior to the contract foresee the adverse physical conditions actually encountered....”

He also made some interesting observations about the challenges of both estimating and recording volumes of excavation, noting that “.... to remove say a 2x2x2m amount of contaminated material from the ground with an excavator, one is probably going to have to excavate a hole of 3x3x3m, thus

inevitably cross-contaminating and more than trebling the initial volume. There was always thus foreseeably a major problem in this regard ...”.

He found that “The problem here for tendering contractors is and was the foreseeable uncertainty of precisely what and where (and at what depths within the made ground) in terms of quantity and location the contaminated soil would be. That there was a very real prospect in encountering contaminated material in sustainable quantities anywhere within the made ground was eminently foreseeable by an experienced contractor at tender stage”. The Judge noted that “There is no help within the evidence as to how OHL did address it pre-contract if it did at all.”

Akenhead J also found that the contractor did not in fact encounter physical conditions in relation to contaminated soil over and above that which an experienced contractor would reasonably have foreseen by the date of submission of its Tender. He found that the quantities actually encountered and present were likely to have been less than could have been reasonably foreseen by an experienced contractor and that it had certainly not have been established otherwise.

The contractor was missing a vital element of evidence; what in fact it allowed for within its tender. The case is an object lesson in the need for good record keeping, even before the contract is let.

[1] *Obrascon Huarte Lain S.A. v Her Majesty's Attorney General for Gibraltar* [2014] EWHC 1028 (TTC)

[2] See Google Earth, Gibraltar Airport, 36°09'11.87" N 5°20'52.71" W

[3] Sub-clause 4.12

[4] Sub-clause 1.1.6.8

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## A Stitch In Time?

By Bart Kavanagh

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Last year's update of the CPR (Civil Procedure Rules in England and Wales) following the Jackson Report has made all legal professionals more conscious of the costs that their activities incur and of the need to manage those costs on behalf of their clients. With respect to the cost of appointing expert witnesses, an additional question of management sometimes arises. That is – 'can we manage without them?' As with so much in the law the answer is of course, 'it depends ...'

At one pole is professional negligence where, as Coulson J confirmed in his judgement in *Pantelli Associates v Corporate City Developments* [1], unless the circumstances are very unusual, expert evidence will be required from the outset. At the other are those cases where either the stakes are so small or the facts so straightforward that the parties must be guided to settlement without resorting to outside expertise. The area between these two, however, is extensive and grey.

It should go without saying that the cost of appointing an independent expert must be budgeted and managed. Time and fee estimates, updated through the various stages of an appointment have now become the norm. There is a view, however, that one effective way of curtailing the cost of expert evidence is to put off appointing an independent expert until the last possible moment. This is often based on one of the following assumptions: that the case will settle, thus avoiding the need for experts altogether; that the cost of expert evidence will be less if it is provided over a shorter period; or that the role of the expert can then be restricted to simply preparing a report on limited issues for presentation to the court or tribunal. I would argue that none of these approaches represent best value.

Whilst the expert has an overriding duty to the court to provide independent and impartial opinion evidence, his duty to his client remains and should not be overlooked. Within the proper bounds of both duties the expert is able to provide advice which can help to shape an effective and cost efficient case strategy from the beginning of the pre-action protocol process.

Lord Dyson succinctly summarised the position between the expert and his instructing party in his judgment in *Jones v Kaney* [2]:

*"95. ... an expert who acts in civil litigation owes his client a duty to act with reasonable skill and care. He owes this duty in contract (...) and in tort (...). The client relies on his advice in determining whether to bring or defend proceedings, in considering settlement values and in appraising the risks*

at trial. The client also relies on him to give the court skilled and competent expert opinion evidence. ...” (Emphasis added)

Further in Stanley v Rawlinson [3] Tomlinson LJ made it clear that an expert may also advise on factual evidence:

“There is nothing inherently objectionable, improper or inappropriate about an expert advising his client on the evidence needed to meet the opposing case, ... There is nothing improper in pointing out to a client that his case would be improved if certain assumed features of an incident can be shown not in fact to have occurred, or if conversely features assumed to have been absent can in fact be shown to have been present.”

An independent expert may be advantageously deployed at the earliest stages of the litigation or arbitral process with respect to all of the matters referred to in the extracts above. Used in this way expert opinion may not only assist in the general formulation of a case but also help overcome some of the most common barriers to timely settlement. These frequently include: an incomplete or defective understanding of the technical merits or basis of a claim; entrenched, but erroneous, views of a client’s own, and/or the opposing case; inability to ‘see the wood for the trees’. Independent technical opinion may provide the most effective key to unlock these barriers.

If settlement is not possible or not appropriate then expert advice may still assist in reducing the cost of the inevitable proceedings by narrowing the matters at issue or by identifying the most appropriate party to pursue.

Expert fees should be a small proportion of the amount at stake but the value that the timely application of independent expertise can provide, by unlocking agreement even to part of the matter at issue, can be disproportionately large.

[1] Pantelli Associates v Corporate City Developments [2010] EWHC 3189

[2] Jones v Kaney [2011] UKSC 13 – On appeal from: [2010] EWHC 61(QB)

[3] Stanley v Rawlinson [2011] EWCA Civ 405

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## Designing Buildings for Fire Safety: BS 9999:2008

By Martin Edwards

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This British Standard is a risk-based design tool which gives designers flexibility to take into account factors such as the building use, the abilities of the occupants, the smoke detection and fire suppression systems, the ceiling heights and the management of the building. It can address unusual or innovative designs beyond the scope of the UK Building Regulations Approved Document B.

All architects and building designers are aware of Part B (Fire Safety) of the Building Regulations. The two volumes cover a majority of non-specialist buildings and it would be possible to work one’s entire career without reference to any fire safety document other than Approved Document B (ADB). Most architects are also aware that in very large and complex buildings, responsibility for design of the large and complex active fire protection measures can be safely entrusted to fire engineers. BS 9999 is a middle way, suitable for buildings of intermediate size and complexity or unusual designs requiring a flexible approach.

The guidance in ADB is largely prescriptive, based on building use, size and occupancy. For example, the minimum number of fire exits is 2, the maximum travel distance is 45m, the maximum direct distance is 30m, the clear width of the exit door is 900mm etc. There is little flexibility, other than some reductions of passive fire protection in buildings with sprinkler installation.

20 years ago, when I was designing Halls 2 and 3 of Wembley Exhibition Centre in London (now demolished – you know you have reached maturity when your buildings get demolished!) I found that there was a small area in the middle of the footprint which was 33 or 34m direct distance from the nearest fire exit, and thus non-compliant with ADB. I considered that the design was safe, as escape was possible in four directions (north, south, east and west) and fortunately Head of Building Control at L.B. Brent agreed. However, I had no basis for my contention. A less confident or adaptable building



inspector could have refused the design, because the Regulations offered no flexibility.

The designers of specialist buildings will know that other recommendations exist. ADB refers to HTM 05 Fire Code for hospitals and Building Bulletin 100 for schools. However, until April last year, the majority of the specialist design codes of practice were in the various parts of BS 5588. These codes were also prescriptive, with little flexibility for the designer. Nine parts of BS 5588 (the only survivor is BS 5588-1: 1990 Residential Buildings) were superseded by BS 9999: 2008.

BS 9999 is based not on prescriptive recommendations, but on risk analysis. The 'Risk Profile' is based on occupancy characteristics (abilities of occupants and building use) and fire growth rates. Some very fast-growing fire risks are deemed unacceptable, and sprinklers or other suppression systems must be introduced to reduce the risk. Risk profiles are given for 60 or more different building uses. The level of management of the building is also a factor taken into consideration. The level of management required is derived from the risk profile and occupancy characteristics. There is guidance on designing so that the building can be managed well.

The minimum level of detection and alarms is derived from the risk profile. The minimum scope of emergency lighting is derived from the occupancy characteristics. When the minimum fire protection measures are provided, permitted travel distances for means of escape can be read off the table as in ADB. If sprinklers are added, the risk profile reduces (e.g. from A2 to A1) and the permitted travel distance increases.

Other improvements and fire protection measures can permit increases in travel distance, and reductions in door, corridor and stair widths. Automatic smoke detection allows 15% flexibility. The effect of room height is taken into account, as high ceilings keep escape routes clear of smoke for longer. A 10m high ceiling allows a 30% increase in travel distance. Increases of travel distance and reductions of width of escape routes can be cumulative if suppression, detection and high ceilings are all provided, but within limits.

The flexibility of BS 9999 will be of great interest to building procurers and designers.

**Martin Edwards** is a Chartered Architect with over 35 years' experience of private and public architectural practice in a wide spectrum of building types in the UK and abroad. He is an Associate Director at Probyn Miers with over 14 years' experience as an Expert Witness and has been instructed in disputes up to £80 million value. He has also acted as single joint expert. With an extensive specialist knowledge on fire damage and fire safety and with wide experience of negotiations with Fire Brigades and Local Authorities over the fire strategies for large and unique buildings. Martin has been quoted as 'The Architect who Knew Too Much About Fire' (see Probyn Miers Newsletter 'Perspective', February 2013). He has also reported on fatal fires for criminal proceedings.  
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