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Case No: 2010-TCC17747

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
TECHNOLOGY AND CONSTRUCTION COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 11th July 2012

Before:

MR JUSTICE AKENHEAD

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Between:

WALTER LILLY & COMPANY LIMITED	**Claimant**
- and -	
(1) GILES PATRICK CYRIL MACKAY	
(2) DMW DEVLOPMENTS LIMITED	**Defendants**

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Sean Brannigan QC and Anneliese Day QC (instructed by **Reynolds Porter Chamberlain LLP**) for the **Claimant**
David Sears QC, Serena Cheng and David Johnson (instructed by **Nabarros LLP**) for the **Defendants**

Hearing dates: 12-15, 19-22, 26-29 March, 2-4 April and 3 May 2012

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JUDGMENT

Mr Justice Akenhead:

1. This litigation raises extensive disputes which have arisen on a substantial new building project at 3, Boltons Place, London SW5. The project commenced in about 2004 and it is common ground that, when the Contractor, Walter Lilly & Company Limited ("WLC"), was appointed as main contractor, design work was nowhere near completed. It was clear and became clearer that the employer, DMW Developments Ltd ("DMW"), had very high expectations. However, little if any design had been completed prior to the involvement of WLC. There were substantial delays, much of which initially at least were not the responsibility of WLC, and as time went on DMW fell out seriously with its Architect. It can certainly be seen with hindsight, and could probably have been foreseen, that the project was "a disaster waiting to happen". This certainly has proved to be the case.

2. The case raises a number of issues which may be of interest to the construction industry and specialist legal practitioners and these include global claims and concurrent delays. In one sense, this litigation is very old-fashioned because it has involved a full-blooded conflict between the parties in which there seems to have been little, no or belated room for compromise, although the quantum experts have gone some way to reducing what is in issue. There remain in effect hundreds of issues

between the parties, hence the length of this judgment. Different approaches are adopted by each party on delay analysis. No quarter was given on any of the primary matters in issue. Some very personal criticisms and complaints have been made by each party about one or more of the other side's witnesses. There have been over 32,000 pages of documentation put before the Court (albeit with a significant amount of duplication and irrelevant material), there have been 9 factual witnesses and 8 experts and the trial hearing has lasted 16 days. The expert bundles themselves run to 33 in number, totalling some 11,000 pages. It seems that the parties have expended between about £9m and £10m by way of costs, which is obviously disproportionate to what is in dispute.

3. I propose to divide this judgement into a number of sections:

A. General Chronology.

B. Assessment of Witnesses.

C. The Contract.

D. The Proceedings and the Pleadings

E. Analysis of Major Causes of Delays and Major Defects.

F. Extension of Time.

G. Quantum Delay.

H. Other Defects.

I. Other Quantum.

In the General Chronology which follows, I will not set out in detail the history relating to the Light Wall, the ABW, the Courtyard Sliding Doors, the lift, the Barrisol Ceilings, the Stingray Doors, Leather in the Library, snagging or plaster defects which will be dealt with in the Analysis of Major Causes of Delays and Major Defects.

General Chronology

4. No, 3 Boltons Place, owned and occupied by Mr and Mrs Mackay, is one of three adjacent houses of similar design. DMW was a purpose designed vehicle for the acquisition of the land at what is now Nos. 1, 2 and 3 Boltons Place and was formed by three people, Mr Mackay, Mr Daniel and Mr West. The three houses were known during construction as Units or Plots A, B and C, of which C was to be Mr and Mrs Mackay's. The houses are of reinforced concrete construction on piled foundations and the external walls are brick, although the ground floors are rendered in a faux rusticated manner. There are five floors, with a basement containing a below garden swimming pool set across a narrow courtyard, a ground floor and three other floors. The third floor is located behind a mansard style slate clad roof. Whilst each house was built to a similar shell and core, the interiors were fitted out to suit the requirements of the individual owners.

5. The basement at No.3 comprises on the west side a large habitable space, designated as the Library where the extensive bookcases are covered in stitched leather. The Library windows, which largely comprise a large sliding door, look out onto a courtyard with a water feature, on the other side of which behind a similar sliding door is the swimming pool, on the western side of which are glass screens behind which there are changing rooms, a lavatory and shower. The very substantial sliding doors which lead out from the swimming pool and the Library are known as the Courtyard Sliding Doors. The glass screens on the western side of the pool comprise and incorporate a lighting feature which allows a flow of changing coloured light from top and bottom to be diffused through the whole of the screen; this is known as the Light Wall. In the basement there is also a cinema and below the external area immediately outside the front door is a garage accessed by a car lift. The ceilings of the swimming pool and the cinema comprise what is known as Barrisol ceilings which essentially are a stretch light coloured fabric which conceals a substantial bank of lights which also change colour and are supposed to be diffused evenly through the ceiling downwards. There are also a wine cellar, guest toilet facilities, a kitchen, laundry and staff quarters. There is a secondary staircase to the ground floor. The ground floor comprises a large entry hall, to the west a large family room and to the east the drawing room in addition to which there are guest cloakrooms; the doors to these two rooms were known as the Stingray doors and were very substantial metal lookalike doors. The first floor contains the master bedroom suite, including bathroom and dressing rooms as well as two studies, referred to as His Study and Her Study. On the second floor there are two substantial bedrooms for each of the Mackays' children, each having a bedroom with en-suite bathroom and a study. The third floor comprises a guest suite on the east side and a gymnasium on the west side. Rising up and down from the ground floor is a reasonably capacious circular staircase in the middle of which there is a lift which runs all the way up the house. Much of the flooring is of American Black Walnut ("ABW"); ABW was also used for much of the cupboard joinery as well as for the skirtings.

6. Mr and Mrs Mackay assembled initially the following design and professional team:

Architect:	Barrett Lloyd Davis Associates ("BLDA")
Interior Designer:	Initially Fox Linton and later Janine Stone Interior and Architectural Design ("JSI")
Structural Engineer:	Cameron Taylor Bedford
Services Consultants:	Chapman Bathurst Partnership ("CBP")
Lighting Consultants:	Equation Lighting ("Equation")
Quantity Surveyor:	Gardiner & Theobald ("G&T")
Project Manager:	Second London Wall ("SLW")
Fit-out Manager:	Rider Levett Bucknall ("RLB").

BLDA was re-placed as architect by Navigant Consulting in about March 2008, which was itself placed by a Mr Mulhearn in about March 2009. A firm called

Malishev Wilson Engineers was retained in late 2004 by DMW or possibly BLDA on DMW's behalf to design the lift shaft.

7. Planning permission had been obtained in 1999 and was subject to a condition that work had to start within 5 years (by 15 June 2004). The first permission was for the demolition of the existing Earls Court telephone exchange which had stood on the site for many years and the second was for the construction of three dwelling houses with basements and attached garages with access from Boltons Place. There was therefore some pressure on all concerned to get the job started within that timescale.

8. In early 2001 Mr Mackay became aware that BT was proposing to sell the site and he teamed up with two friends, Paul Daniel and Stephen West, to purchase the site for £13.2 million on the basis that each would have one of the three units, A, B and C, Unit C being for Mr and Mrs Mackay. In 2004 the three of them set up DMW as the corporate vehicle through which the development would be carried out. Initially, DMW used the original architects who had helped secure the planning permission. G&T were retained in 2003 as were SLW, CBP and BLDA. In mid-2004, the Mackays retained Fox Linton as the interior designers, in particular Anthony Bevacqua, known as "Bev". It was only later, in February 2005 that the Mackays retained Equation as the lighting consultants. In 2006, RLB was retained to provide a range of quantity surveying, building survey and project management services to manage directly employed artists and tradesmen.

9. Mr and Mrs Mackay wanted to create what they call their "dream home" for themselves and their two children. Mrs Mackay spent a very large amount of time in researching in particular the interior design and fit out. She collected images from magazines such as "House and Garden". They decided on the overall concept which was to be "modern, stylish, with great attention to detail, luxurious with the highest quality of finish with smart, shiny dark glossy floors, luxurious bathrooms, beautiful lighting and elegant perfect finishes", as Mrs Mackay said in her witness statement.

10. Separate contractors having been engaged to carry out the demolition work to remove the telephone exchange building, four contractors, including WLC, were invited to tender for the main building works. WLC was to describe itself as having particular and extensive experience of working on high-quality residential and new build projects. On 26 March 2004, WLC submitted its tender in the sum of £15,476,970.99 for construction of all three plots. It referred to there being limited information and how difficult it was to conclude an actual programme; although the stated completion period was 78 weeks, WLC's experience suggested 80 to 90 weeks, notwithstanding the enclosed programmes showing a 78 week period and some 23 work packages. The Executive Summary stated that it would provide "a dedicated specialist team, which has extensive experience of working on high-quality residential projects including new build" and that it had a "strong track record of working on schemes which require design input from the contractor as well as the ability to work with design teams." There was a detailed breakdown of the preliminaries to be provided at a total cost of £1,438,500.62. There is no hint or suggestion at the time from DMW's design team that this was an inadequate allowance. Indeed if anything it was somewhat higher than G&T had estimated.

11. The tender was further negotiated and reductions totalling some £105,000 were negotiated, leaving a net quoted price of £15,372,962.83; this negotiation was thought

necessary (as Mr Mackay confirmed in his witness statement) because WLC's pricing of preliminary costs and profit overheads was slightly over the budget which G&T had set (this also being confirmed in a Project Meeting minute of 20 April 2004). On this basis, WLC's tender was accepted in that amount; it had been confirmed that the overhead and profit percentage was set at 4.5%. The Date of Possession was to be 12 July 2004 and the Date for Completion was 23 January 2006. There were graded liquidated damages rates (£2,150 for each of the first seven days of culpable delay, £2,850 per the next 18 days, £4,300 to the next 44 days and £6,400 per day thereafter). The actual formal Memorandum of Agreement was signed on and dated 28 May 2004.

12. A Sub-Contract Protocol (incorporated in the Contract) was drawn up 10 May 2004 which was to establish procedures by which sub-contractors were to be retained by WLC to prepare a proposed schedule and scope of trade tender packages, to identify an initial list of suitable tendering sub-contractors, prepare a pricing documents for all packages, to prepare with G&T quantities for the "key works packages", prepare and issue tender enquiry documentation, to arrange and undertake a commercial and contractual appraisal of the preferred tender in conjunction with G&T and to request an instruction to enter into a subcontract order and following receipt of an instruction to place an order with the subcontractor identified in the instruction.

13. There is no doubt that at this stage a very large number of design decisions had not been taken up by the Mackays and their professional team and the design, such as it was, was in many respects at best at an incipient stage. Apart from the preliminary cost items, all the actual building works were the subject matter of provisional sums and the Contract specification and drawings were largely outline with little or no detail. Over one year later on 19 August 2005, BLDA was to write to G&T saying that: "The distance between client aspirations and cost has never been so far apart". This highlighted what was to be a continuing problem, namely considerable delays in securing design decisions so that WLC and its sub-contractors could progress the Works with reasonable expedition.

14. The first major element of the works to be instructed was the piling and it was made clear to WLC that it was to be responsible for the design. This was confirmed at a project meeting on 4 May 2004. WLC negotiated with several piling contractors and on 28 June 2004 recommended that the piling package was awarded to Stent Foundations. BLDA issued an instruction (AI001) on 30 June 2004 for WLC to issue a letter of intent to Stent authorising limited works up to a value of £10,000, which in effect WLC did a few days later. The reason for the Architect's reticence was that the demolition works being carried out by H Smith Engineers Ltd were delayed. Although it was not until 17 August 2004 that BLDA instructed WLC to enter into a formal sub-contract with Stent Foundations (in the sum of £736,976.06 by AI007)), a further instruction the following day deferred the start of the works until 31 August 2004 due to demolition delays. Indeed, WLC was itself instructed by the Architect (AI008) to carry out certain further demolition work of underground concrete and brick work. The works started on 30 August 2004. By 10 September 2004, WLC was reporting that the contract was in delay by some four months. Some delay and disruption was caused by the presence on site of trees subject to tree preservation orders and over the following few months permission was secured for the felling of such trees.

15. On 22 July 2004, WLC produced its procurement programme which was at least partly based on their tender programme which in relation to each package indicated dates by which WLC wished to receive "design tender information".

16. Over the following months of 2004, piling work proceeded and WLC also invited tenders from various groups of sub-contractors for the mechanical and air conditioning services and the brickwork and blockwork. On 18 November 2004 BLDA instructed WLC to enter into a contract with Keltbray Ltd to carry out superstructure concrete works. By early 2005, WLC had given notifications under Clause 25 of delays caused by tree removal problems, additional piling works and the late instruction of Keltbray.

17. Over the latter part of 2004, there had been discussions about the need for the single contract relating to all three houses to be split out into three separate contracts. For instance in late July 2004, G&T communicated with WLC about splitting the overall contract sum into three separate sums. On 9 August 2004, Mr Corless of WLC provided a breakdown of the preliminaries for each house. There was concern on the part of WLC that the three houses were constructed as three legally separate contracts because the level of preliminaries could only be maintained provided that all works were and continued to be run in tandem. This led to a Deed of Variation dated 23 December 2004 whereby WLC was engaged by DMW to carry out building works for each of the three units effectively by way of three separate contracts. For Unit C, the Contract Sum was £5,281,974 with the same Possession and Completion Dates as before and the same contractual conditions.

18. On 23 December 2004, BLDA issued an instruction (AI032) to WLC to enter into a contract with Doppler Lifts for the supply, installation and maintenance for the car and passenger lifts. In consequence of this, WLC did place a contract with Doppler, the terms of which required it to pay a substantial deposit to Doppler. This gives rise to one of the final account claims.

19. At this time, the formal agreement between DMW and BLDA was entered into pursuant to which BLDA was to be the "Design Leader", "Lead Consultant" and Contract Administrator.

20. By the end of 2004, apart from the design of the piling and principal structural and external envelope works, the design for much of the remainder of the work was substantially incomplete. This was acknowledged in part by the Architect who confirmed at a meeting on the 16 November 2004 that the "Clients' design decision deadlines [on] the current programme is [sic] are problematic". There is little or no evidence that the Mackays were ever clearly advised by their professional team of the critical need for the design to be decided upon sooner rather than later. Major aspects of the interior design were not resolved until 2006, well after the original contractual date for completion. In this context, and given that it was open to DMW to designate within the confines of the contract that WLC design substantial elements of the Works, WLC wrote on several occasions in 2005 to BLDA seeking instructions and clarification as to what if anything else (other than the piling) it was to design. For instance on 21 March 2005, WLC wrote to BLDA in the following terms:

> "Within the preliminaries section A13-Description of Work, of the contract documents, there is a list of trades that 'may be designed by the Contractor'. In

> our Tender submission we excluded any Professional Indemnity Insurance or any designer/coordinator input associated with Contractor Designed works.
>
> We have published our understanding of the current CDP requirements and have reported our preference that Employer's Requirements be developed for inclusion in tender packages…
>
> We therefore enclose herewith our updated list of the current state of CDP packages on this project. We would be grateful if you could check the status and advise us whether any further packages need to be added. We would also be grateful if you could indicate when Employers Requirements for the noted trades/ packages will be available.
>
> This will help us to identify the design implications and responsibilities, in order that we can include a sufficient level of PI cover and also assess the required level of design and coordination the mobilisation at the appropriate stage of the procurement process. Clearly, the cost of the PI cover and any resources required to facilitate design management and coordination will need to be assessed and incorporated within the comparisons to each relevant package. It is therefore important that an exhaustive list of all Contractor Designed Works is identified at the earliest opportunity in order that PQS can be notified of any additional costs".

The attached list identified the packages then envisaged with many of the items indicating no design responsibility but some such as the courtyard sliding doors to be subject to "full design - Subject to [Sub-Contract]". This was followed by similar letters dated 13 May 2005 and 10 August 2005 which also elicited no substantive response. There is no evidence that BLDA ever raised this important issue with their clients. That DMW's Design Team were aware of the need to formalise arrangements about who was to be responsible for design is clear from such correspondence as is available to the Court relating to the piling in relation to which Mr Elliott of G&T e-mailed Mr McMorrow of WLC on 11 November 2004 confirming that "a set of documents can be gathered to pass back to the Clients' solicitors" going on to say that "this will be necessary for all of those packages so that design responsibility is passed down to Water Lilly".

21. Notifications of delay under Clause 25 of the Contract Conditions continued to be made by WLC. There were such notifications on 5 January 2005 (Keltbray late instructions), 12 January 2005 (piling changes), 4 February 2005 (late instructions for pre-cast concrete features work, eventually leading to Sterling Services being retained) and 23 February 2005 (additional drainage works and late drainage instructions). It was only on 18 February 2005 (AI045C) that BLDA instructed WLC to enter into a contract with Bansal Building for the fair face brick and block work, following a series of cost reduction exercises.

22. There were regular meetings between WLC and the professional team. These included procurement meetings. General specifications for General Glazing (10 May 2005), Purpose Made Joinery (12 May 2005), Structural Glass Assemblies (31 May 2005) and Glazed Lift Enclosure (2 June 2005) were issued to WLC. In May 2005, WLC invited a company called Firmans to provide and fix the two Courtyard Sliding doors, an order following in September 2005. However, this had been preceded by extensive contact directly between BLDA and Firmans (as evidenced by example by a letter

dated 7 January 2005 from BLDA to Firman discussing various design options and decisions, to which WLC was not a party. Firman indeed provided quotations direct to BLDA which continued to liaise with Firman about design as recorded in procurement meetings in April and May 2005). On 23 June 2005, Adams Joinery Ltd quoted for the supply and installation of joinery in a number of rooms (five bathrooms, two dressing rooms and two WCs); the scope of their work was to be extended substantially by later quotations and re-quotations. BLDA did not instruct WLC to place an order for this work until 3 October 2005 (AI166C). This led to an extension of time notification by WLC on 7 October 2005.

23. WLC wrote to BLDA on 21 July 2005 to the effect that it was incumbent on the Architect in issuing instructions for provisional sums, usually on the basis of a tender process involving sub-contractors and suppliers, to identify the likely impact of such instructions on the contractual Completion Date and if appropriate to adjust that Completion Date and to award any related loss and expense. A schedule was attached which showed agreed changes to the original programme occasioned by provisional sum instructions. It also placed on record "that the flow of information continues to lag behind dates agreed in both the Procurement and Information Required Schedules" and emphasised that it was "critical to adjust the programme in a timely manner to ensure that the employer is aware of the current forecast completion date as well as any adjustments to the Contract Arising from the architect's instructions…". This elicited no response.

24. By August 2005 there were numerous items of information and instruction awaited from BLDA. This was noted at the procurement meetings as well as in correspondence. For instance on 2 and 16 August 2005, numerous work packages were listed that should have been secured and in respect of which tender information was still awaited, all of which was to be actioned by BLDA. It is not wholly clear why BLDA was so far behind with the provision of information and instructions but there is no suggestion that it was in any way the fault or responsibility of WLC. One of the reasons however undoubtedly was that the clients' wishes were not capable of being accommodated within the budget which they had set and a substantial amount of work had to be done to try to accommodate both. Certainly there were substantial tensions between Mr Mackay and the professional team; for instance he wrote to G&T on 16 November 2005 complaining that they were:

> "…so wrong in terms of your numbers, budgets and procurements and I think you owe me an answer to my question and to least have the good grace to start doing something about this other than trying to make me look like I'm an idiot. That I may be but only in the context of employing you to look after the costs plans on the job".

These tensions highlighted the fact that many tenders had come in over budget, as reported in a number of meetings in 2004 and 2005.

25. By September 2005, the Mackays and various members of the professional team had begun to research and investigate the efficacy of the Light Wall. For instance in May 2005, Equation had produced for Mr Mackay some sketch drawings representing the first outline design and in June 2005 he attended a meeting with Bev at Equation's offices to discuss the Light Wall at which he was shown fibre-optic lights being applied to the edge of a plastic sheet that he was told was called Prismex. On 27

September 2005, Firman was invited to tender for the other elements of the glass cubicles for the swimming pool area. It was only in November 2005 that Mr Mackay saw a small mock-up of the Light Wall and instructed the team to proceed. It was only on 2 February 2006 that BLDA instructed WLC to place an order with Firman for the Light Wall, although WLC's tender report of 24 November 2005 had said that a 23 week period was required by Firman from the sub-contract being let to it. It was also over this period that there were discussions (not involving WLC) about the Barrisol ceilings and the lighting arrangement above them, albeit that in early October 2005 WLC did receive an estimate for the supply and installation of the Barrisol sheeting in the swimming pool area.

26. It was also in 2005 that Mr and Mrs Mackay at least provisionally selected the American Black Walnut wood to form the flooring and veneer for much of the joinery in Unit C, in particular in relation to the cupboards and the skirtings. By February 2006, the Mackays had chosen a Danish Oil finish for the ABW. Further visits were being arranged in March 2006 however to organise "another veneer selection process" as referred to in an e-mail dated 7 March 2006 from Adams Joinery. This occurred when Mrs Mackay visited the workshop of a company called Reliance Veneers, who were to be the suppliers to Adams Joinery which was to be the sub-contractor; Mr Hawks of Adams Joinery attended but WLC did not. This meeting was not to select ABW as such, because that decision had already been made, but to pick an actual piece of ABW from which the veneer would be sliced.

27. At the end of September 2005, delay of some 17 weeks was being reported. Notwithstanding this, SLW reported to Mr Mackay that there was goodwill on the part of WLC, albeit it acknowledged that there had been substantial delays caused by late and un-coordinated information from the design team which was "a direct consequence of placing a main contract with [WLC] to secure planning consent for the scheme in early 2004 and at the time with incomplete design information".

28. An issue had arisen between the parties as to where the risk lay in relation to delay attributable to the issuing of provisional sum instructions with WLC arguing that, as the provisional sums were undefined, all programme risk was with DMW; thus, if a sub-contractor whose engagement was instructed by way of a provisional sum instruction failed to finish within the time otherwise reasonably allocated by WLC to such work WLC was entitled to an extension for overall delay caused by this as the delay would have arisen simply as a result of compliance with the instruction in question. DMW's lawyers advised it that this was wrong as did BLDA. SLW appear to have disagreed with this for reasons set out in its letter to Mr Mackay of 5 October 2005; their view was that the problems and delays on the job could be traced back to the letting of the Contract at a time when there was incomplete design information. It advised that the design must be frozen to prevent any further extensions of time. It explained that it was trying to manage the "dynamic process" of design, information provision and construction but it was "difficult".

29. On 8 and 28 November 2005, WLC submitted further extension of time notifications (electrical information and joinery). A total extension of time of over 19 weeks was indicated, with much of the later delay said to be attributable to the non-receipt of instructions for the commencement of joinery production by Adams Joinery.

30. By late November 2005, it had begun to be clear that the Mackays wanted the bookshelves in the Library covered with leather with decorative stitching. The BLDA "Elemental Description Schedule" dated 16 November 2005 indicates that the finish and material would have to be confirmed. On 24 November 2005, WLC submitted revised loss and expense assessments in relation to a number of their earlier extension of time claims.

31. By January 2006, the delays had worsened. On 6 January 2006, WLC reported in its Progress Report that an extension of time of 27 weeks and three days was requested, recording only that an extension of time of four weeks had been awarded. It was noted that the mechanical and electrical services subcontractor, Norstead, was significantly behind programme with the electrical works as a result of late and incomplete information from the design team whilst the procurement of finishing trades remained seriously behind programme. On 2 February 2006, BLDA issued the Plastering Specification, which was in 2007 to give rise to disputes about the required standards for plastering. On the same date, it also issued an instruction (AI 208C) to WLC in relation to the Light Wall in a sum just below £100,000. A whole series of further Architect's instructions followed within a few days relating to additional and altered work for Adams Joinery.

32. By early January 2006, Mr Mackay was considering omitting a substantial amount of the finishing and external works from DMW's contract with WLC. On 7 January 2006, BLDA sought instructions from him to that effect.

33. Clearly tensions were rising within DMW. There was a dispute between Mr West and Mr Mackay about the costs of moving the electricity sub-station from Unit A to Unit C. Mr Mackay referred to Mrs West as "avaricious and jealous" and as needing a "f***ing good slapping". The very clear inference from this and what had gone before is that Mr Mackay believed that he was spending far too much on the construction works and that he had been misled about likely costs. In an e-mail exchange on 28 February 2006, Mr Mackay said that the project "has turned into a fiasco where we all look like complete idiots unable to listen to or act on reason". By 16 April 2006, Mr Mackay was telling his architect and quantity surveyor that "a lot of people are late on this project due to no fault of mine and…the costs are being passed on to me with no regard to my approval or interests"; G&T were appearing "to just act as a high-priced mail box in this whole affair" and their performance was "at best pitiful".

34. By 3 March 2006, WLC was reporting that, although 20 weeks extension of time had been awarded, over 27 weeks overall delay had occurred for which an extension of time should be granted. Delayed procurement of finishing trades issues, the late resolution of the sub-station issue, late changes and alterations to installed work, late details relating to the Light Wall and late finalisation of the veneer were highlighted as the more recent primary problems. In late March and early April 2006, further extension of time notifications were dispatched by WLC to BLDA relating to additional works for joinery and to problems relating to the moving of the sub-station and additional work relating to pre-cast concrete features. By late April 2006, a total extension of time of 33 weeks with costs was being requested. By June 2006, the parties were anticipating completion of the Works on 28 November 2006, with over 36 weeks reported delay. At a site meeting held on 8 June 2006, it was recognised by DMW's Design Team "that coordinated design information remains to be given to [WLC] and significant numbers of queries generated by [WLC] remain to be

answered…". By the end of June 2006 WLC was reporting an extension of time of 36 weeks and 2 days, that Adams Joinery was running five weeks late due to late instructions and information and that they were awaiting instructions to proceed with the leather finishes, including to the Library. There had been a quote which included the leather but it was thought to be too costly and Adams was asked to quote for savings to be made.

35. As is common ground, G&T produced regular cost reports. Their May 2006 report identified an increase in the budget of £300 per square foot to £570 per square foot. The cost had been estimated originally at just over £5.5 million but by May 2006 it was estimated at just above £9.375 million. The principal changes from the early days were listed with costings explaining various increases.

36. BLDA wrote to DMW's solicitors on 21 June 2006 identifying that 19 weeks and four days extension of time had been granted but that further extensions would probably be due.

37. Some insight is given as to the perceptions on the DMW side in an attendance note of a meeting attended by its solicitors, Manches, on 29 June 2006:

> "The view of [BLDA] was that the main causes of delay to date were late instructions and design information…the splitting of packages into a smaller packages, poor coordination of services, the lifts and the substation. [WLC] were also claiming time and money due to there being only one staircase, but two was included in the original specification, which resulted in delay and disruption to the works owing to congestion.
>
> [BLDA] also said that another problem was that [WLC] would not take on any design liability and this was causing delay…The building contract was checked and it set out a number of packages that may be [Contractor Designed Portion] packages. CF [of BLDA] said that he thought a list of such packages had been agreed early on…JA said that no work had been procured as a CPD package. [BLDA] confirmed that the mechanical and electrical services were fully designed by Chapman Bathurst.
>
> …It was also noted that [WLC] had not been acting aggressively in respect of their claim and that generally [WLC] are keen to avoid disputes; that was one of the reasons they were selected for this contract."

The correspondence overall supports the general truth of these observations. Very few of the extension of time notifications were challenged by BLDA, albeit BLDA did occasionally do so (such as on 1 June 2006 in relation to ceiling details). At this stage, the causes of delay were primarily the late provision of instructions and information to WLC and poor coordination by DMW's Design Team. There had been little or no complaint that WLC was responsible for any of the overall delay. Documentary evidence and indeed the evidence of WLC, which I accept, confirms that virtually no work (the piling package being an exception) had been procured by the Design Team as a Contractor Designed Portion package. What was not correct was the note that WLC was not prepared to take on any design liability. There had been a number of letters written by it unequivocally seeking clarification and instructions as to what design responsibility it should take on; those letters had been studiously ignored

principally by BLDA and G&T for no obviously good reason other than they believed that the imposition of design responsibility on WLC carried with it an additional financial burden for DMW. It is clear that there was and continued to be serious ill feeling between DMW and the Design Team about the escalating costs of the project.

38. On 21 July 2006, WLC submitted an extension of time notification in relation to the Stingray doors on the basis that the timing of architect's instruction for it would mean that the doors could not be completed until 11 December 2006. WLC's progress report of 24 July 2006 identified that 45 weeks and four days extension of time had been requested, although at this stage only 20 weeks extension had been granted. Delays associated with the Light Wall were noted as one of the current delaying factors. Within several weeks, a further extension of time of seven weeks was granted. On 22 August 2006, BLDA reported to Mr Mackay that WLC was predicting contract completion at mid-February 2007, this date being "generated by the late delivery of bespoke ironmongery, the long lead in time for some door finishes and testing and commissioning". Following further extension of time notifications in July and August 2006, including one on 25 August 2006 relating to delays in relation to decisions on leather selection, WLC reported on 15 September 2006 that a total extension of 51 weeks was being requested with significant delays being recorded against pool areas generally, lifts, stairs, roof lights, doors and frames, courtyards generally and external works.

39. The Barrisol ceilings in the pool and cinema areas began to emerge as a problem in September 2006 when BLDA reported to Mr Mackay that Barrisol would not start work until 50% of sums due to them were paid. The Architect's instruction for this had been given on 24 August 2006 (AI347C), although the quotation to which the instruction relates was dated 7 October 2005. A problem arose in relation to Adams Joinery who required a 50% deposit before the placing of orders for the leather and fabric which had been apparently finally decided upon several weeks before.

40. By late September 2006 the lift shaft had been installed and BLDA raised with WLC concerns about the overall quality of the lift shaft installation in a letter dated 28 September 2006 to WLC. A certain amount of remedial work was done to overcome at least a number of these concerns.

41. By October 2006, Mr Mackay had become disillusioned with, principally, BLDA and G&T; cost had risen enormously and there was at least a year's delay; he referred in an email dated 27 November 2006 to his Design Team to a doubling of the budget. He retained well known claims consultants, Knowles, by an agreement dated 19 October 2006 to provide nominally "contractual and adjudication advice". This retainer was initially kept secret from BLDA and WLC, albeit that it was no longer secret by early 2007. Knowles' personnel attended a site visit on 18 October 2006. It is clear at this time that Mr Daniel believed that the main person at Knowles, Mr Rainsberry, was "very aggressive and thinks we should go after contractor now…through attack rather than negotiation"; he liked his approach and said that "all contractors are dishonest so let's nail the bastards!". Mr Mackay evolved a strategy from about this time to pressurise the Design Team and WLC. Knowles was initially asked to carry out a critical path delay analysis for all three houses. One of the primary purposes of involving Knowles was or certainly became watching over BLDA and G&T and influencing them as to how they should do their jobs on this project. This was an aggressive move against them. One facet of this was that BLDA was disentitled from

issuing instructions without the approval of DMW or Mr Mackay. Another primary purpose became the development of a strategy to ensure that no further extensions of time were granted to WLC and that financial constraints were imposed. This strategy began to develop at least from about early November 2006 when Messrs Mackay, West and Daniel met at a Client Meeting on 1 November 2006 and mutually agreed that a completion date should be established with no further extensions of time to be granted past this date and that liquidated damages were imposed on WLC thereafter. In the case of Mr Mackay, this involved an increasing determination that a large amount of work should be omitted from the Unit C Contract to be performed by artists, tradesmen and others directly retained by him or possibly DMW, with WLC being left with such remaining works in respect of which, he anticipated, WLC would be in culpable delay or other difficulties. The motive for this by inference was to land WLC with a substantial liquidated damages burden. RLB was appointed as the project manager to superintend the work to be done outside the construction contracts. It is also the case that Mr Mackay as from this time began to be highly critical of the quality of WLC's work, for instance in relation to the plastering and the lift.

42. By 10 November 2006, WLC was reporting that 35 weeks and two days extension of time had been granted but that a total extension of 51 weeks was being sought. Problems with delayed instructions from BLDA relating to the precise scope of external works had been experienced, WLC indicated by e-mail on 10 November 2006 that it would commence such works in good faith and raise a written confirmation of verbal instruction in respect thereof. Although WLC was hoping that the Unit C work could be completed by the end of February 2007, problems with the Light Wall continued throughout November and December 2006, which included breakages of glass due to inadequate structural strength as well as uneven light distribution (scalloping) within the Light Wall. Further extension of time notifications were issued by WLC, including one on 14 December 2006 relating to the Light Wall and another on 11 January 2007 relating to problems associated with the external works.

43. By the end of 2006, although much of the procurement had been finalised, much of the finishing works were substantially incomplete. An example was that the extensive leather work in the Library in the basement had still not been finalised, either in terms of the type of leather or the stitching which was to be used. The Light Wall was undergoing substantial problems which were to continue throughout 2007 and into 2008. Both WLC and SLW believed that the Light Wall would not be complete by the end of February 2007. By 19 January 2007, WLC was reporting that, although an extension of time of 47 weeks and 4 days (up to 2 February 2007) had just been granted by BLDA, various works including the Light Wall and the Leather in the Library along with a number of items of work which remained to be instructed remained to be completed. Subject to the items listed, WLC was reporting that works would be complete by the end of January 2007. An extension of 58 weeks was claimed. By 6 February 2007, WLC was reporting that final snagging to Unit C could commence as soon as possible, albeit with the Light Wall and Leather in the Library being still outstanding. At a client meeting on 26 January 2007 with BLDA and SLW, Mr Mackay accused BLDA of being complicit in the extensions of time granted on the basis that they masked BLDA's delays in issuing information. It was said at this meeting that WLC was predicting that work would be completed by the end of January except for a number of items. There was talk about WLC providing a

schedule of areas ready for snagging and it was resolved that the snagging process would be carried out by a senior architect and team from BLDA. On 29 January 2007, BLDA, clearly under pressure from its client, wrote no less than 15 letters to WLC. On 2 February 2007, BLDA issued instructions to WLC to omit almost all the hard landscaping in relation to Plot C, as well as various other works and items such as the supply of door ironmongery.

44. On 2 February 2007, BLDA issued what turned out to be its last extension of time, extending time for Plot C until 16 February 2007; this final extension related to the delayed installation of the three gas supplies for each of the plots with work being finished by the statutory undertaker only on 17 January 2007.

45. On 2 February 2007, BLDA certified Practical Completion in respect of Unit A.

46. At a site meeting on 6 February 2007, WLC reported that everything which it had "programmed to be completed by the end of January is largely complete" although there were still items outstanding. BLDA and Mr Joyce of WLC had discussed snagging to Plot C and agreed that "it must commence as soon as possible". Mr Joyce said that it would have to take place "elementally because there are unfinished and late items in most rooms". The Leather in the Library was identified as a potential problem area because WLC and Adams Joinery were "waiting for confirmation on the leather stitching"; Adams Joinery had presented 10 samples of stitching and Bev (not in attendance) was expected to confirm a sample later that day. This was said to be "urgent as it affects installation of the Library joinery, the door and the large panels of the Lower Hall" with Mr Joyce stating that "none of the Library joinery can be fixed because it is dependent on the upper sections being covered in leather first and these are in abeyance until the leather stitching has been agreed". Mr Mackay sent three pages of comments on these minutes, although he had not been in attendance; he said amongst other things that when he and his wife visited the site on 10 February 2007 "the house was a complete mess" and "nowhere near complete"; he identified that the "plasterwork in every area is defective for a job of this quality and "price".”

47. On 8 February 2007, Mr Joyce wrote to BLDA saying that WLC wished "to offer Plot C as being practically complete on 16th February and would request that we arrange an inspection for Monday 19th February…”. He wished to "undertake an elemental snagging process to expedite the completion process and confirmed that this will commence, in conjunction with you, in the week commencing 12th February 2007".

48. On 9 February 2007, Mr Mackay wrote an e-mail complaining that there was no point snagging because he felt that every room in the house contained defective plastering which as he saw it on walls was not flat and the corners and angles were not straight. He had complained about this to some extent also in late November 2006. This gave rise to an extensive exchange over the following few months about the extent to which, if at all, WLC was liable for this. This is addressed in the plastering section of this judgment.

49. On 16 February 2007, WLC reported that a 60 week extension of time had been claimed for and that there continued to be significant delays in the pool areas generally, the lifts, doors and frames, library shelving and joinery, courtyards and external works. Mr Mackay e-mailed BLDA on the same day saying that he was not prepared to allow it to certify Practical Completion "if there are any patent defects or

incomplete works outstanding". Problems continued with the Light Wall and WLC was told to stop work on the pool screens pending further design development; this was recorded in a letter dated 19 February 2007 from WLC to BLDA and confirmed at a site meeting held on 20 February 2007. On 19 February 2007, Mr Joyce identified this problem as likely to impact on the completion date.

50. On 18 February 2007, Mrs Mackay e-mailed BLDA with a long list of complaints, including the need for "ballet bars" in the gym, the quality of the finish in the children's bathrooms being "a disgrace" and "the baths" being "disproportionately small and narrow, seemingly without reason and OF PLASTIC!" The Site was said to be "a complete mess again" and another disaster was "the specially designed lift".

51. On 23 February 2007, BLDA wrote to WLC saying that they were preparing a schedule of outstanding items which would need completion before a Practical Completion certificate could be issued and that "other Works have not been completed by the Completion Date of 16th February 2007". It sought various particulars previously requested to allow it to review previous decisions and other Relevant Events for the purposes of extensions of time. BLDA did produce a preliminary snagging list on that date.

52. On 26 February 2007, WLC e-mailed BLDA to the effect that in relation to the leather work, primarily in the Library, Adams Joinery would need between 17 to 19 weeks from receipt of a 50% deposit to procure and install such work. Adams Joinery's prices were provided. On the same date, Mr Mackay indicated that he intended to withhold liquidated damages in effect as from 16 February 2007. As at 28 February 2007, BLDA had certified that the works had a gross value of £8,542,457.

53. In summary and by the end of February 2007, extensions of time had been granted up to 16 February 2007. Whilst large parts of the Works were substantially completed, the main relevant areas of work which remained to be completed were the Light Wall in the swimming pool area, the Barrisol ceilings and the lighting arrangements above them, the Library shelving (primarily concerned with the associated leather work), the courtyard works, snagging for final handover, remedial works to plastering and resolution of outstanding complaints in relation to the lift. These will be addressed in detail separately hereafter.

54. From late February 2007, Mr and Mrs Mackay and the Design Team instituted what became known as "client walk around" meetings, usually but not always attended by WLC representatives. Prior to this time, liaison between the Design Team and the Mackays was much more on an ad hoc basis.

55. That Knowles was playing an active and determinative role on behalf of Mr Mackay is clear from a letter which it wrote to WLC on 7 March 2007 making it clear that DMW would withhold some £550,000 in relation to what was said to be defective work; this primarily related to allegedly defective plaster, defective lift shaft, defective ceiling and the Light Wall. It is unclear what, if any, analysis Knowles had undertaken in relation to responsibility for these alleged defects. The involvement of Knowles caused some administrative confusion and in consequence WLC liaised with BLDA on Knowles's letter (for instance on 15 March 2007) but also delivered a detailed riposte to it on 30 March 2007. Knowles was to write direct to WLC on a number of occasions, for instance on 29 March 2007 again in relation to alleged

defects. The introduction of Knowles was certainly to raise the temperature and did little to engender any feelings of trust and co-operation between employer and contractor. On 7 March 2007 also BLDA sent a list of what was said to be unacceptable areas of plaster throughout the building based on a "preliminary spot survey of walls".

56. There still remained doubt as to whether the leather work in the Library was or was not going to be omitted and Mr McMorrow of WLC e-mailed Mr Cane of G&T on 7 March 2007 asking whether the work was "to be in contract or out of contract", emphasising that it would take until July for this work to be completed. This e-mail was passed onto Mr Mackay who e-mailed back later that evening saying that the work was "in the contract – you're all very late - so I would get on with it if I were you!!!!! Be advised everything stays in the contract where WL are late". This highlights part of what Mr Mackay's strategy was becoming: it included the desire not to omit from the scope of WLC's work all those items of work which Mr Mackay, rightly or wrongly, regarded as the fault, risk or responsibility of WLC; the advantage, doubtless as he saw it, was that he would be able to extract the substantial liquidated damages agreed upon within the Contract. In mid-March 2007, Mr Mackay seriously considered that in the light of the reported defects on the lift and lift shaft a new lift shaft should be put in. WLC was on 20 March 2007 to estimate that this would take between six and nine months. He was however being told by BLDA (for instance at a meeting held on 7 March 2007) that the plastering was generally in accordance with the specification.

57. On or after 16 March 2007, by memo (wrongly dated 14 February 2007), BLDA reported on various "defects" in the lift which included suggested problems with the verticality, alignment, distortion of glazing, sealant, scratches and other defects. Throughout March 2007, Adams Joinery was applying the agreed type of oil (Danish Oil) to the joinery, such as cupboards and skirtings, starting at the third floor and moving down. Some of the lift defects were being addressed by WLC and its sub-contractor in March 2007, including the mastic and the scratches to the glass.

58. At a meeting held on 14 March 2007, Mr Lloyd Davis of BLDA expressed the view that he had properly examined the plasterwork using a straight edge. In broad terms, the dispute between the parties relating to the plasterwork was one of degree, with WLC accepting that there were some areas of plaster which were out of specification and Mr Mackay saying that virtually all the plasterwork was defective; the argument revolved around what the contractual specification called for. The Federation of Plastering and Drywall Contractors was called in and reported in the third week of March that the standard achieved was "of a commercially acceptable standard". In the result extensive remedial works were done over the next two or three months which satisfied WLC and BLDA but not Mr Mackay.

59. For reasons which are unclear, DMW withheld payments due to BLDA and in consequence throughout most of March 2007 BLDA largely suspended its work on the project. It was only in late March 2007 that Mr Mackay procured payment to BLDA with the result that shortly thereafter BLDA did resume operations. By early April 2007, DMW was retaining over half a million pounds for alleged defects and delays. This withholding was initiated by Knowles.

60. In April 2007 WLC submitted a detailed request for extension of time in relation to variations and late receipt of instructions in relation to external works. This suggested that there had been and would be an overall delay of some 71 weeks and that the earliest contract completion date in consequence would be 20 July 2007. Also on 18 April 2007, WLC submitted to BLDA a further extension of time notification relating to the Light Wall which continued to give rise to problems including at this time removal of the glass units from site for further work on them to be done at the factory.

61. It was in the latter half of April 2007, as protective coverings began to be removed, that a problem was beginning to be perceived to exist in the ABW. It was referred to at a walk around meeting on 23 April 2007. Problems with the lift were being addressed by this stage with both glazed panels having been replaced and scratches having been polished out. The leather for the Library remained unresolved and there were technical difficulties identified in this achieving a finish and look which the Mackays wanted. The Stingray doors remained unresolved and no order had yet been placed for the door panels and the ironmongery for the doors, to be supplied by DMW, had not yet been supplied.

62. The position in relation to the lift was that, whilst there were a variety of items which remained in dispute, WLC remedied many of the other things complained about. Notwithstanding this, DMW retained over £130,000 in relation to the lift.

63. From about May 2007, if not earlier, the artists and tradesmen directly employed by Mr and Mrs Mackay began to come to site. While there is no evidence that this caused particular problems in that year, by 2008 there were substantial numbers of such people at the site.

64. The problems associated with leather and stitching approval and selection were not resolved until towards the end of May 2007 and Adams Joinery's programme from approval would bring about completion in early September 2007. Problems were also emerging in the swimming pool and cinema ceiling areas to be covered by the Barrisol fabric; what was feared by Equation was that the lighting would not be sufficiently diffused. These problems were referred to in e-mails and, for instance, at the client walk around meeting of 6 June 2007. At that meeting Mr Mackay reported that the complaint about the verticality of the lift shaft was effectively unfounded because it was as the minutes said, "found to be within tolerance".

65. The main problem with the ABW began to emerge in late June 2007 when Mrs Mackay recorded in an e-mail to BLDA on 25 June 2007 that "walnut veneer cupboards in my study…have gone very yellow toned over the last few weeks". To this, Ms Hammond BLDA replied on the same day that the "veneer will change in colour as it ages and is exposed to light." Staining was suggested and she suggested that Mrs Mackay should "see the colour change in the hardwood in my parents' house thanks to the Australian sun!" Tensions were rising with Mrs Mackay replying that she was not "particularly interested in your parents' experience" and complaining that it was for the clients to spot problems.

66. At the walk around meetings in July 2007 attended by the clients, BLDA, WLC, Bev and Equation, problems with the Light Wall, the Barrisol ceilings (and the related lighting) the lift and the ABW were highlighted. The Mackays complained that they had not been warned that the colour of walnut would change in daylight. There was a

debate at around this time between Knowles and WLC about the need for programmes. These had been provided over the first 30 months of the project and Knowles had complained about the absence of programmes. WLC wrote on 5 July 2007 saying that the circumstances were such that it was impossible properly to programme the works and forecast the completion of the works; the letter suggested that there were still significant outstanding information and instructions and that the activities and progress of directly employed artists and tradesmen was making it difficult to progress and complete. The debate continued in a somewhat abortive fashion.

67. By this time the relationship between Mr Mackay and BLDA was close to breaking point with Mr Mackay blaming his architects for defective designs, acting unprofessionally, blaming the client for "everything" and delay. Complaints were made that minutes prepared by BLDA were a work of “fiction” and that their behaviour in relation to issues and defects was "nothing short of scandalous". Knowles wrote on 23 July 2007 on instructions from Mr Mackay to BLDA instructing them not to issue instructions to WLC without Knowles’ "written consent to the issue of each and every Instruction". Mr Mackay does not appear to have been advised that this was not justified under the construction contract and that, if implemented, could well result in yet further delays in the issue of instructions and information to WLC; this was copied to WLC who wrote on 26 July 2007 to Knowles complaining that this was not only invalid but also a repudiatory breach by DMW; WLC complained that "the reality of the situation is that the Architect has ceased to be an effective Architect in this regard and has been replaced by Knowles in all but name". By the end of July 2007 Mr Mackay had imposed a design freeze in relation to the work in the bathrooms. This reflected the fact that BLDA was at the very least severely constrained not only by the increasingly personal and hostile criticism offered but also by the close involvement of Knowles in the running of this project.

68. By this stage an adjudication had been commenced by WLC against DMW in relation to the sum of about £200,000 being withheld from certificates for the lift, some finishes and the Light Wall. Knowles was retained in that context by Mr Mackay and WLC had brought in its own claim consultants, Brewer. The adjudicator issued his decision on 30 July 2007 finding that, although there were some defects in the lift, only £30,000 was a reasonable withholding (as opposed to the £148,000 actually retained), that there was no justification for deducting anything in relation to the Light Wall and that only £5,000 could be withheld in respect of the finishes. It could justly be said that WLC was the substantial "winner". However, the adjudication in so far as it related to the lift led to a negotiation between WLC and DMW whereby WLC undertook to carry out an over-cladding solution in effect to cover up elements which were not acceptable to the Mackays. This resulted in a proposal made by WLC on 13 September 2007 whereby WLC offered to carry out work and waive any right for extension or delay related costs attributable to over-cladding work. This was accepted by DMW and the work was primarily done in October 2007.

69. So far as ABW was concerned, in August 2007 Mr Mackay was planning to withhold money from the next payment, in effect blaming WLC for what was said in an e-mail dated 10 August 2007 from RLB to BLDA to be "an unacceptable level of variation between the flooring and finished joinery" and "the overall colour of the joinery is not the matt, dark finish expected and a rather orange/ginger tint". As is clear from its

reply, BLDA did not consider that WLC was to blame as the colour change was inevitable and mostly attributable to the use of an oil rather than a lacquer finish. In early September BLDA instructed WLC to stain a door in the guest bedroom to see if the Mackays would accept it. The story relating to the ABW continued through various meetings in September and October 2007 and there is no issue that WLC and Adams Joinery stained virtually all the veneered ABW throughout the building; this caused great consternation with the Mackays. However, WLC took the stance that it had done what the Mackays had asked and notwithstanding their complaints and concerns it was not prepared to replace the veneered wood or re-stain it or otherwise treat it again.

70. The leather work to the Library started in the third week in August 2007 and was to run over the following few weeks. There were continuing problems mostly with the lighting above the Barrisol ceilings, with Architect's Instructions being issued in July and August and into October 2007 making alterations to the lighting and lighting patterns.

71. By mid September 2007, the relationship between Mr Mackay and BLDA got even worse. Mr Mackay accusing them of "working full-time for" WLC, dissembling and being "truly a disgrace to your profession" (in an e-mail dated 13 September 2007). On 19 September 2007, he accused Mr Davis of BLDA of being "the most unprofessional person" he had met, that he was a charlatan and liar and that his head was "so far on the chopping block that it is holding on by a thread". Part of these complaints related to minutes or notes of meetings prepared by BLDA which Mr Mackay believed were inaccurate, either positively or by way of omission. He was therefore particularly alive to those concerns. These types of complaint continued over the following few months. At a walk around meeting on 31 October 2007, Mr Mackay referred to Mr Davis as a "f***ing Pussy" and said that he "wakes up in the morning wanting to kill him". At a similar meeting a week later he called Mr Davis to his face a "f*****g little twat" and said that "when this is finished (the building) I am not going to rest until I have taken you out and I have got the money to be able to do it". In an e-mail dated 19 November 2007 Mr Mackay wrote to Mr Davis saying: "…you lie, you cheat, you cut corners, you dissemble - frankly you would try the patience of God…You have wrecked what should have been an amazing experience by your conduct - we are nearly at the stage where I can sue you and frankly I can't wait!!!" During a conversation with Mr Davis on 18 December 2007, Mr Mackay said to him that he was "a joke", his "e-mails are full of lies" and that he was going to "take you out. When your PI cover is used up I'm going to go for you individually. I have a QC just waiting to go. I spent £750,000 on Knowles…" There were constant references to BLDA in general and Mr Davis in particular representing the contractor's interests over his, for instance in an e-mail dated 10 November 2007.

72. By the end of September 2007, the "strategy" to deal with the project was being honed by Knowles, undoubtedly with the knowledge and approval of amongst others Mr Mackay. Knowles wrote to DMW on 27 September 2007 in relation to Unit C:

> "We would like to create a situation whereby direct work is not delaying [Practical Completion] – i.e. PC is solely delayed by WL's works. WL works can be omitted to achieve this if possible."

The problems relating to the ABW and the Light Wall were identified as being attributable to design breaches by BLDA and the problems with the Barrisol ceiling as being caused by design breaches by Equation. Knowles advised that it would be "prudent to dismiss BLDA on or about 26 October". Part of the strategy included Mr Mackay sending a Knowles drafted letter instructing G&T to issue no further recommendations for Interim Certificates, as was confirmed by G&T in its letter to WLC, albeit copied to a number of other parties. G&T clearly felt very embarrassed and apologised to WLC as recorded in a WLC e-mail of 2 October 2007. This course of action was persisted in notwithstanding BLDA's correct advice for instance on 19 October 2007 to Mr Mackay that it was inappropriate and a breach of contract. Further aggressive interference in the administration of contract was the direction from Knowles to G&T (Mr Whidborne) that Adams Joinery should not have any preliminary costs on variations ordered after the extended date for completion; this was confirmed in an internal G&T e-mail dated 25 October 2007; although Mr Whidborne thought that this was wrong and bizarre, he followed this direction. Knowles representatives told Mr Mackay that BLDA was the worst architect whom they had ever come across (as later referred to in an email of about 4 February 2008).

73. On 28 September 2007, BLDA issued its Practical Completion certificate in relation to Unit B.

74. Further problems continued with the Light Wall throughout September and October 2007 and, for instance, on 5 October 2007 WLC issued an extension notification to BLDA.

75. By November 2007, the complaints about the ABW as stained were continuing and WLC secured a report from the respected TRADA organisation about the ABW which in effect did not criticise what Adams Joinery and WLC had done. BLDA clearly considered that the ABW was in accordance with the contract, for instance as it said in its letter to Knowles of 24 December 2007.

76. By the end of November 2007, BLDA produced a preliminary list of outstanding items of work, of which major items were the ABW issues, the Stingray door panels, the Light Wall and the Barrisol ceilings. There were some further complaints about the plasterwork and in early December 2007 WLC was addressing these.

77. By late January 2008, WLC was identifying to BLDA amongst other things that the Barrisol ceilings and related lighting were causing delay. The Light Wall continued to give rise to problems with the lighting effects not being acceptable to Mr and Mrs Mackay.

78. By early February 2008 if not before, Mr Mackay was beginning to fall out with Knowles. There were unpaid bills outstanding to Knowles but Mr Mackay sensed that Knowles was suspending work pending payment. In an e-mail dated 2 February 2008 to them, he made it clear that he did not like these tactics. He felt that he had spent over £800,000 on Knowles and that this "should have been enough for the fee for the whole action – WE have not really even started!!!" Knowles' services were to be dispensed with by Mr Mackay within several months. As indicated in an e-mail dated 22 January 2008 to Mr West and Mr Daniel, Mr Mackay referred to Knowles in highly derogatory terms and as not providing value for money; Mr Mackay later (on 12 February 2008) referred to Mr Tomlinson as a "f*****g w****r". It is also clear

that Mr Mackay did not like some of the advice which he was receiving from Knowles to the effect that DMW would have some liability to WLC for delay; this is referred to in passing in Mr Rainsberry's e-mail of 4 February 2008 to Mr Mackay. Meanwhile, adjudication had been initiated by DMW in relation to the ABW and the well-known adjudicator Mr Tony Bingham was appointed. On 21 May 2008 in a very short decision Mr Bingham decided that WLC was in breach of contract in the supply of the original ABW; he had not been asked to consider the question of the staining.

79. It is clear that by about February 2008 the works were substantially completed with certain exceptions. These included the Light Wall, snagging (namely final putting right or completing of minor items) and the outstanding ABW dispute. On 21 February 2008, WLC wrote to BLDA saying that, once the Light Wall work and some floor finishing were done by 29 February 2008, it considered that the Works would be practically complete. So far as the ABW issue was concerned, WLC reminded BLDA in effect that the latter had accepted the quality of the veneers in terms of material used and of workmanship and therefore this should not delay the certification of Practical Completion. Knowles wrote back on 22 February 2008 threatening the withholding of sums for the ABW and for the Light Wall. Mr Mackay wrote to BLDA advising it not to award practical completion.

80. By mid March 2008, DMW had begun the process of terminating the employment of BLDA. As appears from an e-mail dated 4 February 2008 from Mr Rainsberry of Knowles, a primary explanation at least for the timing of this termination was a very real fear on the part of Mr Mackay that BLDA was about to issue a further extension of time to WLC. It was also Mr Rainsberry's view that BLDA was not in repudiatory breach of its contract and that therefore the contract could not be terminated summarily. On 28 February 2008 the first warning shot in this process was fired by DMW with a long list of complaints being listed. BLDA's response of 13 March 2008 was to deny all the allegations and complain about Mr Mackay's frequent interference with the administration of the project. Later that day, the employment was terminated and within about three weeks a new architect, Navigant Consulting, had been brought in. Unsurprisingly, it took a not inconsiderable time for the new architects to find out what the job was about and they were, through no fault of theirs, not in a position readily to address requests for extensions of time and the like with any promptness. However, Mr Priestley of Navigant very quickly took the view that the ABW workmanship was unacceptable as he confirmed to DMW's solicitor in an e-mail dated 16 April 2008. He was also in May 2008 to form the view that the problems with the Light Wall were defects for which WLC was responsible.

81. By April 2008, the final major problem was emerging and this related to the Courtyard Sliding doors which were found to be catching and difficult to open. Investigations were done which involved Firman but ultimately WLC and Firmans took the view that neither was to blame for the problem. WLC did call in experts on the topic. WLC attributed responsibility to the design for which it said it had no liability. Navigant called on WLC to put the problem right on 22 May 2008.

82. On 23 May 2008, WLC wrote to Navigant giving a brief overview of the current issues. It identified the Barrisol ceilings and lighting, the Stingray doors, the Light Wall, the Leather in the Library and the ABW, various lighting issues in the ground floor cloakrooms and directly employed artists and tradesmen as the primary causes of delays since February 2007.

83. On 27 May 2008 following Mr Bingham's adjudication decision on the subject, Navigant instructed WLC to put right the supposed ABW defects failing which DMW could employ others to do so. In the result, WLC did not do any further work on the ABW and so it was that Mr and Mrs Mackay employed a separate company, Interior Joinery, effectively to remove much of the existing stain and to stain it again with an equally or probably darker stain than had been done by Adams Joinery in September and October 2007.

84. There is no real issue that during this period between the beginning of the year and about August 2008 there was a substantial presence at the site of artists and tradesmen employed directly by DMW or Mr Mackay and there was snagging to do on the part of WLC which to a substantial degree was increased by the need to put right work which had been damaged or affected by their work. WLC complained about this in letters dated 1 and 2 July 2008 to Navigant. There were also issues as between WLC and Navigant as to whether Navigant was cooperating effectively and promptly in the exercise of snagging.

85. By the end of June 2008, WLC complained to Navigant that their extension of time applications had not been answered to a large extent promptly or at all. They referred to the fact that they had issued 234 extension of time notifications of which 196 remained unanswered.

86. On 8 July 2008, Navigant warned WLC that it had seven days to put right the alleged defects in the Courtyard Sliding doors failing which DMW could employ and pay others to do the requisite work. On 10 July 2008 WLC wrote to Navigant effectively challenging any suggestion that the works were defective and enclosing a report which they had commissioned from the Building Research Establishment which suggested that the problem was one of Architect's design. It asserted that this problem should not hold up the issue of the Practical Completion Certificate.

87. Mr Mackay was not helping to keep the temperature down and there was an exchange of e-mails in July 2008 between him and Mr Howie of WLC who he had taken against. Whilst Mr Howie's limited responses were polite and restrained, Mr Mackay's remarks included:

> "…you have three major defects notices outstanding…
>
> Guess what when I have forgotten about you in a years time enjoying my £100 million home or sailing on one of my 40 meter yachts – you'll still be trying to wind up some other poor unsuspecting customer with your brand of mediocrity - a sad loser - gaining your kicks and being irritating. Suggest a new career as a traffic warden might be ideal at least it wouldn't involve lying.
>
> Ps I'm sure your brokers aren't interested in this. Perhaps the press would be though…
>
> Oh no, little guy like you - throws his weight around - big chip on your shoulder - you were definitely bullied at school!!!!
>
> …or is it the fact that your little victorian 1800 sq ft cottage in pulborough can fit into my dining room…Or perhaps the fact when you bought it in 2003 the cost

was the same as my defective veneer. I'll bet you will lord it in the pub over those neighbours of yours in the cheap semi's.

What is it that makes you so chippy little man.

Well whatever it is you're costing your company of fortune. I reckon around £1.5 million so far. Sent a note to your bosses last night saying your way isn't working and asking when they might fire you….

You're such a loser. I'm going to enjoy finishing you off over the summer. But don't worry you'll be reading the contract I'll be on the beach.

…Semis was talking about your neighbours over the road not you -sorry reading isn't a strong point for you…

Sorry about the pub - you probably bored them into closing down too.

50 this year - midlife crisis as well - nearest to a Ferrari you'll ever get is a toy one…

…What I find so difficult about you and WL is that you're really in the crap. You don't do anything about it apart from trying to jam me the whole time. I really want you all out of my life - it has been a sad chapter. I will not however allow you to continue to take the piss…

My middle name is relentless. I have the money and anger at this point to push on and make sure that you have to deliver or get punished for not delivering. I don't want to have to fight for that, but trust me I will NEVER give up if you don't start to change your attitude it will cost WL time and money - it may eventually cost you your job. Who knows. Never underestimate me.

So we can decide to have a change of attitude or we can continue like this I have three counsel's opinions that tell me I'm in the right on the contract. Is this a risk you all want to carry on with. Over the summer I am away - unless we sorted out it will cost you another £120k in LAD's. That will be nearly £1.5 million."

88. On 16 July 2008, Navigant emailed WLC to say that Practical Completion "should be granted from 7 July which implies from the very start of the day". This was not to happen. At this stage in reality only the Light Wall and the Courtyard Sliding doors were holding matters up. On 17 July 2008 WLC wrote to Navigant referring to the fact that DMW had been installing soft furnishings, furniture and fixtures and fittings into the property and suggesting that this was the clearest evidence that practical completion had in practice already occurred. Matters remained unresolved although Navigant told WLC that it was seeking instructions from its client whereby the contentious items could be omitted so as to enable Practical Completion to be issued.

89. On 13 August 2008, Navigant issued the Certificate of Practical Completion albeit an accompanying note identified that the Light Wall, the ABW and the Courtyard Sliding Doors were removed from the Contract. There was a continuing debate in correspondence over these three items into which it is unnecessary to delve because they remained and remain unresolved. No remedial works were done to them apart

from the Interior Joinery work in about June 2008. On 26 August 2008, G&T issued their Valuation No 40 which identified a gross sum due to WLC of £9,107,430.43. This was to form the basis of Interim Certificate No 38 issued on 17 September 2008; the product of this was that there was said to be a sum payable by WLC by reason of previous overpayments.

90. Further claims for extensions of time were submitted and internally Navigant prepared a report reviewing those claims. It formed the view that some delays attracted extensions of time and others did not. However it was equivocal because Navigant was not sure whether WLC was responsible for the design of the Courtyard Sliding doors and whether the ABW adjudication decision could or would be successfully challenged; it identified a number of relevant events which were at the risk of DMW, including Barrisol and related lighting, Stingray doors and Leather. It did not seem to attach any importance to the Light Wall as a cause of delay.

91. Part 8 proceedings were issued in the TCC (HT-08-328) which challenged Mr Bingham's decision. Mr Justice Coulson decided that, if the only cause of the fading of the wood was natural light, then such condition on its own could not render WLC in breach of contract. There is no suggestion that this assertion is not effectively binding on the parties as there was no appeal.

92. Navigant was obliged as Architect to review extensions of time within 12 weeks of 13 August 2008 but it did not do so.

93. Over the following months going into 2009 and 2010, there were discussions about further snags and alleged defects and also extensive liaison and negotiation about the final accounting. Navigant's services were dispensed with and a new architect, Mr Mulhearn became involved on behalf of DMW. Various claims or updating claims were submitted by sub-contractors to WLC; for instance in January 2010 Adams Joinery put in a substantial claim for loss, expense and damages in relation to delay and disruption.

94. WLC issued the current proceedings on 31 March 2010 against DMW. When serving its Defence and Counterclaim, DMW brought in as Part 20 defendants BLDA, CBP, G&J Stone Ltd (the interior designer) and Equation Lighting effectively blaming them for many of the problems relied upon by WLC as having delayed or disrupted it or otherwise caused it loss. After extensive procedural outings before this Court, DMW settled their differences with those Third Parties.

Assessment of Witnesses

95. I will first consider WLC's factual witnesses:

(a) Graham Corless: he is and was a director of WLC who gave evidence about initial tendering, contract negotiations, continuing high level discussions during the project and certain aspects of the loss claimed. I found him to be a decent, straightforward person and a reliable witness. He answered questions directly and to the point.

(b) Sean McMorrow: he was involved with this project from the start and has been involved in the collation of the WLC claims. I formed the view that he was

decent, sensible and "on the ball". He was well researched and was very straight in the giving of his answers. He seemed to be thoroughly reliable and I have no difficulty in finding him believable.

(c) John Joyce: he was the contract manageryed by WLC. Although occasionally unsettled by the cross-examination, mostly in relation to questions about matters about which he had no direct knowledge, he stood his ground and was consistent in the giving of his evidence. He seemed to be a wholly genuine person and came over as a conscientious man. Again, I found him to be wholly credible and reliable.

(d) John Howie: he was the director brought in to the job at the time (early 2007) when it had become irretrievably obvious that the project was going badly. He was essentially a trouble-shooter whose job it was to get the Works completed. He was not always conciliatory and (with some justification) mistrusted particularly Mr Mackay and his motivation. He did not get on well with the Mackays, although I strongly suspect that, by the time that he came on the scene the relationship between them and WLC was rocky at best. He was undoubtedly faced with unpleasant verbal abuse from Mr Mackay and I formed the view that, although he found it difficult, he retained a level of restraint and politeness which was not reciprocated. He was slightly combative under cross-examination and he was clear and emphatic in answering what was often stern cross-examination. He was well prepared and he came over as believable and, as a witness, reliable.

96. In relation to the Defendants' witnesses:

(a) Giles Mackay: he was the key factual witness for the Defendant and as much turns on the extent to which, on contested matters, I accept his evidence, I set out below my impressions:

(i) He qualified initially as a barrister in 1984 but never practised. Since then, he has become an extremely wealthy man, now worth, he said, over £100 million. The business, which he has set up by all accounts extremely successfully, is a focused well financed property investment company, run from offices in Chelsea Harbour. He is clearly an astute but very forceful man. He has been and is obviously very busy primarily at his business but he enjoys sailing, owning several substantial yachts; at various, possibly important stages, he had to leave the country to participate in sailing races or the like. I strongly formed the view that he is a person who is used to getting his own way.

(ii) It is clear that, although he had passed the bar finals and had run for some 20 years (before this development) his substantial property investment business, he had never experienced either building contracts or direct involvement in construction projects. He unsurprisingly believed that his consultants, and in particular his architects, should act only in his interests but he seems to have been unaware throughout most of the project at least that, by agreeing to the standard JCT contract terms, he was leaving with the Architect an independent function of certifying sums due and of awarding, when appropriate, extensions of time.

(iii) He is a person who, virtually, from the start of the project up to this litigation, considered and considers that it is appropriate to apply very substantial sums of money and whatever it takes to getting what he believes he wants. He has spent some £17 - £18 million so far on the construction and, he told me, over £6 million on the costs of this case. His introduction of Knowles, as claims consultant, at a total cost of some £900,000 for 17 to 18 months work, in effect mostly to keep an eye on the other consultants and to dictate to them how they should do their jobs is an example. Save for some of their work in connection with the adjudications, much of this expenditure was substantially wasted.

(iv) He was and became increasingly frustrated as the project stumbled into substantial delay, rising costs and confusion as to who was responsible for what. I find it difficult to determine comprehensively whether it was the original architects, or other consultants, who were, so to speak, to blame or whether they gave appropriate advice at relevant stages to their client which was not followed.

(v) Whatever the cause of his increasing frustration, his behaviour towards the Architects, some WLC employees and other consultants was not simply coarse (for which he apologised on a number of occasions when giving evidence); it was combative, bullying and aggressive and contributed very substantially to the problems on this project. He was particularly critical of the Architect's meeting minutes and, although on occasions he did point out to them criticism of some of the minute taking (see for example emails dated 4 and 27 February, 8 March, 19 July and 25 September 2007), this was usually done in a very aggressive way; however, for some critical meeting minutes, he did not come back to the Architect.

(vi) I have formed the view that he is and has been for a long time angry. This seems to have started as 2006 went on and was originally directed primarily against the Architect. He has sued many of the parties involved in the development (the Architect, the Services Engineer, the lighting consultants and the interior designer); he has been sued by his second architect for fees, by Knowles and by several firms of solicitors for fees also. He has tried to wind up WLC (unsuccessfully in the summer of 2008), he sought through his solicitors in mid-2008 to suggest that WLC had "rigged" sub-contract tenders (an allegation not pursued in these proceedings), he has set up a website to attract additional complaints against WLC and to publicise complaints against WLC (“Beware of Walter Lilly”) and has sought to interfere with an acquisition by WLC’s parent company. Much of his anger has originated in his mounting frustration when matters did not go as he had hoped.

(vii) I found him to be an unsatisfactory witness. From my observations, I have formed the view that he has lost nearly all sense of objectivity in relation to this development and I consider that he simply does not understand why, given the amount of money which he has spent, the house is not perfect or exactly as he and his wife wanted. His attitude has almost become in the nature of a vendetta against WLC. Although I did not find him to be dishonest, he was at least careless with the truth in a number of respects. An example was his Third Witness Statement in which he stated that he believed that two

representatives of Knowles were practising barristers or solicitors; he must have known on any account that they were not solicitors, practising or otherwise and, having taken the Bar exams himself, must have been conscious broadly of what was required to be a practising barrister; there was little if anything to suggest that they were practising barristers, albeit that they too, like him, had passed the Bar exams. Another example was his evidence in court that shortly before BLDA was dismissed he did not believe that BLDA would grant another extension of time to WLC; that was directly countered by contemporaneous documents which showed that he clearly had this in mind. His evidence that he could not remember issuing a direction to G&T not to issue further valuation recommendations was expressly countered by the documentary evidence with which he had personally been involved at the time.

(viii) Having initially directed his ire against BLDA, he turned his attention also to WLC. I found him a most unconvincing witness. His objectivity having gone, I think that he has now convinced himself of the truth of certain matters such as those relating to the ABW issues such that, although he believes that he is right, he is obviously not.

(b) Caroline Mackay: she is a person who clearly knew what she believed she wanted in relation to this development. She had carried out extensive research before and even during the project as to what was required for the house. She was guileless and stood up well to cross-examination. She was also upset in the latter 12 to 18 months of the project as defects and delays began to emerge. She was clearly particularly upset about the way in which the ABW was eventually left by WLC, as it was she who had chosen the particular wood and, as she saw it, its appearance changed from what in her mind's eye it should have been. Until she told the Court at the end of her evidence that she had a law degree and had practised as a solicitor in two well-known London firms for some 8 years, it had not been wholly obvious that she was well qualified to deal with people and business affairs in a businesslike fashion. She was frank and I had no reason to doubt her honesty.

(c) Gavin Bartlett: he was an assistant project manager employed by RLB who were appointed to oversee the construction works which were omitted from the Contract between DMW and WLC. He was brought in to replace a Mr Bardsley who had been in charge of this operation prior to September 2007. Although he only worked on the project for 11 months and had no further contact until late 2011 for the purposes of giving a witness statement, he remembered what had happened at a key meeting in September 2007, the minutes of which he must have seen at the time but did not challenge; his memory was that, contrary to what the minutes said, no general instructions were given to WLC to stain cupboards and skirtings. I found him wholly unconvincing in this context not only because he did not challenge the minutes but because this work was not his area of responsibility and he would have had no reason to have any specific memory about it.

(d) David Cane: I formed the view that he was reasonably straightforward and open in the giving of his evidence. Some of his recollection was faded; for

instance, he had forgotten that WLC had invited G&T to verify certain aspects of the quantum.

(e) Richard Whidborne: he took over from Mr Cane as the acting quantity surveyor for the project in about March 2007; he was effectively sub-contracted by G&T. His evidence was largely uncontroversial but for instance, he had forgotten (and with it was clearly a surprise even to him) that he had been directed by Knowles to do things which he did not agree with and which he almost at least accepted would have been unprofessional. I was not impressed with his memory.

97. So far as the experts are concerned that my views are as follows.

98. As for the delay experts, Mr Robinson and Dr Aldridge, I preferred Mr Robinson in almost every respect. He, broadly, logically and conventionally, adopted the approach of establishing critical delay by reference to the "logical sequence(s) of events which marked the longest path through the project"; Dr Aldridge accepted that this was generally the way to calculate delay (this being taken from Paragraph 9.1.9 of his January 2012 report). In the difficult circumstances facing both experts by reason of the absence of any usable contemporaneous programme from early 2007 onwards, Mr Robinson adopted a much more objective approach to his expert analysis whilst Dr Aldridge proceeded on a much more subjective approach (which he accepted at least in part). I amplify on this in the extension of time chapter in this judgment.

99. Dr Aldridge's report also in some respects almost reads simply as a suggestion to the Court that the Claimant has not proved its case; an example is the opening words: "Walter Lilly's case does not stack up"; his report is littered with this type of remark that WLC has failed to prove or demonstrate this or that or to make out its case; it is not for an expert to suggest this type of thing. He proceeds on an obvious logical misapprehension that, if works are finished before Practical Completion, they cannot have delayed completion. His suggestion that plastering defects delays could realistically have contributed to the overall delay is simply unsustainable in circumstances in which there was ultimately a limited amount of remedial work actually done and the remedial work was substantially completed by April 2007. His adoption of an approach based on determining the most "significant" matters preventing practical completion led to him adopting in many respects a subjective approach as to what his client thought was significant. This approach was one which Mr Robinson had never seen used. He frequently descended into the arena of disputed facts and liabilities in which he was not the relevant expert; an example was Paragraph 2.2.35 of his January 2012 report when he felt able to criticise "WLC's unwillingness to accept that the colour variation (and the very poor quality of staining which had made matters worse) was an unacceptable defect requiring rectification". Some parts of his report were based on conversations and information which were not in evidence and on occasion he had to accept that he was given information by Mr Mackay and by Navigant which was not contained or referred to in his report. He produced as Appendix D a "Weighted Significance Matrix" which was worthless and self-fulfilling when he on a largely subjective basis awarded weightings to the various possible causes of delay; this was taken through the project in 2007 and 2008 on a monthly basis and, unsurprisingly gave much higher weightings to the subjectively accepted factors (such as plastering defects) selected by him or his client as "significant".

100. As for the Architect Experts, I preferred the well researched, very open and pragmatic approach of Mr Zombory Moldovan, WLC's expert. He was clear and positive throughout. Mr Josey is an experienced expert and was open, as one would expect, with the Court. He has, perhaps somewhat unfairly, been criticised by WLC's Counsel for having been instrumental prior to the Defence and Counterclaim in drawing up detailed lists of defects; it was said that this was indiscriminate because it did not identify what defects were the fault of WLC. Whilst it is the case that initially very large quantities of defects and amounts were counterclaimed against in respect of defects (many of which were later dropped), I would not criticise Mr Josey for that; it would be up to those advising DMW, DMW and Mr Mackay himself to identify who had a contractual or legal responsibility for the defects. However, he did labour under the disadvantage that he had to accept that a large number of them could no longer be pursued against WLC, including some which he had himself supported. I would not criticise him but I found Mr Zombory Moldovan much more reliable.

101. In relation to the quantum experts, both are experienced quantity surveyors with experience of litigation. I much preferred the approach of Mr Hunter which was pragmatic and down to earth. I was disappointed with Mr Pontin who, although an experienced expert, I felt was trying too hard to reduce the delay and other quantum heads to an insignificant level. Whether he felt, subconsciously, pressurised by Mr Mackay or not I can not say. But his arguments were reduced to scraping the barrel in some respects such as suggesting that WLC had not demonstrated any loss and expense attributable to Plot C alone; this was absurd because it must follow that, if there was as here delay (almost 30 months delay), some time and resources must have been incurred in consequence and that obviously has a cost. He endorsed a totally artificial calculation to demonstrate that WLC had recovered all its preliminaries costs on the three Units.

The Contract

102. The Agreement between DMW and WLC was contained in a memorandum dated 28 May 2004. It set out that the Conditions were to be those contained in the JCT Standard Form of Building Contract 1998 Edition Private Without Quantities, incorporating various specific amendments, as modified by the Contractors Designed Portion Supplement Without Quantities 1998 edition (revised November 2003), as amended by the Schedule of Amendments dated 26 May 2004 and the documents referred to therein. I will refer to these conditions as amended below. BLDA was named as the Architect and G&T was named as the Quantity Surveyor.

103. I will initially review the Contract to consider to what extent WLC owed design responsibilities or otherwise how design responsibility might pass to WLC.

104. The Recitals, as amended, are of some importance. The First Recital made it clear that DMW was desirous of having carried out "the construction of three dwelling houses with basements and parking facilities with a private service road with access from Bolton's Place…". The Second Recital defined what is to be the "Contractors Designed Portion" as:

> "the work referred to in the First recital includes the construction of certain works as notified by the Employer to the Contractor in writing"

105. The Third Schedule was in the following terms:

> "The Employer has caused the following documents to be prepared, sharing and describing the work to be done:
>
> the Contract Drawings numbered [sic] the drawings listed at Appendix A of the Architectural Specification (together with drawing number 0119 P300 Site Layout…and at Appendix A of the Structural Service Specification…
>
> and the following documents:
>
> 1. The specification dated March 2004 reference 18100…
>
> 3. The Tender Submission by Walter Lilly & Company Limited dated March 2004 reference 04023 [subject to some exclusions and amendments]…
>
> together hereinafter referred to as "the Specification/that Schedule of Work"
>
> together with other documents showing or describing or otherwise stating the requirements of the Employer for the design and construction of the Contractor's Designed Portion (hereinafter referred to as the ' Employer's Requirements')"

106. Article 1 stated:

> "For the consideration hereinafter mentioned the Contractor will upon and subject to the Contract Documents…carry out and complete the Works shown upon, described by or referred to in those Documents and for that purpose will complete such design of the Contractor's Designed Portion… as may be necessary in accordance with the directions which the Architect…shall give for the integration of the design for the Contractor's Designed Portion with the design for the Works as a whole subject to the provisions of clause 2.7."

107. Clause 2 of the Conditions contained the following terms:

> "2.1.1 The Contractor shall upon and subject to the Conditions carry out and complete the Works in compliance with the Contract Documents.
>
> 2.1.2 For the purposes of so carrying out and completing the Works the Contractor shall, in accordance with the Contract Drawings and the Specification/Schedules of Works where and to the extent that the same are relevant, complete the design for the Contractor's Designed Portion including the selection of any specifications for any kinds and standards of the materials and goods and workmanship to be used in the construction of that Portion so far as not described or stated in the Employer's Requirements…, and the Contractor shall comply with the directions which the Architect…shall give for the integration of the design for the Contractor's Designed Portion with the design for the Works as a whole, subject to the provisions of clause 2.8…
>
> 2.1.3 Where and to the extent that approval of the quality of materials or the standards of workmanship is a matter for the opinion of the Architect…such quality and standards shall be to the reasonable satisfaction of the Architect…"

> 2.7.1 Insofar as the design of the Contractor's Designed Portion is comprised in the Contractor's Proposals and in what the Contractor is to complete under clause 2.1.2 and in accordance with the Employer's Requirements and the Conditions (including any further design which has to be carried out by the Contractor as a result of a Variation) the Contractor shall have in respect of any defect or insufficiency in such design the like liability to the Employer, whether under statute or otherwise, as would an architect or, as the case may be, other appropriate professional designer holding himself out of as competent to take on work for such design who, acting independently under a separate contract with the Employer, had supplied such design for or in connection with works to be carried out in completed by a building contractor not being the supplier of the design.
>
> 2.10 An extension of time shall not be given under clause 25.3, and clauses 26.1 and 28.2.2 shall not affect, where and to the extent that the cause of the progress of the Works having been delayed, affected or suspended is:
>
> 2.10.1 any error, divergence, omission or discrepancy in the Contractor's Proposals…
>
> 2.10.2 failure by the Contractor to provide in due time necessary drawings, details, specifications, calculation or information concerning the Contractor's Designed Portion as required by clause 2.6.2, or
>
> 2.10.3 the Architect…not having received in due time necessary drawings, details, specifications, calculations or information concerning the Contractor's Designed Portion from the Contractor for which he specifically applied in writing…"

"Employer's Requirements" were in the Supplementary Appendix "to be agreed". These documents would spell out what the Employer required the Contractor to achieve through any design process which was to be assumed by the Contractor.

108. Provision was made in Clause 4 whereby the Contractor was required to comply with instructions issued to it by the Architect. Clause 8.1 required all materials and goods broadly to be of the specified types and standards set out in the Specification and Schedules of Work. Clause 13.1 entitled the Architect to issue instructions requiring a Variation to the Works, being an "alteration to or modification of the Employer's Requirements". Clause 13.3.1 required the Architect to "issue instructions in regard to the expenditure of provisional sums included in the Specifications/Schedules of Work." Clause 13.3.2 entitled the Architect to omit in whole or in part provisional sums for internal finishings, finishes generally, fittings and furnishings and landscaping. Clause 13.4 provided for the valuation of instructions requiring the expenditure of provisional sums either by way of an accepted "Price Statement" or under the provisions of Clause 13.5. That latter sub-clause would value such work as if it was a variation.

109. In reality, all the substantive work set out in the Specification (that is, apart from the Preliminaries) was simply identified by way of provisional sums. Thus piling was simply identified as "Piling to Perimeter" and a provisional sum of £600,000 identified. "Finishes Generally" attracted a provisional sum of £1,545,000.

110. Clause 19 addressed sub-contracting. Relevant provisions are:

> "19.2.1 A person to whom the Contractor sub-lets any portion of the Works is in this Contract referred to as a 'Domestic Sub-Contractor'.
>
> 19.2.2 The Contractor shall not without the written consent of the Architect (which consent shall not be unreasonably delayed or withheld) sub-let any portion of the Works. The Contractor shall remain wholly responsible for carrying out and completing the Works in all respects in accordance with clause 2.1 notwithstanding the sub-letting of any portion of the Works.
>
> 19.2.3 The Contractor shall not without the written consent of the Architect (which consent shall not be unreasonably delayed or withheld) sub-let the design for the Contractor's Designed Portion of the Works. Where the Employer consents to any such sub-letting such consent shall not affect in any way the obligations of the Contractor under clause 2.7 or any other provision of this Contract.
>
> 19.4.2.4 In respect of the Works to be undertaken by the Domestic Sub-Contractor pursuant to the sub contract ("the Sub-Contract Works"), insofar as the design of the Sub-Contract Works has been or will be carried out by or on behalf of the Domestic Sub-Contractor, the Domestic Sub-Contractor has exercised and will continue to exercise the skill, care and diligence to be expected of a professionally qualified and competent designer who is experienced in carrying out such work of a similar scope, complexity, nature and size to the Sub-Contract Works."

111. The Specification, which was a Contract Document, set out in the Preliminaries Section 1 details of the site. Part A13 describes the work as comprising "the construction of three high specification private residencies comprising accommodation at basement and ground to the third floors including underground swimming pool and garage". At E on page 1/5 the following is stated:

> "The following works may be designed by the Contractor:
>
> Windows…
>
> Lifts…
>
> Piling…
>
> Basement Waterproofing
>
> Mechanical & Electrical"

This list did not include any finishings, joinery or glazing.

112. The Specification also provided for what was called "Category B" work to be carried out by Domestic Sub-Contractors, these being "Firms selected by competition from a list of names compiled by the Architect and Contractor as described in Clause 19.3.2" of the Contract Conditions (page 1/12). Page 1/13 stated that for Category B work specific works were identified including the mechanical, electrical and public health

services installation, along with the lifts installation, landscaping and swimming pool, pool equipment and plant. Page 1/17 required "shop drawings [to] be submitted to the Architect prior to the manufacture or execution of the work covered by the shop drawings." Page 1/18R stated:

> "Certain Sub-contractors as defined in the Contract will be required to provide design, coordination, fabrication, installation and or builders were drawings, design calculations, fixing details, specifications and other information as appropriate during the course of the Contract. Certain Sub-contractors will be required to obtain all local authority building control approvals and any other statutory approvals that may be necessary for their detailed design and works, and shall be responsible for the provision of all necessary information to enable such approval to be obtained in time to meet the programme. Those Sub-contractors to which this paragraph applies shall include (but shall not be limited to) those associated with the following words:
>
> 1. Windows…
>
> 5. Lift…"

Nowhere was it specified or defined that there were to be Sub-Contractors to provide design or other related design work for the pool hall glazing, courtyard doors or joinery.

113. Page 1/19 and following addressed in relation to the Contractor's Designed Portion what general requirements there were for the submission of design and production information by the Contractor to the Architect for approvals.

114. Appendix C to the specifications contained a slightly wider description of the Works. It referred to the planning permission granted in June 1999 and to the fact that an application would be made to vary the permission in a number of ways including that the swimming pools would be built under the rear gardens. Appendix D provided what was called the Structural Engineer's First Stage Scheme Design Report, which broadly described in lists what was to be provided. The lift was described as a "glass lift car with indirect hydraulic action". Many of the Contract Drawings were described as "Preliminary" comprising layout and general arrangement plans. There were two elevation drawings.

115. WLC's letter dated 29 March 2004 to G&T (incorporated into the contract) amongst other things stated:

> "Although there are a number of elements of the works that **may** be let as Contractor Design Portions, we have not included the costs of any Professional Indemnity Insurance or any designer/coordinator input that may be required, should all any of the stated elements be let in this way. As an indication with regard to PI cover, we usually add 0.75% to the value of any CDP package."

116. In the light of the contract terms, it is necessary to consider how and in what circumstances a design responsibility and liability can arise in relation to WLC as the Contractor. Normally, with this form of contract, as one of the expert architects confirmed, the areas of work which are to be part of the Contractor's Designed

Portion are specified in the contract documentation. That did not happen in this case. All that one had in the Specification was identification at page 1/5 of works which "may be designed by the Contractor". Clearly the word "may" is not permissive in the sense that the Contractor could choose to design these works. The use of the word "may" is clearly intended to identify those works which can be the subject matter of selection by the Employer to be designed by the Contractor.

117. The term "Contractor's Designed Portion" is only defined in the Amended Second Recital and was specified as being "the construction of certain works as notified by the Employer to the Contractor in writing". Thus, an element of work can only become part of the Contractor's Designed Portion if and therefore presumably when DMW notifies WLC that this is to be the case. It is of interest and importance to note that it must be DMW which notifies and the Architect or the Quantity Surveyor are not as such given authority by the terms of the contract itself to notify; that is in contradistinction for instance to the Architect being given authority to issue instructions requiring Variations.

118. The next point concerns whether the list at page 1/5 in the Specification limits what is to be designed by the Contractor. In my view, the contract is clear that the Specification identifies those works which may or can be notified by DMW pursuant to the definition in the Second Recital. The Contractor cannot be asked to design works outside the list at page 1/5. Although the wording at Page 1/18 is possibly or partly otiose, it is interesting that there is a reference to sub-contractors to which the paragraph relates "including" those associated with specified works. Page 1/5 does not provide a list, so to speak, by way of example.

119. Page 1/18 is at best confusing. The reality is that no "Sub-contractors" were "defined in the Contract", at least by name. Elsewhere (at page 1/12R), Category A was to be work by "Domestic Sub-contractors" where the firms were "named in this Specification"; this Specification was, one assumes, a template used by the Architect or Quantity Surveyor and there are no firms "named" in it in this case. The 18 types of work are the first 18 of the 21 types of work refer to page 1/5. It could be said that the distinction is being made between the Contractor being asked to design as compared with certain Sub-Contractors being asked or required to design. Reading page 1/5 with page 1/18, the meaning becomes much clearer. If the Employer notifies the Contractor in writing that it requires any one of the 21 types of work set out at page 1/5 to be designed by the Contractor, Sub-Contractors are to be deployed to provide design services for any of the first 18 of those types.

120. One must then move on to consider how, contractually, the notification by DMW is to be made. Obviously, it must be in writing and that could doubtless be by letter, e-mail, fax or even by a meeting minute. It is obvious also that the notification must be to WLC because it must know, commercially and practically, that it is to assume design responsibility. The wording of any notification does not have to be in any particular form but what must be required is that it must be sufficiently clear to be understood as a notification that design responsibility is to be assumed by WLC for the particular item of work within one of the 21 categories identified on page 1/5. It follows from this that, as a matter of contractual interpretation, some sort of constructive or inferential knowledge on the part of WLC that it might have a design responsibility for a given item of work does not in itself deem there to have been notification. One needs to look at whatever the notification is said to be and, primarily

answer two questions: is this clearly a notification under the Second Recital and is it a notification to WLC?

121. I do not consider that notification by the Architect, as Architect under the contract, is sufficient because there is nothing in the contract itself which suggests that the Architect is clothed with authority in that role to notify something which the parties have agreed will, if it happens at all, be done by DMW. It would be different if the Architect, with specially given authority, wrote words to the effect: "On behalf of the Employer, I hereby notify you are to have design responsibility for (for example) the CCTV work".

122. In commercial and practical terms, it is important in my judgement under this construction contract for the notification to be clear and unambiguous. The main reasons are that everybody involved in the project, particularly the Architect and other professional consultants as well as the Contractor, need to know who has the ultimate or any particular design responsibility for any given work. If the Contractor has it, then the Architect knows to call for design documentation for approval. If the Architect or other of the Employer's professionals retains responsibility, the Contractor knows from whom to call for information. Either way, each can protect itself by securing appropriate warranties or other protection from, say, sub-contractors who are to be retained. Another not unimportant reason for clarity is that, given that all works were the subject matter of provisional sums, it is more than arguable that the Contractor would be entitled to some additional compensation for design coordination as well as for the cost of procuring appropriate professional indemnity insurance as called for in the tender letter of 28 March 2004.

123. In determining whether a CDP notification has been given, it may as a matter of fact be relevant to determine if a design brief or what can be identified as "Employer's Requirements" have been provided by or on behalf of the Employer to the Contractor. If no such brief or document which can clearly be identified as "Employer's Requirements" has been provided, depending on what else has been notified in writing to the Contractor, it may be that one cannot even by inference or interpretation determine that a CDP notification has been given.

124. Because it features in the differing approaches to delay analysis adopted by the two programming experts, it is also necessary to review what the Contract Conditions require. Clause 23.1.1 provides that on the 12 July 2004 WLC was to be given possession of the site, proceed regularly and diligently with the Works and to have completed by the Completion Date, 23 January 2006. Clause 25 provides for the Completion Date to be extended if various Relevant Events occur which cause delay. These Relevant Events include compliance with Architect's Variation instructions (Clause 25.4.5.1) and a failure by the Architect to provide instructions and information timeously (Clause 25.4.6.2). Relevant provisions of Clause 25 are as follows:

> "25.2.1.1 If and whenever it becomes reasonably apparent that the progress of the Works is being or is likely to be delayed the Contractor shall forthwith give written notice to the Architect of the material circumstances including the cause or causes of the delay and identify in such notice any event which in his opinion is a Relevant Event…

> 25.2.2 In respect of each and every Relevant Event identified in the notice given in accordance with clause 25.2.1.1 the Contractor shall, if practicable in such notice, or otherwise in writing as soon as possible after such notice:
>
> .2 .1 give particulars of the expected effects thereof; and
>
> .2.2 estimate the extent, if any, of the expected delay in the completion of the Works beyond the Completion Date resulting therefrom whether or not concurrently with delay resulting from any other Relevant Event…
>
> 25.3.1 If, in the opinion of the Architect, upon receipt of any notice, particulars and estimate under clauses 25.2.1 [and] 25.2.2
>
> .1.1 any of the events which are stated by the Contractor to be the cause of the delay is a Relevant Event and
>
> .1.2 the completion of the Works is likely to be delayed thereby beyond the Completion Date
>
> the Architect shall in writing to the Contractor give an extension of time by fixing such later date as the Completion Date as he then estimates to be fair and reasonable. The Architect shall, in fixing such new Completion Date, state:
>
> .1.3 which other Relevant Events he has taken into account and…
>
> and shall, if reasonably practicable having regard to the sufficiency of the aforesaid notice, particulars and estimate, fix such new Completion Date not later than 12 weeks from receipt of the notice and of reasonably sufficient particulars and estimate or, where the period between receipt thereof and the Completion Date is less than 12 weeks, not later than the Completion Date…
>
> 25.3.3 After the Completion Date, if this occurs before the date of Practical Completion, the Architect may, and not later than the expiry of 12 weeks after the date of Practical Completion shall, in writing to the Contractor either
>
> .3.1 fix the Completion Date later than that previously fixed if in his opinion the fixing of such later Completion Date is fair and reasonable having regard to any of the Relevant Events, whether upon reviewing a previous decision or otherwise and whether or not the Relevant Event has been specifically notified by the Contractor under clause 25.2.1.1…
>
> 25.3.4 Provided always that:
>
> .4.1 the Contractor shall use constantly his best endeavours to prevent delay in the progress of the Works, howsoever caused, and to prevent the completion of the Works being delayed or further delayed beyond the Completion Date…"

125. From these terms, one can draw the following conclusions material to this case:

> (a) To secure an extension of time before Practical Completion, the Contractor has to give notice if the Works are being delayed or are likely to be delayed. This

notice can relate therefore to actual delays being experienced or to future likely delays.

(b) The notice should be accompanied or be followed as soon as practicable by particulars of expected effects and an estimate of the expected delay.

(c) What is at least initially envisaged is that the Architect will carry out a prospective exercise; this is because the Contractor can give notice when progress is likely to be delayed and the Architect has to assess what the likely delay will be. This makes sense so that the parties and the Architect can plan for the rest of the job. Of course, notice can be given when the Works have actually been delayed but actual overall delay will not happen until after the original Date for Completion has passed. How the Architect does this prospective exercise of working out how much future delay will result from the Relevant Events in question is not prescribed but he or she will simply have to do the best that he or she can; this may well be assisted by programming exercises done by the Contractor.

(d) Once the notice, particulars and estimate under Clauses 25.2.1 and 25.2.2 are given, the Architect is required to grant the appropriate extension of time. This is not an optional exercise: the word "shall" is clearly and intended to be mandatory.

(e) No later than 12 weeks after Practical Completion, the Architect must carry out the final extension of time exercise, irrespective of whether notices and the particulars have been provided. This will necessarily be a retrospective exercise because Practical Completion will have passed and all the delays (whatever the causes) will have occurred. Again, the way in which this exercise is to be done is not defined.

126. I will review other provisions in relation to other specific disputes later in this judgement.

The Proceedings and the Pleadings

127. WLC's Claim was issued on 31 March 2010 along with the original Particulars of Claim. It was initially a relatively compact pleading in which the claims included seeking an extension of time to Practical Completion, the return of deducted liquidated damages and sums wrongly deducted for alleged defects, loss and expense related to delay and the outstanding unpaid value of works. The extension of time claim was based on events surrounding the Light Wall, the Leather in the Library, the Stingray doors, the lighting and Barrisol ceilings, ABW, External Works and WC2 and WC3 lighting. The Particulars of Claim have been amended twice and been particularised by way of Voluntary Particulars and other Further Information. There were Annexes and Schedules attached which provided some further information about the delays and the money claims.

128. DMW served its original Defence and Counterclaim in September 2010 although it has since been amended on four occasions. The basic pleading ran to 414 paragraphs and 140 pages along with detailed appendices. It is fair to say that there was a thorough response and a myriad of issues was raised. It claimed that there had been an overpayment in terms of the value of work, that no further extension of time was due,

that substantial liquidated damages were due and that a sum approaching £2 million was due to defects and that WLC's holding company was also liable under the terms of a guarantee.

129. DMW also brought Part 20 claims against BLDA, CBP, JSI and Equation which pleaded most of the defects against one or more of them and asserted that the delays were caused by them, to a greater or lesser extent, to the extent that it was established that WLC was entitled to an extension of time. These third parties responded.

130. There were a number of procedural outings to the Court, some of which were heavily contested, in particular those which related to the way in which WLC had particularised or proposed to particularise its case on delay and its linkage to the loss and expense claimed. The Court eventually decided that a Re-amendment to the Particulars of Claim was appropriate supported by extensive Voluntary Particulars (in the final form) and an extensive document called "Detailed Loss and Expense".

131. In mid-July 2011, DMW and the third parties settled their differences under an agreement by which they paid DMW some £1.8 million inclusive of costs. This at least was sensible given that the costs of six parties would have led to costs (even assessed on a standard basis) massively exceeding what was really in issue in the case.

132. There is no need here particularly to analyse those pleadings because I address what remained of the pleaded issues in the body of this judgement.

Analysis of Major Causes of Delays and Major Defects

133. Given the pleadings and the allegations and evidence put forward about alleged defects and causes of delay, it is sensible to analyse the facts and legal responsibilities in relation to the suggested problem areas, namely the ABW, the Courtyard Sliding Doors, the Light Wall, the Lift, the Barrisol Ceilings, Leather in the Library, snagging and plaster defects. An important area for consideration of the first six items is the contractual risk or responsibility for the design. I will not here consider the delay consequences of these problem areas but simply seek to make findings of fact and liability, which will or may impact on the delay analysis which follows.

ABW

134. The wood for the flooring throughout much of Unit C and the veneered cupboards and skirtings was American Black Walnut, which was a personal selection and preference of Mr and Mrs Mackay. Although the quality of the flooring was also criticised in 2007 and 2008, no allegations in relation to the flooring have been pursued in these proceedings. The complaints relate to most of the veneered cupboards and skirtings. There are essentially two main issues relating to ABW. The first is whether or not WLC owed any duty to DMW to advise it or its architect about the risk that ABW does have a propensity to fade in natural light. The second issue revolves around whether or not in September 2007 Mr and Mrs Mackay effectively instructed WLC to stain all the veneer wood throughout the house and whether WLC should have advised or warned DMW or the Mackays that the staining or staining process would or could suppress the effect of the natural grain. Whilst the second issue is arguably the most important issue, the first issue is relevant because it was the fading and

changing of colour of the veneered wood which ultimately led to whatever the decision was about staining. This first issue involves a consideration of whether or not (and to what extent) WLC and Adams in effect on its behalf had some sort of design or designer responsibility to advise about the risk of fading. DMW immediately runs into difficulty on this first issue because Mr Justice Coulson has already decided in the Part 8 proceedings ([2008] EWHC 3139 (TCC)) that the fading of the ABW cannot, in the absence of an identifiable breach, give rise to a liability on WLC. There is no express term of the Contract that the wood should not fade; if WLC is not in breach of contract as such for the wood fading, it is difficult to see that it had any obligation to advise about the risk of fading. That said, it is still necessary and helpful to review what happened and what the contractual risks and responsibilities were because DMW argues that there was a design obligation on WLC which would have encompassed an obligation in effect to warn.

135. There was no express or expressed notification to WLC by DMW or anyone on its behalf that design responsibility should fall on WLC.

136. At some stage in the first half of 2005, Mr and Mrs Mackay had selected ABW as the wood which they wanted for the flooring and for the joinery and skirtings. On 27 May 2005, WLC invited, amongst others, Adams Joinery, to quote in relation to the joinery for "the supply and fit out of" various rooms in Unit C; this was said to be Package No WP 284 and the attached Contract Tender Enquiry document provides only general requirements for tendering, albeit it envisages that working drawings would be provided by the sub-contractor and for "design development". There is no evidence that this form of Enquiry was promulgated, required or otherwise called for specifically by DMW or anyone on its behalf. Adams Joinery quoted on 23 June 2005 (£410,275.93 for five bathrooms, two dressing rooms and two WCs) and on 8 July 2005 (£275,428.12 for the Cinema, Wine Store, Cloaks, Family Room, a WC, Library and Mrs Mackay's study). These quotes were "for the supply and installation as per architect's drawings". There is no suggestion that the Architect's drawings add anything which might suggest any design responsibility was being devolved through WLC to the selected joinery sub-contractor. There followed a period in which there were some discussions and negotiations on price, including as between G&T and Adams Joinery.

137. On 3 October 2005, BLDA by its Instruction No. 166C instructed WLC to place its order with Adams Joinery in relation to these quotations and G&T's attached summary sheet. That attached sheet identified a revised tender sum of £546,545.71 which identified negotiated reductions for preliminaries and a £17,000 reduction "on the basis that BLDA have finished design and there is little need for design development".

138. On 23 November 2005, WLC wrote to Adams Joinery saying that it was their intention to place orders with it "for the design development, supply, delivery and installation of the fit out works and selected joinery". Over the following four or five months further quotations for additional rooms were sought from and provided by Adams Joinery; 20 October 2005 (three quotes, £139,133.48 for staff rooms, drawing room and two children's bedrooms, £29,914.13 for Mr Mackay's study and £35,409.24 for the master bedroom and guest suite), 7 November 2005 (three quotes, details not in the Court papers) and 2 December 2005 (one quote, not in papers). There is no suggestion that these further quotations quoted for anything other than the

supply and installation of joinery in all the rooms which are the subject matter of the ABW complaints or that the Architect's instructions, so to speak, accepting them, called for anything other than the "supply and installation" of the joinery in question.

139. Ultimately, by way of an Order dated 13 January 2006 signed by WLC and Adams Joinery, a sub-contract was entered into nominally in relation to the works quoted for on 23 June 2005 and 8 July 2005 by Adams Joinery. The works were briefly described as "fit out" works and there was a Schedule of Documents forming the Sub-Contract Agreement. This Schedule however related to more than just the rooms and the areas described in those two quotations and reflected further architects instructions relating to the later quotations by which WLC was again instructed to place orders with Adams Joinery "for the supply and installation" of various items of joinery. There is nothing on the face of all the Architects Instructions which called for design work as such to be done either by WLC or by Adams Joinery in relation to the joinery. The total sum identified in the Schedule of Documents was £747,573.91. The "Subcontract Pre-Order Agreement", said to have been incorporated identifies that the works extend not simply to joinery but also to other types of fit out including bathrooms and against Box 29, whilst "Full Design" was expressly excluded, "Development of Design", "Co-ordination of Design" and "Co-ordination of Design with other trades" was required. This Sub-Contract must have been entered into shortly after 6 March 2006 because the last documents referred to in the Schedule of Documents is dated 6 March 2006.

140. The relevant specification referred to in the Adams Joinery Sub-Contract was NBS Z10 which was an adapted National Building Specification for "Purpose made joinery" which had been issued albeit not formally, by instruction or letter, by BLDA to WLC. Relevant clauses were:

> "102c DESIGN AND PRODUCTION RESPONSIBILITIES
>
> The Subcontractor shall be responsible for the following:
>
> - Completing the design/detailing and provide complete fabrication/installation drawings, full sized rods/shop drawings as appropriate for approval by the Architect…
>
> 220a WOOD VENEERED BOARDS/PANELS…
>
> - Setting out: Veneer features is and grain pattern aligned regularly and symmetrically unless instructed otherwise…
>
> - Veneer edges: Tight butted and flush, with no gaps…"

141. There is nothing in what passed between DMW and its consultants on the one hand and WLC on the other which expressly or even by implication suggests that design liability was being passed to WLC. The fact that WLC was seeking to impose on Adams Joinery some design responsibility, albeit limited to design development and the production of working drawings, does not in itself, logically, commercially or at all, give rise to any inference that WLC was being notified or required by DMW to assume a design responsibility as between DMW and WLC. No case in estoppel is pleaded by DMW in this context so, for instance, it is not being suggested that by way

of some estoppel by convention the parties were proceeding on the basis that WLC had assumed a full or material design responsibility as between it and DMW.

142. The Z10 specification relating to the completion of the design or detailing does not really assist DMW in this context. The basic design had in fact been done substantially by BLDA; this much is evident from the 39 BLDA drawings set out in the Schedule of Documents and also from the main Architect's instruction which expressly referred to BLDA having finished the design and there being little need for "design development". Even if, as between WLC and DMW there was some design obligation on WLC, it would be limited to "completing" the design; that must envisage that essential design decisions had already been taken and that those decisions were effectively immutable. There is no real suggestion that any obligation on the part of Adams Joinery to produce fabrication or working drawings carried with it a general design obligation or responsibility.

143. Mr Zombory-Moldovan, the expert architect called by WLC, said in evidence that. fabrication and shop drawings are drawings that show the composite of how a design is to be made and how it is to be manufactured; a fabrication drawing is not simply the isolation of components of the installation for production in the factory or the workshop but it brings together all of those components and sets it them out on a composite drawing. From that drawing the manufacturer is then able to identify specific components, but can understand from its own shop or fabrication drawing how many specific components sit within the overall arrangement. I accept this evidence as logical.

144. It was Mr and Mrs Mackay who selected ABW as the wood which they wanted for the veneered cupboards and skirtings. This occurred essentially in 2005 at a time when Adams Joinery had not finally been engaged contractually by WLC. The documentary evidence shows that the selection of a Danish Oil finish as opposed to a lacquer finish (save in a few areas) had been made by mid February 2006. On 16 February 2006, BLDA emailed Adams Joinery confirming this. Bev from DMW's interior designers did not like the lacquer finish because it looked "cheap" and Mr and Mrs Mackay did not like the lacquer finish, as confirmed in Bev's email dated 17 February 2006 to BLDA. This selection was made notwithstanding the clear recommendation of Mr Hawks of Adams Joinery that lacquer was better because it gave added durability; he repeated that advice in an e-mail to BLDA on 17 February 2006, expressing his great concern. This is important because it does not appear that at least those advising Mr and Mrs Mackay were placing any significant reliance on what Adams Joinery were saying about this. To the extent that they were relying on anyone, the Mackays were relying on the interior designer (Bev) and BLDA. Mrs Mackay gave evidence that she went to Reliance Veneers in March 2006 but this must have been simply to select the particular piece of ABW from which the veneer was to be taken. The basic decision about using ABW had been made already many months before because Adams and others had been asked to quote for the use of ABW. Adams did send various samples of ABW in March 2006 and, I find, it is likely that they did not have a sticker on the back which suggested that the veneer might fade in sun light.

145. Later in 2006 going into early 2007, Adams Joinery supplied and installed the ABW veneered cupboards and skirtings but, unlike the floors which were protected with coverings to enable workmen to pass over, the veneered surfaces were not so

protected. It should be appreciated that many of the windows are large and let in a substantial amount of natural light.

146. In the General Chronology, I refer to some of the history as to the discovery of the perceived problem. This began to emerge mostly in June 2007 and, initially, there was complaint and concern that the Mackays had not been advised or warned that either wood generally fades or that ABW not only fades but also somewhat changes colour. Mrs Mackay thought that it was going yellow (although later she and her husband were to refer to it as orange). When she reported this to Sonya Hammond by e-mail on 25 June 2007, the latter's response was that "the veneer will change in colour as it ages and is exposed to light"; she suggested that it would be possible to "stain it to any shade you find more agreeable if you prefer". Mrs Mackay's response later that evening was somewhat abrupt but she emphasised that she would have expected BLDA to "have spotted the problem anyway and asked for a solution on our behalf". Again, this suggests that the reliance of the Mackays in this context was on their architect or possibly interior designer as opposed to WLC or Adams Joinery. The problem continued to be raised in the following walk around meetings. For instance at a meeting on 4 July 2007 Mr Davis of BLDA confirmed "that old timbers will change colour as they age and are exposed to day/sun light"; he said that it "was fortunate that the changing is occurring uniformly across the unit".

147. Apart from the colour problem (which was overwhelmingly the main one), as it was perceived by the Mackays to be, there were in places concerns that abutting pieces of skirting showed up as being too dark or non-matching at the joints. This particular problem was addressed by Adams by a polishing technique which significantly improved the look of the affected joints.

148. As confirmed in a letter dated 4 September 2007 from BLDA to Mr Bardsley of RLB, BLDA instructed WLC to stain the door to the third floor Guest Suite to see whether the client would accept it with a view to staining the remainder of the ABW. This was done.

149. At a walk-around meeting on 5 September 2007 attended by Mr Mackay but with no representative of WLC present, Mr Mackay complained that the ABW was becoming too orange in colour. There was reference to the fact that Adams had said recently that "the oil walnut will fade in daylight as it does not contain a UV inhibitor as lacquer can"; Adams was reported as saying that the fading problem was "a defect as the specifier should have been aware of this"; they could "re-oil the walnut veneers with the staining, back to the original colour however they will fade again". It was confirmed that Adams was instructed to stain the door to the Guest Suite as a sample.

150. A key meeting in this history is that of 19 September 2007 attended by (amongst others) Mr and Mrs Mackay, his assistant (Gemma Tate who was Mr Mackay's PA), Mr Davis and Ms Hammond of BLDA, Messrs Joyce and Fairweather (of WLC), Bev, and Messrs Bardsley and Bartlett of RLB. The minute states:

> "French polished sample Door to Guest Suite – The clients both agreed stained sample is now a much better colour, closer to the expected colour. KF stated that the French polishers used a coloured stain.

> GM showed DLD a photo of the back of the walnut sample they approved in [the interior designer's] offices. The photo showed a sample without a disclaimer label from Adams Joinery (AJ). DLD showed GM a typical Adams Joinery timber sample with their standard disclaimer sticker. This sticker states that the colour of the timber may fade in time. CM stated that even with this information it was not clear enough, they were never informed that the timber would change colour. She asked whether the colour would fade further. SH confirmed that it may fade and might need a re-application. JJ asked whether WL are to proceed with the French polishing works to all walnut veneers. GM said yes and asked about whether various shades of stain are available…"

151. Mr Joyce and Mr Fairweather were in no doubt at the time and Mr Joyce was unequivocal in evidence that at this meeting Mr Mackay told them to apply stain for the remainder of the veneered wood throughout the house. On the same day, shortly after the meeting, Mr Fairweather e-mailed Adams Joinery in the following terms:

> "The sample colour and finish to the guest entrance door has been accepted by the client.
>
> We therefore need to address all the Walnut Danish oil finished joinery to match the sample."

152. The minutes of the meeting was circulated to all concerned including Mr and Mrs Mackay on 24 September 2007. They were never challenged. As indicated elsewhere in this judgement, meeting minutes were often challenged by, principally, Mr Mackay.

153. The staining work throughout the house was done and largely completed over the next 2 to 3 weeks. On 10 October 2007, at another walk-around meeting, no complaint was made as such by Mr and Mrs Mackay that staining work was being done to the veneered surfaces throughout the house. What was minuted at Paragraph 3.07 was as follows:

> "As a general note GM expressed strong concern regarding the staining works Adams are undertaking to the American Black Walnut; highlighting how there is significant colour variation from room to room and often the staining is very blotchy. The joints are also darker. GM considered that all these points make the timber unacceptable. WL confirm that the oil seal had not been applied. GM and CM confirm that the samples [sic] doors on the top floor were accepted. CM suggested that Adams makes a sample based on the acceptance which can be referred to within each room which would highlight the variation, and should assist with addressing the issue. JJ to arrange a meeting with French polisher foreman to resolve the issues."

These minutes strongly suggest that Mr and Mrs Mackay were not objecting to the fact that the staining work was being done throughout the house but more to it being done in a way which was unacceptable. There is also a confirmation that the sample being observed was on the doors on the top floor.

154. At the next walk-around meeting on 17 October 2007, the following was minuted:

> "Adams were staining Her Study joinery at the time of the meeting. The four drawers in the centre had received the sealer oil. WL would like acceptance in terms of the oiled wood before proceeding further. CM confirmed acceptance of the drawers stating that they looked great. The staining of the wood generally was much improved also. Adams showed CM a sample that had been made and was reported to be based on the approved doors on the top floor. CM confirmed acceptance of the sample."

155. At another walk-around meeting on 31 October 2007 the following was recorded at paragraph 3.01 of the minutes:

> "GM stated that they are not in acceptance any [sic] of the staining works and are anticipating an imminent arrival of report from Trada. GM reported dissatisfaction with variation between the staining which is noticeable within runs. In addition the shadow gaps are too dark relative to the rest of the wood, and the butt joints are too dark. GM reported that grain had been lost in the timber because of the excessive staining and it does not look like a American Black Walnut originally approved. RB [of WLC] reminded GM that WL has undertaken the staining work at GMs request. CF [of BLDA] referred to the previous meeting where CM approved the drawers to Her Study and other samples including the door on the top floor (C.D3.04) and the hand held sample. CM reported that they had subsequently become darker because the French polisher has gone over them again. GM stated that WL are trying to make the best of a bad situation by staining the wood, and are not aware of what is going to occur to the finish long term. GM expressed dissatisfaction with the staining and explained that it has resulted in something which is unacceptable."

There were no challenges to these parts of the minutes of these October meetings.

156. The TRADA report commissioned by WLC, dated November 2007 reported that the appearance of the un-stained veneer "was consistent with what we would expect to see in American Black Walnut. There were natural variations in the colour of timber across the grain from a rich dark brown to a lighter orange-brown". The TRADA expert carried out a detailed inspection throughout the house; he was the view that the use of the Danish Oil was "unlikely to cause" the colour change. He was of the view that the "stain has provided a high quality uniform finish" albeit that "the result of the stained walnut does not match the specified walnut veneer". He considered the specification in the context of the matching of skirting lengths; by reason of the staining he could not assess whether there were significant variations in the colour or shade of adjacent sections of the skirting boards.

157. It is clear from documents, in particular those to and from Knowles as disclosed by DMW, that Mr and Mrs Mackay were having detailed advice about the ABW issue. For instance on 21 September 2007 they had a report from an expert at Knowles about the ABW. Interestingly, it is also clear that Knowles attributed all or much of the problem to BLDA, for instance in its letter dated 27 September 2007 to Mr West.

158. By sometime in December 2007, Mr Mackay was seeking to have the whole of the ABW veneered wood replaced; that was called for in an e-mail from Mr Mackay on 10 December 2007. Mr Bates of WLC replied on 11 December 2007 saying that it had "correctly carried out veneered walnut joinery to the specification and AIs"; he

believed that the "issue appears to lie with what aesthetic you perceived you would be getting as to what you have got". He said that WLC, Adams, BLDA and TRADA all believed that WLC had complied with “the specification in full by installing quality natural materials to a high standard of workmanship". This belief had been expressed by those four parties. However, Mr and Mrs Mackay clearly believed that the work was defective and, as Mr Mackay said at a meeting on 12 December 2007, either WLC accepted that or he would arrange for work to be undertaken and recover all costs from WLC.

159. The position of the Mackays from about this time on (and as put forward by them in evidence) was that they did not authorise staining for the whole house at the meeting of 19 September 2007 but only a limited amount of staining within the Guest Suite and that the sample was not the third floor entrance door to it, as had been stained by Adams before that meeting. So far as my findings of fact are concerned, I am totally satisfied that Mr Mackay did positively instruct and ask WLC to stain all the veneer throughout the house and that the sample against which the staining, so to speak, to be measured, was to be that of the entrance door which had been stained by Adams before that meeting for that very purpose. My reasons are as follows:

(a) I found Mr Joyce to be a wholly believable witness generally but particularly on this topic.

(b) The minutes of the meeting are reasonably clear and records this.

(c) Within a very short time after the meeting (on the same morning), Mr Fairweather who was at the meeting was instructing Adams to stain throughout the house. With a client who was known to be difficult and before the minutes had come out, he must have been absolutely clear on what had been said. It is unrealistic to believe that he would have made it up.

(d) The minute was not challenged by either Mr or Mrs Mackay. Since the ABW was something which was close to their hearts, and because they had been concerned in the past about the accuracy of minutes, it is not credible that they did not challenge these minutes if they were inaccurate in this particular regard. BLDA never withdrew or revised the minute.

(e) The later minutes, particularly in October 2007, do not hint at any complaint that staining was being done throughout the house. Again, it is simply not credible that WLC had not been instructed to stain throughout the house. If there was any issue about that, I would have expected it to have been raised in these later October meetings or at the very least in some contemporaneous documents; this did not occur.

(f) Simply, I did not find the evidence particularly of Mr Mackay on this topic credible; he was extremely faltering under cross-examination on the topic, unsurprisingly in one sense because almost all of the contemporaneous documentation, unchallenged by him, undermined what he was saying. Although Mrs Mackay was in some respects a "better" witness than Mr Mackay, I found her evidence on this area of the case particularly unconvincing. It is interesting that on several copies of the October meeting minutes she wrote various notes qualifying what had been minuted. She also did not challenge the 19 September

2007 meeting minutes and her solicitor background would have warned her of the need to challenge the minutes on a topic such as this, close as it was to her heart, if the minute did not clearly recall what was said.

160. What is clear to me is that Mr and Mrs Mackay were very disappointed in the summer of 2007 that the veneered wood had altered colour from that which they were expecting. BLDA had suggested that staining the wood might well get the wood to the colour which they wanted and with their knowledge and consent the main door to the Guest Suite was stained by Adams to be considered as an appropriate sample. Mr and Mrs Mackay saw that sample and, as the minute of 19 September 2007 indicates, liked what they saw and Mr Mackay expressly and clearly told WLC to go ahead and stain the veneer throughout the house. They found on reflection after the work was done that they did not like it because it took away, in their minds, some or all of the aesthetic qualities which they were looking for.

161. Another very important factor is that the Mackays, when later in 2008 they instructed Interior Joinery to remove the old stain applied in September and October 2007, obviously approved an even darker stain throughout the house than that which was applied by WLC; this second staining operation has, to an even greater extent than before, covered the more natural look of the ABW. This supports the view that their state of mind back in September 2007 was that a dark stain was to be provided throughout the house because they repeated the mistake (if it was a mistake at all) some 8 months later. Whilst they now believe adamantly that the staining by WLC was a culpable mistake on its part, the mistake, if such it was, was that of the Mackays.

162. It follows from what was said earlier that I do not consider that WLC had any design responsibility for the selection of ABW in this case. There was no material notification of them that the joinery in general or the selection of the ABW in particular was an aspect of the design which was to be devolved upon WLC. If there was no material design responsibility, there can in logic have been no obligation on the part of WLC via Adams or otherwise to advise the Mackays that the ABW might fade or change colour in time on exposure to natural light. As indicated above, I do not consider in any event that the Mackays were relying on WLC or even Adams for that; to the extent that they were relying on anyone, it was BLDA or Bev. The selection of the ABW and the Danish Oil occurred before there was a sub-contract in law between Adams Joinery and WLC. As rightly accepted by Mr Sears QC for DMW, if there was no overall design liability on the part of WLC in relation to ABW, there was no duty to warn either that it might fade or that if stained it would lose or suffer a reduction in whatever aesthetic quality appealed to the Mackays.

163. It is suggested that there remain some other defects. One other complaint is that WLC ensured that the feature is an ingrained pattern allying to regulate and/or symmetrically with the result that there was a marked variation in the colour of the ABW from one part of the skirting to another. It is claimed that the ABW is defective because it is not “book matched” (the practice of matching two (or more) wood surfaces, so that two adjoining surfaces mirror each other in appearance, thus giving the impression of an opened book). However, I am satisfied that there was no design/specification requirement for the veneers to be book-matched. On the contrary, the requirement in the specification was for "features and grain pattern aligned regularly and symmetrically” which I am satisfied has been installed. It appeared to be

common ground between the experts that what one must do in that situation is one's "best" with the veneer selected, given that there will be some variations between adjoining bits of veneered surface. BLDA at the time saw what had been carried out and was satisfied that it was in accordance with the specification and amounted to good workmanship. Another point was relating to the filled fixing pin heads; the only relevant evidence on the point is that it was normal practice to face-pin vertical (mitred) joints with lost-head pins, face filled, which is what has been done correctly by WLC.

164. These relatively minor points in any event have been "lost" or covered over by the re-staining exercise done by Interior Joinery in 2008 which was done as a matter of choice by the Mackays. Mr Zombory Moldovan was critical of the way this work was done in that it was patchy and in places gave a treacly appearance.

165. An odd feature of DMW's complaint relating to the ABW is the fact that for over four years since the problems which are now the subject matter of complaint were first raised Mr and Mrs Mackay have not had the work remedied. They are clearly an extremely wealthy couple to whom the cost of putting right (as they see it) of the defective veneer is relatively minor. Mr Mackay suggested that the only reason that they had not was because they did not want to destroy the evidence. That is not an obviously credible explanation because all that they would have had to do (as Mr Mackay must have known) would have been to notify interested parties that they were intending to replace the veneer and give them an opportunity to inspect, photograph and possibly take samples and then gone ahead and done the remedial works. They have lived, apparently happily, in the house since August 2008 with veneered surfaces which they give the impression are extremely upsetting to them. I have the strongest impression that this complaint although nominally worth a substantial six-figure sum in terms of damages as well as contributing, arguably, to critical delay, is and was always perceived, at least by Mr Mackay, as a makeweight complaint.

166. If there had been any liability on WLC for the ABW, I would have fixed the potential level of damages recovery based on what Mr Zombory-Moldovan and Mr Hunter said in evidence. However, for reasons dealt with elsewhere, I would have allowed nothing by reason of the settlement which DMW reached with the other third parties to the proceedings**.**

Courtyard Sliding Doors

167. The primary issue here relates to the extent to which, if at all, WLC was contractually responsible for the design of these large heavy doors. They were each to weigh almost a metric ton and were about 5 m long way and 3 m high.

168. By November 2004, BLDA of its own initiative had approached Firman and secured a budget quotation for the Courtyard glazing for £128,700 per house. It is clear that from this time onwards BLDA played the major role in determining what the essential elements of the Courtyard Sliding doors should be. Much of this was done in direct consultation with Firman and without the involvement of WLC. For instance, BLDA wrote to Firman on 7 January 2005 referring to a meeting at which Firman had been left "to consider that two of the houses require a one way single sliding door"; BLDA sent a preliminary typical frame section and asked whether the door would be top hung or run on bottom rollers. At a Procurement Meeting between BLDA and WLC

on 1 March 2005 BLDA was shown in the "Action" column for this area of work which was to "be a combination of timber and steel, yet to be designed". Although the Courtyard Sliding doors (identified as Work Package 300) were on WLC's list attached to their letter of 21 March 2005 to BLDA as potentially being one of the Contractor Design Portion packages (indicated as "Full Design-Subject to SC [sub-contract]"), BLDA confirmed at procurement meetings on 12 April and 3 May 2005 that it was developing the design with Firman.

169. On 24 February 2005 WLC wrote to SLW with a list of packages in the procurement report which identified the Contractors Designed Portion "status as we understand them", this being based on the contract preliminaries. Mr McMorrow in this letter said that he had requested BLDA to compile Employers Requirements for future tender package issues to avoid ambiguity. The attached list identified the Courtyard Sliding doors package as "Full Design- Subject to [Sub-Contract]". WLC was to write again to BLDA on 21 March 2005 with the same list asking BLDA to "check the status" of this list. There was no response.

170. In May 2005, BLDA issued its specification for "General glazing", NBS L40, again adapted from the National Building Specification. It is certainly not clear from this document on its face that it was specifically intended to apply to these very substantial Courtyard Sliding doors because the General Scope at Paragraph 100a related materially only to "Window units" which were said to be "double glazed factory sealed units inserted into traditional hardwood/placement windows". Paragraph 103 did talk about the supplier or installer being responsible for "completing the Design and Detailing of the Works and to provide complete fabrication/installation drawings, full-size rod/shop drawings as appropriate for approval by the Architect". Much of the rest of this document relates to shower screens and the like.

171. In late May 2005, it seems that BLDA issued a document entitled "NBS Specification for structural glass assemblies", referenced NBS H13; there does not appear to have been any formal issue but it was described as "Issued for Tender" on its face. It specifically referred to "Structural Glass Assembly to Courtyard Areas" and to various drawings including 2315/617 and 618. These drawings drawn to a scale of 1:10 provide a substantial amount of detail not only by way of the dimensions. Iroko wood is identified as being required to form the substantial 200 by 80mm framework; the Notes identify that the doors are to be automated; there is specified "continuous galvanised mild steel PFC framework as support for fixed glazed units" and "sliding door track and drive system". Paragraph 115b specifically refers to those drawings and provides further details such as the finish, the type of glass, the width of cavity, the type of top hung sliding track with bottom floor guide. Paragraph 211a headed "Design" stated:

> "Complete the detailed design, in all respects, of the structural Glass assembly (including automated sliding doors) and in accordance with the preliminary design drawings and this specification.
>
> Coordinate detailed design with that for all related work.
>
> Provide complete fabrication drawings/installation drawings for approval."

172. Paragraph 760b is however headed "Sliding Doors to Courtyard Areas Are Included in Window Type Z". This clearly does refer to the two large sliding doors because it also refers "to drawings 2315/617-618 for details." The track system supplier was identified as Roltrac (with telephone number and e-mail address provided). Other specific detail was provided.

173. Shortly thereafter, WLC was to invite Firman amongst others to tender for the "design supply and fix of the glazed screens to the courtyards"; it does not appear that this letter was copied to BLDA. So far as technical documents were concerned, the tenderers were sent three BLDA drawings, three location plans and the NBS L40 specification. The BLDA drawings were described as having a "Construction" status and were relatively detailed. It was known at this stage that in the Courtyard garden (that is between the Library and Swimming Pool Courtyard Sliding doors) there was to be some sort of water feature, although the detail was not known. At a site meeting on 28 June 2005 it was reported that this water feature was still to be designed. Firman submitted a hand written quotation on 29 June 2005 "to supply and fix"; Firman indicated that the doors were to be constructed of "Iroko" wood. This was discussed at a meeting between WLC and Firman on 5 July 2005 at which, for instance, the programme and required attendances were discussed. The meeting led to a revision of the price as set out in Firman's fax letter dated 12 July 2005.

174. WLC submitted to BLDA its tender report in relation to the four tenderers and recommended that a company called Haran should be awarded the sub-contract; Firman was the third tenderer. It seems that, because BLDA had had extensive contacts direct with it, Firman were asked to re-quote and its new price (on 17 August 2005) came in at about £1000 less than that of Haran. At a Procurement Meeting on 16 August 2005, BLDA expressly made it clear that they would prefer Firman to carry out this work. On 19 August 2005, BLDA issued its formal instruction (AI 145C) to WLC to place "an order with FA Firman for the fabrication, delivery and erection of the courtyards screens in the sum of £117,521.06." Shortly before, on 10 August 2005, WLC had written to BLDA as follows:

> "Further to previous requests, we would appreciate your clarification and definition of those packages that you will require to be undertaken as CDP.
>
> We would also request that you separately identify those packages that are not CDP would require design and development and design coordination by Walter Lilly or their subcontractor(s).
>
> We require your response urgently and by return in order that we can conclude information that has been requested by Gardiner & Theobald in respect of cost recovery".

There was no response. Mr Joyce, whose evidence I accept, said there was no agreement on the part of WLC to accept responsibility for any discussions which Firman had with BLDA.

175. Under cover of its letter dated 15 September 2005, WLC sent to Firman its order for Unit C, referenced 1305/SC/0079. The Brief Description of the works was "design, supply and fix the glazed screens to the courtyards to plot C…". Under "Design", Paragraph 29 of this order described the "Design Element" as "Development of

Design". The order was signed by both parties at some stage thereafter without amendment.

176. Thereafter, Firman prepared various working or detailed drawings for approval by BLDA and over the following months there was an exchange of information between BLDA and Firman and BLDA's requirements were incorporated in such drawings. For instance on 9 November 2005 BLDA on 6 of the drawings marked up in red various changes and in February 2006, Firman re-issued its Drawing P1136-921 as a Revision B identifying that it had been "modified to suit BLDA's comments dated 30-01-06". One of these specific requirements of BLDA was that the bead on the outside face of the glazing which was a diagonally sloping one was to be replaced by a square edged one.

177. In the period between about October 2005 through to about June 2006, BLDA or DMW engaged a Mr Andrew Ewing to design the water feature over the Courtyard; concern was expressed for instance at a site meeting held on 21 March 2006 as to his contractual position. At an earlier stage, WLC had been instructed to engage him but that instruction was expressly withdrawn shortly thereafter. The water feature was designed and developed by BLDA and Mr Ewing without any input from WLC and it was installed by contractors directly employed by DMW or Mr and Mrs Mackay in the period after installation of the Courtyard Sliding doors.

178. So far as can be ascertained the Courtyard Sliding doors were delivered and fitted by about the end of 2006 (with final cleaning and commissioning in late January 2007) and in broad terms it was not appreciated that there was any problem until early 2008. The Mackays of their own volition had the ceiling access to the track and drive system for the Courtyard Sliding door to the Library in effect filled in for aesthetic reasons. It was in or by April 2008 that it was appreciated by the new Architect that the doors were catching and difficult to open fully. Essentially, Navigant instructed WLC to remedy the problems; WLC took advice from the Building Research Establishment which reported in May and June 2008 and suggested that the use of timber, the weight of the doors and the introduction of a square as opposed to a sloping bead caused or contributed to the problems, and the there were "fundamental design issues". WLC did not consider that it was responsible for the problems with these doors and did not comply with the Architect's instruction; the work was omitted on the day of Practical Completion. The Mackays have not had the defects remedied.

179. The Architectural experts have reached a substantial measure of agreement on this topic. They agree that the Library door can not be opened and the Pool door only with difficulty. The bottom framing member of the doors has deflected (some 10-12mm at its mid-point) causing it to bind on the floor mounted bottom guide pins or otherwise to bind on the floor surface. The brush ceiling strips on the underside of the doors have been adversely affected by these deflections. They agree that the use of a square as opposed to a display or sloping edge detail at the base of the glass is unsatisfactory. They also agree that this as well as the deflection of the framing members are design matters. They do not find that there is any material bad workmanship or the use of non-merchantable materials. They agree also that the location of the doors in a humid environment has been a contributory factor in the propensity of the timber to deflect.

180. It is therefore necessary to consider to what extent, if at all, WLC assumed design obligations in respect of the Courtyard Sliding doors. There was no and certainly no

clear notification by DMW to WLC that the latter was to assume the design responsibility for these doors. As a matter of fact, the key elements of the design, such as the deployment of a wooden (as opposed, say, to a metal) frame, were decided either by BLDA or by BLDA in consultation with Firman before the NBS H13 specification was issued by BLDA to WLC in late May 2005. That document itself as well as the BLDA drawings referred to in it shows that the key design decisions had been taken by BLDA. This specification was only informally issued by BLDA to WLC; it was not accompanied by an instruction on behalf of DMW in effect notifying WLC that it was to assume design responsibility as part of the Contractor Designed Portion in respect of the Courtyard Sliding doors. The Architect's instruction in August 2005 requiring WLC to place the order with Firman in relation to these doors does not clearly identify that WLC was to assume design responsibility.

181. The fact that Firman, which was one only of five asked to tender for the Courtyard Sliding doors, had provided some input in late 2004 or early 2005 by way of discussion and interaction with BLDA does not mean that the design as it had developed prior to the production of the specification in late May 2005 was not that of BLDA. As both experts accepted, architects often talk to potential suppliers, sub-contractors or specialist designers at a very early stage to help them develop their design for the particular item of work. BLDA was not to know that Firman would necessarily succeed in securing the eventual sub-contract and, indeed, Firman initially came third in the running. If BLDA wanted somehow to protect itself or indeed its client from any unsuitability or careless advice in what Firman may have proposed in those early initial discussions between the two of them, it could have tried to secure either some warranty from Firman or, even, required Firman to provide some sort of collateral warranty once it did secure the sub-contract.

182. One therefore needs to consider whether the informal issue of the specification or the Architect's instruction in August 2005 as a matter of interpretation or implication amounted to a notification by the Employer. In my judgment, it does not for the following reasons:

(a) There is no evidence that the Employer authorised, consciously, by implication or otherwise, BLDA to notify WLC that the CDP provisions should apply to the Courtyard Sliding doors. If anything, there is evidence that BLDA did not either seek or secure such authority, that evidence being the repeated attempts by WLC to obtain clarification from BLDA as to what were or were not to be treated as CDP packages. It is logical to assume that BLDA either raised the issue with DMW or did not raise it. If it raised the issue with DMW and secured approval for the Courtyard Sliding doors package to be treated as a CDP one, I infer that BLDA would have informed WLC; if it did not raise the issue, there is no reason why DMW would have thought that it was necessary to do anything about it.

(b) Certain it is that DMW itself did not notify WLC that the Courtyard Sliding doors package was to be treated as a CDP package.

(c) There was a strong disincentive to BLDA, G&T and DMW not to have notified WLC that the Courtyard Sliding doors and indeed the other packages were to be treated as CDP packages, which was the clear and indeed correct perception that DMW would have to pay additional monies to WLC for the

privilege. These sums would have included allowances for additional PI cover as well as specific design co-ordination and design and supervision of the particular sub-contractors, in this case Firman. Throughout 2005, 2006 and indeed 2007, there was a serious pre-occupation on the part of BLDA, G&T and DMW to keep costs down if at all possible, with costs just for Unit C perceived almost to have doubled from the early budgets.

(d) The giving by BLDA of the specification to WLC at the end of May 2005 did not of itself amount to some sort of notification that the Courtyard Sliding doors or "Structural Glass Assembly" document was to be treated as a CDP notification. There is nothing on the face of the document telling WLC that this was to be the case: at best, the specification was simply to be used by WLC to secure tenders from potential sub-contractors.

(e) The specification on any account does not seek to transfer an overall design obligation onto the successful tendering sub-contractor. It requires only "completion" of the "detailed design" but this must be in accordance with BLDA's design drawings and the specification itself. Thus, the sub-contractor can not for example choose to use a framing material other than wood and it cannot deviate from the detailed dimensions set out on those design drawings. There is a very real practical and engineering difference between completing the detailed design, which simply involves finishing off what has already been (at least in relation to the Courtyard Sliding doors) substantially designed by BLDA, and assuming a full design responsibility for everything associated with such doors. The completion of the detailed design essentially means providing such design detail as is not already contained within BLDA's design drawings and the specification. BLDA was to retain overall control in any event by the approvals process, which in this case involved active decision taking such as in relation to the glazing beads.

(f) The requirement for a specialist supplier or sub-contractor to provide fabrication or installation drawings is not an overall design function. Such drawings are always taken to mean drawings which enable the supplier or sub-contractor to fabricate or install. An IKEA flat-pack for, say a cupboard (usually) contains an installation drawing which shows how the cupboard can be put together and then fixed to the wall. A fabrication drawing will show the people in the workshop or factory the individual components and for instance their dimensions and how to put the components together.

183. Much reliance is placed by DMW on the sub-contractual arrangements as between WLC and Firman in that it is asserted that, as Firman was invited by WLC to quote and WLC's order to Firman was for the "design" supply and fix of the sliding doors, WLC was acting as if it had been notified that it was to assume CDP responsibility for the sliding doors. Strictly speaking, it does not matter what arrangements were made as between WLC and Firman if, as is the case here, there had been no CDP notification to or assumption by WLC of overall design responsibilty. There is no plea of some sort of estoppel, for instance by convention. It is wholly comprehensible however that WLC might wish to protect its position just in case the CDP notification came later (which it did not). Only five weeks before the order to Firman, WLC had written to BLDA asking for clarification generally about what packages were to be subject to CDP status and there had been silence from BLDA about it. The reference

to "design" in the invitation and the order is also comprehensible, in contractual terms, as being qualified and explained by the specification which simply calls upon Firman to "complete" the design and, thus, Firman was not being contractually required to design *ab initio* the sliding doors but, merely, to complete the detailed design in accordance with and subject to the constraints of BLDA's design.

184. There was and is no liability on the part of WLC in relation to the problems with the Courtyard Sliding doors. The experts are agreed that the problems were caused by and attributable to what are essentially design deficiencies. The primary deficiency was the use of very heavy wooden frames which deflected under load, in effect causing the doors to put such pressure and load on to the bottom guide channel arrangements that they cannot easily be moved by hand let alone by the motor drive arrangements. The use of the heavy wooden frames was the design decision of BLDA which was a requirement which WLC and Firman had to comply with. As there was no overall design responsibility on WLC in relation to the Courtyard Sliding doors, it is not in breach of contract with regard to the inability of the doors to move readily or at all.

185. Another causative factor, although not a primary one, was the presence of the finally designed water feature in the Courtyard between the two sliding doors. Whilst it was always known that there would be a water feature, what was not known was the precise nature and dimensions of that feature. In the result, the whole of the Courtyard comprised a flooded or totally immersed courtyard (bar some stepping stone arrangements), with spraying water jets. BLDA's drawings for the Courtyard Sliding doors do not actually show a water feature at all but instead indicate paving with edge drainage slots. As Mr Zombory-Moldovan has, rightly, said, the immediate presence of water permanently right beside the sliding doors, together with the water jets and splashing caused by them and heavy rain, has increased the amount of moisture. This, he said, also may well have been exacerbated by landscaping and balustrade works above and around the Courtyard (not on any account the responsibility of WLC) and high level works to the Courtyard facades above the sliding doors and Courtyard glazing. The decision by BLDA to replace the sloping glazing beads actually put forward sensibly by Firman with a square one actually led to more moisture being permitted to enter the wooden frames with the result that the bottom members will tend to have distorted more than might otherwise have been the case. As WLC had no overall design responsibility, it is not liable for the consequences, contributory only though they are, in relation to the enhanced level of moisture at or close to these sliding doors.

186. The problems of lack of or restricted movement have been exacerbated by the lack of maintenance by the Mackays of the motors and mechanisms. Corrosion has been found on the top track of the pool sliding door and that suggests that there has literally been no maintenance of any sort for years. Mr and Mrs Mackay's design decision to close off any access to the motor assembly for the Library sliding door means that no maintenance can in fact be carried out without creating a major hole in the ceiling of the Library.

187. If I had decided that there was any liability on the part of WLC, I would have decided that the appropriate, reasonable and proportionate remedial works were limited to the re-use of the existing sliding doors with the doors being adjusted by using the existing adjustable hangers above them together with some minor related work as set out in Paragraphs 17.106 to 17.118 of Mr Zombory-Moldovan's first report with which,

essentially, Mr Josey agreed under cross-examination; Mr Josey accepted that taking out and replacing the doors would not be reasonable, albeit that this was the solution put forward by DMW initially. These adjustments would raise the doors by a sufficient number of millimetres so that in effect the doors would open and close without hindrance. The costs of the adjustment solution are essentially agreed at between £10,000 and £11,000, as opposed to the £95,276 claimed. The eventual settlement agreement between DMW and the third parties also precludes any additional recovery.

Light Wall

188. The Light Wall is an illuminated glass screen of wall and door panels that extends the length of the Pool room. It is about 2.6m tall and 15m long. It separates the Pool room from the shower, changing and toilet cubicles behind. It was intended to have light beamed via lighting heads fed by fibre optic cables into its interior so that it provided a uniform glow of changing light. The pool screens and doors comprise a composite construction of an outer skin of 6mm thick sand-blasted and acid-etched, toughened glass, a 2mm air-space, a sheet of 3mm thick opal acrylic sheet, a 2mm air space, a 10mm thick sheet of "Prismex", a 4mm air space, and an inner layer of 6mm thick sand-blasted/etched, toughened glass, and these components are bonded together at their perimeters by the use of a proprietary 2mm thick adhesive tape. Prismex consists of a clear acrylic panel which has a 'dot-matrix' pattern screen printed onto its face. When light is applied to the edge(s) of the Prismex panel the dot-matrix pattern diffuses light across its face, the evenness of which is dependent on the design of the lighting as well as on the detailed design arrangement of the panel. Prismex is commonly used for signage, and for architectural features in retail and exhibition design applications. The experts are agreed that the Light Wall was a novel concept for a private house and one with which most builders would have been unfamiliar.

189. I accept the evidence of Mr Zombory-Moldovan that the Light Wall was an ambitious, innovative and novel concept; this was broadly accepted by Mr Josey. It is clear that the design as it developed was essentially a prototype; this had not been developed in advance of construction or of WLC being instructed to place the order for it with Firman. This is important because, whoever was responsible for the design, it was developed by a process of trial and error on site (which after four attempts still remained flawed). It is common ground that on any count WLC had no design responsibility for the lighting aspects of the Light Wall; Equation was responsible. The real issues here revolve around the extent, if any, of the design responsibility of WLC for the structure of the Light Wall.

190. The Light Wall was not mentioned anywhere in the Contract between the parties, albeit that it was identified that there was to be a swimming pool in the basement. It was not mentioned as a separate package as late as March 2005 in WLC's letter dated 21 March 2005 to BLDA which listed all the packages then known about. Mr Mackay came up with the idea having seen something similar in a restaurant. It is clear that WLC was unaware what was going to be called for in relation to the west end of the swimming pool area until August 2005. There was reference in an internal WLC e-mail dated 23 February 2005, an e-mail dated 24 February 2005 from WLC to SLW and a letter 21 March 2005 from WLC to BLDA against WP301 to a package being classified as 'Full Design – Subject to SC' but that package was then being described as "Glass Walkway" which was not apt to describe any Light Wall, which had clearly

not in design concept terms begun to emerge at that earlier stage. Glazing was later to be referred to as WP301C.

191. BLDA produced its Drawings 2353 C/800 and C/801A for the Light Wall on 31 August 2005 on which there was depicted a screen for showers and toilets. They cross-referred to an Elemental Description Schedule dated 31 August 2005 and these were all handed over to WLC shortly afterwards. The Schedule describes the Light wall as comprising:

> "Glass screen wall made up of 12 mm white laminated glass, 20 mm void, 10 mm Prismex and 10 mm white laminated glass to rear, all sandwiched into concealed aluminium U-Channel, frameless with concealed fibre optic lighting to top and bottom of screen. Bottom and top U- channel to be drilled with 8mm holes at approximately 800 mm (sic) centres to line with Prismex glass to detail."

It was to "incorporate "Fibre Optic lighting to Lighting consultants specification" and the "Finish" was to be "White Laminated glass". It is clear that Prismex was specified or selected by Equation as appears from BLDA's later e-mail dated 24 October 2007 to Equation.

192. The Elemental Description Schedule also referred under the column "NBS Ref" against the Light Wall entry to "L40/250". There is no paragraph 250 as such in the Specification L40, merely a number of paragraphs running from 250a to 250h, all of which appear under the general heading 'Types of Glazing'. It is accepted that there is nothing in any of them which is obviously referable to the Light Wall. L40 contained at Paragraph 103 "Design and Production Responsibilities" which imposes a number of obligations on the supplier, including:

> "Completing the design and detailing of the works and to provide complete fabrication/installation drawings, full size rod/shop drawings as appropriate for approval by the Architect...
>
> Obtain specialist calculations as part of the completion of the design/detailing, e.g. for submission to other parties and to ensure elements are fit for their purpose. Inform the Architect immediately of any non-conformity...
>
> 'The supplier and/or installer, as appropriate, shall be required to verify the glass specification; including size, thickness, rebate size and edge cover, aspect ratio and mechanical strength in relation to supported edges to ensure fit for purpose..."

193. It is the clearest inference that over the preceding weeks or possibly several months BLDA and Equation had had discussions between themselves and possibly with specialists to discuss the Light Wall and had reached decisions as to what was at least broadly required. It is likely that BLDA had directly involved Firman because there was later during the tender period direct contact about design and details between them. There is no suggestion that WLC was in any way involved in such investigations.

194. On 15 September 2005, WLC invited tenderers to tender "for the supply and fit of the glazing" and it is clear that this invitation referred to the "Sub-Contract Tender Enquiry" for glazing which talked about the Sub-Contractor producing "working drawings and quotes to allow for all costs in regard to design development"; the

attached "Subcontractor Enquiry Record" refers to various BLDA drawings including C/800 and 801A and to the L40 Specification.

195. During the tender period there was extensive and direct contact between Firman and BLDA. For instance, on 28 September 2005 Firman sent direct to Diana Grobler of BLDA a proposed detail for discussion; she sent back more details by way of a section, telling Firman that "the top and bottom need to be drilled with holes to allow light to permeate the 'Prismex' when the door is in a closed position". On 26 October 2005, Firman provided a budget price only for the rear glazed wall but said that it could not quote for the front screens as "the detail shown will not work". It arranged a meeting with BLDA to discuss "an idea which could work". Following that meeting, Firman submitted a quote on the basis of a sample submitted to BLDA consisting of "aluminium top and [bottom] rails…with [stainless] steel and milled out to allow the light through". By its tender report dated 24 November 2005, the other tenderer (Haran) having declined to tender because the work was outside its area of specialisation, WLC recommended acceptance of Firman's quote of 10 November 2005, which had been in very simple form referring briefly to "shower-changing room fixed screens, doors and DIV's for the sum of £75,650" and "Rear glass wall to shower-changing rooms for the sum of £22,250". The report referred to Firman having been "working on the design and [Value Engineering] options with BLDA".

196. The Elemental Description for the swimming pool was re-issued by BLDA to WLC on 6 January 2006; it still refers in the specification column to "L 40/250". On 2 February 2006, BLDA issued its instruction AI208C to WLC to "place an order with…Firman for the supply and fitting of the fixed illuminated glazed screens, doors, division panels and rear glass wall to the shower/changing room within the pool area of Plot C"; this was to be "in line and in accordance with" Firman's quotation effectively of 10 November 2005.

197. That BLDA was exercising control over the design process relating to the Light Wall is clear from its letter to WLC of 16th February 2006:

> "I discussed these screens with the interior designer yesterday and we are trying to arrange a meeting with Equation Lighting on site with Firmans. The earlier that Equation can make is 10 am on 22nd February so I have set it provisionally for their. Can you get Firmans to attend…
>
> It is not clear at the moment how this screen can be supported, and still allow the fibre optics to be placed under the glass. We are looking at possible solutions now, as we are aware that the screening of the pool is imminent."

198. WLC's sub-contract order with Firman was dated 2 March 2006 but it is not wholly clear when Firman accepted it. The order was for the "supply and fit (of) the fixed illuminated glass screens, doors, division panels and rear glass wall to the shower/changing room within the pool area of Plot C". "WLC's enquiry dated 15 September 2005 and associated documentation therein" was said to form part of the Order. The Sub-Contract Pre-Order Agreement at Item 29 of Section 3 records that Firman is to be contractually liable for the "development of design". Item 40 however recorded that architects drawings were needed and that there was "not enough info to be able to start drawings".

199. On 8 March 2006, WLC wrote an important letter to BLDA about the design responsibility for the Light Wall:

> "With reference to Architect's Instruction 208C and the appointment of FA Firmans, they have provided a programme for the works…[that] would give a completion date of 1st September 2006. As this extends beyond the extension of time already granted, we require a further extension of time to cover his work.
>
> We confirm that the Architect's Instruction is for the supply and fitting of the screens, and we would wish to confirm for the avoidance of doubt, that neither Firmans nor Walter Lilly are responsible for the design element of this work…"

There was no reply of any sort to this letter, which suggests that BLDA agreed. That is confirmed by the Manches' attendance note dated 29 June 2006 at which it was generally accepted "that no work had been procured as a CPD package" (see General Chronology). It is further confirmed by the BLDA handwritten comments on their copy of the letter, which states "scheme still being designed".

200. There was a substantial amount of direct contact between Firman (in particular Mr Anderson) and BLDA and Equation over the following months, with details, sketches and other information being exchanged between all three of them. Although often, if not invariably, WLC was copied in, it is clear that WLC was not intended by anyone to be one of the other participants to participate in the process. There is no doubt that Firman produced to and for BLDA a number of drawings and sketches in relation to the Light Wall for perusal, comments and approval by BLDA. There is no doubt that BLDA took an active part in this process and it is clear that Firman sought approvals from BLDA at all stages. An illustration of this is in Firman's email of 16 June 2006 to BLDA:

> "With reference to our drg's P1136X-930 and 931, sent to you for approvals/comments…which were returned marked up with various comments…
>
> Although these drg's have been given 'B' status, not all of the issues/information had been resolved, some in fact may be impossible to achieve, for example the gap of 2 mm indicated to the top & bottom of the floors, this has already been pointed out several times verbally, doors cannot be loaded onto the floor springs with these tolerances, doors of this type of multiple construction cannot be manufactured within these tolerances, we would also very much doubt, from years of experience within the associated building trades, that the stone finished flooring to these areas can be laid to within 2 mm, bearing in mind this would still only achieve Zero tolerance if it were possible, we therefore feel this problem will need to be resolved by your fibre optic subcontractors, some of the other issues that need answering before we can fully amend our drg's for construction, manufacture & installation or further approval are as follows:-
>
> 1) Confirmation of the RAL colour?
>
> 2) Door handles, full details required, these would not be able to be bonded to the edge of the doors as indicated?

> 3) Metal cover strips to taped edges to the Prismex, this needs to be checked out, if the tape is suitable to accept this idea, etc, not very practical?
>
> 4) Full details of the shower controls, that need to be housed in the S/S section that we are to provide, this information was requested verbally several weeks possibly months ago.
>
> 5) Finalising the actual fibre optic situation, adaptation etc?
>
> All of the above may not be all of the issues, but are the main ones that come to mind immediately & must be resolved before we can finalise our drg's & even think of putting into full manufacture, therefore feel that there is not any point in re-issuing our drg's until we have all the facts resolved, in fact we need the drg's returned as more a 'C' than a 'B' status…"

Without witness evidence from BLDA or Firman, it is difficult positively to find that any of the matters complained of by DMW either historically or in the Light Wall as it was left at Practical Completion was the "fault" of BLDA or Firman or both.

201. BLDA and Equation certainly had the major role in controlling the lighting side of the design. There are numerous e-mails and other communications between it, Equation and a company called Universal Fibre Optics which was assisting in the design of the lighting. Firman played no part in this aspect of the matter but simply did what it was told in relation to accommodating the lighting and fibre optic designs and specifications. It is clear from e-mails in at November 2006 that Universal Fibre Optics identified a risk of what is called scalloping which is an irregular and non-diffuse dispersal of light. In an e-mail dated 13 November 2006 the firm advised BLDA that it would be difficult to avoid or reduce this problem.

202. By November 2006, the design was sufficiently advanced to enable Firman to manufacture the screens and doors for the Light Wall. There followed over the following 14 months the provision of what the parties have called four "generations" of the Light Wall.

203. Before considering the history of the First to Fourth Generations of the Light Wall, it will be helpful if I summarise my views as to whether and if so to what extent WLC assumed design responsibility as between it and DMW. I have formed the clearest view that it did not in any or any legally meaningful sense do so. My reasons are as follows:

> (a) I repeat (mutatis mutandis) what I said in relation to the Courtyard Sliding doors on the comparable issue. Thus, there was no notification by DMW to WLC about CDP for the Light Wall.
>
> (b) There can on any proper factual analysis be no reliance on WLC's lists sent to BLDA in February and March 2005 about the status of the packages because at that stage the package which was to become the one under which the Light Wall was to be procured at that stage did not even relate to Light Wall but to a Glass Walkway; the Light Wall does not appear to have been considered then either by WLC or BLDA as something which was or was necessarily to be provided. That came later.

(c) The only oblique way in which it is argued by DMW that a notification of CDP status being transferred was made is on analysis by the reference in the Elemental Description Schedule dated 31 August 2005 issued by BLDA to "L40/250". It is common ground that there is no part of Paragraph 250 of L40 which is of any material relevance. The argument therefore goes that, as a matter of proper construction of the Elemental Description Schedule, BLDA must have been referring to L40 generally and references to the completion of the detailed design by the sub-contractor. The Elemental Description Schedule was not issued as some sort of instruction or indeed, obviously or at all, as a CDP notification under the Contract. The fact that WLC sought to incorporate L40 in its sub-contract with Firman does not mean that the Elemental Description Schedule is to be treated as a CDP notification.

(d) The need for a clear CDP notification should not be considered to be satisfied if one has to try to scrabble around to find it in documents issued by BLDA, particularly without any evidence from BLDA as to what was intended, and in a document in particular which does not obviously identify the requirement that L40 was to apply as a whole. The Elemental Description is not an instruction, let alone a CDP notification; it is at best a document in which BLDA merely tried to describe the elements which it had in mind for the swimming pool area.

(e) The only real evidence of what BLDA intended is that it did not intend to provide any CDP notification in relation to the Light Wall. Its repeated and what must have been deliberate ignoring of a series of letters from WLC seeking clarification as to design responsibility both in relation to all known packages and specifically to the Light Wall points strongly by inference to BLDA taking a conscious decision not to provide any such notification. The positive knowledge that no such notifications had been made is in the Manches attendance note later in June 2006.

(f) The fact that as such Firman actually did actively participate in the development of the design both before and after AI208C was issued or even that WLC sub-contractually retained Firman to complete or develop the design does not infer or mean that there was an effective or indeed any CDP notification from DMW to WLC. One must therefore not confuse Firman's active participation in the design process with WLC's contractual responsibility to DMW. That active participation is comprehensible simply as a direct and partial direct delegation by BLDA to Firman of a design responsibility which, in contractual terms, completely by-passed WLC.

204. The First Generation Light Wall was installed in November 2006. There were a significant number of glass breakages. By their letter to WLC dated 16 November 2006, Firman said that:

"We write concerning the Prismex and glass composition for the above.

As you are aware, there have been several panels that have been broken while stored on site that have been subsequently removed…

These breakages however have brought to light a problem which we feel needs to be addressed and that is important from a safety point of view.

> Currently the white laminated glass is only adhered to the Prismex by means of a high bond acrylic edged tape to the perimeter; therefore it is not physically laminated to the Prismex material. The glass has no structural strength, its interlayer being the only safety feature therefore acting independently and not as a single component.
>
> In our effort to reach the desired aesthetic appearance this important criteria has been overlooked. We have therefore put a hold on the production of replacements for these panels. There are several options at the moment which we are investigating, one of these involves the direct laminating as mentioned above, and another is the possibility of changing the type of glass being used.…"

205. The factual evidence suggests that the panels lacked structural strength and stability. This was clearly a design deficiency which was inherent in the design as developed as between Firman and BLDA and as approved by BLDA. There was no criticism by the Design Team of Firman. Indeed it was discussed at a Site Meeting on 28 November 2006 with a minute recording:

> "JJ [Mr Joyce of WLC] advised that they are experiencing problems with these special glass sandwich panels forming the edge lit screen wall at the rear face of the pool area in Plot C. The glass was proving to be more fragile than expected and some units had broken while being handled the delivery to the site. JJ stated that Firmans were not ultimately responsible for the design of the glass sandwich - its design being mostly driven by the requirements of the lighting designer. He stated that there may have to be extra payment to cover the cost of developing the design further. A meeting has been arranged between BLDA/Firmans/WL on Thursday 11th to resolve this issue. BLDA may want the glass element of the design checked by Malishev Wilson when an alternative solution is available…"

Malishev Wilson were the designers retained by DMW to design the glass lift. These minutes were drafted by BLDA and there was no challenge to the assertion that Firman was not responsible ultimately for the design. Indeed, when on 14 December 2006 when WLC submitted to BLDA an extension notification in relation to the consequences of resolving the problems with breakages, BLDA did not respond in any way to the effect that the breakages problems were the fault of WLC.

206. Mr Zombory-Moldovan suggested that the omission of top and bottom clamping sections, called for by BLDA in the previous exchanges between BLDA and Firman, might have had an effect on the fragility of the glass and that the inclusion of the clamping sections would have increased stiffness of the panels and therefore increased their structural integrity as a composite unit benefiting also from greater stiffness of its layers acting together. However, he also said that whether this "would have entirely prevented breakages" cannot now be known for certain. I am satisfied that his evidence on this is helpful and logical and it must follow that the provision of clamping top and bottom would have been bound to assist at least somewhat in the greater rigidity of the screen or door structure.

207. Whatever the cause or causes of the breakages, it is clear that it was or they were attributable to design deficiencies; there is no suggestion of bad workmanship or badly manufactured materials. Essentially, the problem was that, as designed, the units were not buildable in that they could not be manhandled without breakages and that is essentially a design deficiency for which WLC is not responsible.

208. The First Generation units had to be taken back to Firman's workshops and the Second Generation re-designed and manufactured. The Second Generation Light Wall was installed in February 2007. It was an alternative composite panel design which employed sandblasted, toughened glass instead of the white laminated specification. Firman was actively involved in this design process, although it is clear that BLDA was actively involved in considering and approving what Firman put forward. The changes were in relation to the structure and composition of the wall itself. A 1.2 metre high sample was produced by Firman on about 11 January 2007 and approved by BLDA and Janine Stone (albeit not by Mr Mackay, who was not present at the inspection) on 12 January 2007. In reliance on that approval, WLC told Firman to go ahead with the manufacture of the Second Generation. The new Light Wall was then put into production on the basis of what had been approved.

209. Once installed, the new Light Wall was found to lack the obscurity required by Mr and Mrs Mackay. In other words, it was not considered sufficiently opaque to obscure the showers, toilets and changing rooms which were located behind. The problem seems to have become apparent when some temporary illumination was provided behind the Light Wall. The actual or perceived lack of obscurity or lack of opacity was, if anything, a fundamental design flaw. The functions of the rooms behind had been known since the outset, and had long been identified on the Architect's drawings for the area. Therefore, it was or should have been obvious that the screen would have to provide sufficient obscurity for the rooms behind.

210. The degree of opacity required was in a very real sense however a matter for BLDA to decide. Obviously, if the Light Wall was completely transparent so that people within the changing or other rooms could be clearly seen, one would have no difficulty in attributing blame to the designer. However, there was sandblasting of the glass and there was the Prismex within the sandwich of the units which would inevitably have provided a degree of obscurity. The degree of obscurity was very much within the purview of BLDA as opposed to Firman.

211. Bev suggested in an e-mail dated 12 February 2007 to BLDA that there had been talk of a 4mm opal or opaque sheet within the Light Wall panels. On 15 February 2006, BLDA told WLC to suspend work on-site on the Light Wall and on 19 February 2007 WLC wrote to BLDA asking for further instructions and an extension of time to cover the suspension. On 16 February 2006, there was a meeting between Equation and BRDA upon which Mr Leddra of Firman "stumbled" (as he put it in an email dated 17 February 2006 to WLC) on Mr Bourke of BLDA and two Equation representatives experimenting with different types of opal acrylic to achieve greater obscurity. At the site meeting on 20 February 2007, WLC repeated that they were awaiting instructions and were told that, although BLDA, Equation and Bev had agreed on the remedial actions, they were waiting for these to be approved by the clients. On 28 February 2007 at a meeting attended by the Mackays, BLDA, Equation and Bev, Mr Mackay indicated that the proposed opal perspex interlayer was not approved and Mr Lloyd Davis indicated that other interlayers of varying opacity would be tried out and offered for approval. There was also discussion about how the application of silk within the construction would spread the fibre-optic plumes of light. At a site meeting on 6 March 2007, Mr Lloyd Davis indicated that a report had been received from a company called Light Lab procured by Mr Mackay and he had responded to Mr Mackay. He indicated that there was still disagreement about opacity although a

perspex had been selected; WLC asked in effect instructions to undertake works in this context and Mr Lloyd Davis would establish what the financial consequences would be. A full height sample would be required to review and approve and WLC would arrange this once instructed to do so.

212. On 7 March and 4 April 2007 Knowles wrote to WLC saying that some £75,000 amongst other sums would be withheld against the next money certificates in relation to what was said today the "defective" glazed screen in the pool area. There was silence from BLDA as to whether WLC was in any way to blame.

213. On or about 11 April 2007, WLC was told by BLDA that a particular perspex sample had been selected and the following day told Firman about this and asked it to produce a full height sample. The sample was provided and on or about 17 April 2007 approved by Mr Mackay. Firman was required to remove the glass screens and manufacture again. On 18 April 2006, WLC wrote:

> "We have agreed to remove the glass units from site and return them to the factory to undertake additional works to the screens by introducing a Perspex interlayer [without a film] all in accordance with approved sample GS 412. There was a suggestion that these works should be undertaken on site and although this is possible for reasons of quality, availability of space and expediency they must be undertaken in their factory. We have however been asked, and have instructed Firmans accordingly, to undertake a full-size sample on site which will be available for inspection for 25 April 2007."

The full size sample was installed on site on 25 April 2007 and on 26 April 2007. BLDA issued its AI441C instructing WLC/Firman to proceed with the rectification works to the pool screens. Although the AI was initially issued in accordance with Clause 8 of the Contract, it was subsequently re-issued (as AI455C) on 11 May 2007 under Clause 13 (as a variation) after complaint was made by WLC. This strongly suggests that BLDA did not believe that WLC was in any way to blame. Another instruction, AI452C, instructed the installation of stainless steel angles to cover holding the glass screens.

214. A telling internal BLDA e-mail was written by Mr Bourke to Mr Lloyd Davis on 2 May 2007, which was prefaced with the words: "the whole thread of design responsibility is a complete mess". He went on to say that the "Equation drawings were useless as construction drawings" and that "BLDA have had to shoulder almost all of the design coordination with picking up all of the detailed design that nobody else would touch". He described what Firman had tendered for a "prototype". He attributed blame ("joint and several liability") to BLDA, Janine Stone and Equation for approving the less opaque sample. He referred to WLC as "retracting any design liability at every point" and that "something as novel and complex as this [was] bound to take a wrong turn somewhere". He "fully admit[ted] [this] could probably have increased our exposure to liability…but I believe that it was the only way of moving the design forward to a stage where we have an overall design effect capable of satisfying the client". He said that the "interjections by Bev et al have only served to completely stifle the design process". He went on to say that Firman had a "strong case" for the suggested extra cost of about £29,000.

215. Thereafter, work began on the Third Generation. By an email dated 26 May 2007, Firman informed WLC that they were "currently splitting and re-assembling the screens" which were "scheduled to be fitted during week commencing 11 June". Reinstallation did indeed commence as planned on 11 June 2007. However, soon afterwards, on 22 June 2007, BLDA instructed WLC to stop the installation because there was still visible "scalloping" of the lights; this was a non-diffused effect rather than a general spread of light throughout the screen. BLDA asked Firman to experiment with a different tape and diffusion silk to see whether they could improve the spread of light; three Firman operatives would work on the experimentation. The period of experimentation took about 5 weeks. On 26 July 2007, Mr Mackay at a walk around meeting said that the outstanding works to the Light Wall were required to rectify a defect for which WLC was responsible. The minutes do not suggest that any of the design team voiced agreement. On 30 July 2007, BLDA issued a further AI490C instructing WLC to set the glazed screens 2 mm clear of the light source and to stick the silk strips to the bottom and top edges of the Prismex panels. The instruction also required that fascia panels were to be applied along the top and bottom of the entire glass screen in order to obscure the worst of the "flaring" (which is otherwise "scalloping").

216. All this work took until about 21 September 2007, although some of the time was taken up because Firman employees had by this stage holiday commitments in August. Meanwhile, there had been an adjudication decision in which the adjudicator, Mr Tate, decided on 30 July 2007 that DMW had had no justification for withholding moneys against certified sums in relation to the Light Wall. By 27 September 2007, Knowles who had been in the forefront of advising Mr Mackay that sums could and should be deducted from WLC's certificates up to that point advised DMW that BLDA was in breach of contract in relation to the design of the Light Wall.

217. At about this time, it became apparent that there were blemishes visible in the glass screens. In order to establish the cause of these suggested blemishes Firman returned one of the glazed screens to their off site facility in order that it could be disassembled and inspected. This revealed only a limited number of blemishes on the front acid etches surface and these marks were able to be removed using a weak hydrofluoric acid solution. There were, however, concerns that the Prismex itself had a number of scratches beyond what was considered to be acceptable tolerances. Firman wrote to WLC on 16 October 2006 following a visit to a specialist fabricator of the Prismex and reported that it had "a dot matrix pattern screen printed onto the surfaces" and that "due to the very nature of this product it cannot be guaranteed to be free from defects and discrepancies"; this was contained in an extract from the selling specification. To the naked eye, it wrote, panels would be acceptable and in accordance with the specification but if one lit each and every individual panel only two or three out of 18 panels would be acceptable; another problem was noted to be the need to remove a low tack film from each side of the Prismex which could lead to handling marks. It is clear that there were also some scratches which were unavoidably caused during the two additional re-fabrication exercises involved in the Second and Third Generation work because the panels had to be disassembled and the Prismex removed and then re-placed within the assembly. Mr Zombory-Moldovan said that these scratches were effectively unavoidable even if the work in the workshop was done with reasonable care. I accept that evidence as logical.

218. Firman suggested that the opal acrylic layer previously inserted should be reversed to sit on the side of the Prismex that was facing out towards the swimming pool in order to better obscure the blemishes evident. This suggestion, however, was not accepted and new Prismex panels were subsequently manufactured and supplied to Firman for insertion into the glazed screens. Following an instruction (AI455C) from BLDA, this required, once again, the glazed screens to be returned to Firman's off site facility, disassembled and re-assembled with the new Prismex panel. This followed Firman's assembly of a single panel for inspection, testing and approval by BLDA and Equation. The re-manufactured (Fourth Generation) screens were then installed between mid-December 2007 and late January 2008.

219. By 6 February 2008, colour variations were identified in these Fourth Generation fixed glazed screens and doors with some panels appearing darker than others. Mr Bourke of BLDA indicated in an internal e-mail of 28 January 2008 that it was the responsibility of Equation. There was an exchange of e-mails on 6 February 2008 between Mr Mackay and Mr Howie with the former accusing the latter of lying, perpetrating a scam and trying to get him to pay for his incompetence when Mr Howie had suggested that the problems were attributable to design problems. Mr Mackay ended up by saying that he was "catching up with your tactics and believe me I am a fearsome adversary when I want to be. In fact I want you out of my and my families' [sic] life and the idea of curtailing this is very tempting but I am determined to not let you get away with it."

220. It is apparent that there were a number of possible factors which could have caused or contributed to this colour variation, including the amount and consistency of light passing into the glazed screens from the point-sources specified and the de-bonding of the adhesive edge tape between the Prismex and the glass layers of the composite glazed panel construction. The Architectural Experts agree that the de-bonding occurs as a consequence of flexing of the panels and the action of the doors.

221. On 5 March 2008 and shortly before they were dismissed by DMW, BLDA wrote to WLC highlighting the problems with the tape, the insufficient rigidity and the colour variation. WLC's position was that it had complied with its contractual obligations and the various Architect's instructions issued to them and that the problems were attributable to design deficiencies. WLC commissioned a specialist glazing consultant, Mr Colvin, to report which appeared on 1 April 2008.

222. Following this, there was essentially a stalemate between the parties with WLC claiming that a substantial extension of time was due. The new Architect, Navigant, was of the view that the Light Wall was defective and instructed WLC to rectify. WLC was not prepared to do so as it considered that it was not liable. Correspondence went to and fro with no resolution. On 15 July 2008, Mr Howie of WLC had a meeting with Navigant at which the latter indicated that the Light Wall "would be taken out of contract"; it was agreed that the problems raised design issues. Mr Mackay however decided that, amongst other things, the Light Wall should not be omitted, that being communicated by Navigant's letter dated 21 July 2008 to WLC. Notwithstanding this, it was omitted on 14 August 2008, since when no remedial work has been done.

223. There are essentially four defects said still to exist in the Light Wall, that the Light Wall lacks rigidity and doors flex more than they should, that there is de-bonding of

the adhesive tape between glass and acrylic layers, that certain cover plates are missing and that there is inadequate access to light fittings behind the glass cladding of the rear walls within the shower rooms. The Architectural experts agree that the first two are design matters. The fourth allegation is essentially also one of design. As for the absence of cover plates, it is likely that the WLC delivered such plates to site for installation but they were not installed; Mr Zombory-Moldovan has seen that two of them have been used on site elsewhere. It seems that the absence of the cover plates is likely to be an incomplete part of the work rather than a defect as such (and indeed is pleaded as such by DMW); the evidence suggests that the cover plates were not fitted pending an instruction from the Architect in relation to waterproofing of the floor spring boxes and mechanisms, which meant that the work could not be completed.

224. I am satisfied that there was and is no liability on the part of WLC in relation to the defects which are said to exist. Insofar as they involve design deficiencies (as they mostly do), for the reasons given above, there was no relevant contractual design responsibility imposed on WLC. There is a complaint relating to the access to the lighting in the rear walls which is that WLC should have warned DMW about the potential problem; if however there was no design obligation, there was no duty to warn about a potential design deficiency; indeed I accept Mr Zombory-Moldavan's evidence that a warning was not required in circumstances in which BLDA had made it clear that they wanted a smooth flush backlit glass across the entire wall face which access panels would have interrupted and in any event access could have been provided for what he terms long-life service elements by removing the relevant glass panel. In relation to the cover plates, DMW by its architect omitting the work relating to the Light Wall, has effectively omitted the obligation to complete and therefore WLC has no obligation to complete this work and was not in breach of contract prior to the omission because it was awaiting instructions from BLDA in relation to some necessary prior work which had to be done before the cover plates were fitted. This is in any event a very minor item.

225. It also follows from the above that WLC was not to blame for any delays associated with the development through its Four Generations of the Light Wall. All the problems were associated with design deficiencies or with the need of BLDA and Equation to develop the design of this prototype development as it went along. That process involved trial and error and the errors, if they can be so classified, were in the design for which WLC had assumed no contractual responsibility to DMW. There is no liability for damages and, even if there was, DMW has been compensated for it under its Settlement Agreement with the third parties (see below).

The Lift

226. Unlike the three preceding topics, the lift issues only relate to delay. Neither party contends that any delay began to affect overall progress until 2007. There is no real issue that WLC was responsible for the design which was designed by Malishev Wilson who were specialist engineers in relation to the lift shaft and by others for the lift itself , retained by SLW on behalf of DMW in November 2004.

227. The lift shaft enclosure is a prominent architectural feature within the house. It runs up through the centre of the property from the basement to the third floor. The lift shaft was to comprise a self-supporting structure, detached from the main staircase

that surrounded it on three sides. It was to be formed largely of glass and to house a glass lift. The quality of its design and construction was hoped to be commensurate with the high quality required of the house as a whole. The lift shaft is 1.7 m wide by 2.35 m deep and 20.32 m high. The specification required that the glass panels carry the vertical load of the enclosure, with the steel frame providing lateral stability.

228. The Specification prepared by the Engineers required the contractor to provide fabrication drawings (shop drawings). The intention thus appeared to be that the engineers would prepare the design in full from which the specialist contractor was then required to prepare component part drawings so that they could be machined and prepared for assembly. The glass was to be glazed into the structural openings formed in the stainless steel using black silicone sealant manufactured by Tremco. The width of the glazing was about 8mm on each side. The frame supporting the glass was 50 x 50 x 3, so the width of the glazing channel was 44mm. The thickness of the glass was 28mm, leaving 8mm on either side for silicone sealant glazing compound. Much of the glass was simply silicone bonded into the main structural openings. The connections between framing members where of bolted construction. The main horizontal frame was a rectangular ring beam of flat steel 131 mm wide by 20 mm thick. It had welded corners and would have had to be lifted into position as a single component. The vertical components all came in prepared lengths that enabled them to be lifted and fixed individually. There were two joints at each corner (one between the lower vertical and the ring beam and one between the ring beam and the upper vertical).

229. The lift shaft was substantially complete and handed over to the lift installer in about late June 2006, although there continued to be a number of issues relating to the quality of the work. Some issues were highlighted in BLDA's letter dated 26 September to WLC such as the finishing of the shaft and metal work which was addressed by WLC and its sub-contractor and agreed to be satisfactory by BLDA. These issues however, broadly, seem to have been resolved before the end of 2006.

230. By the end of 2006 DMW had retained Knowles and embarked upon its strategy of seeking to omit numerous items of work, to have Knowles control and oversee particularly BLDA and to pressurise WLC. It is clear that at about that time Mr Mackay believed that the lift provided, architecturally, was a "monstrosity", as he was to write later in an e-mail dated 4 May 2007 from him to the other directors of DMW and Knowles; he had completely forgotten about this and when he gave evidence he gave contrary evidence. It is clear that he was very unhappy generally about the lift. The same can be said about Mrs Mackay who wrote in an e-mail dated 11 February 2007:

> "Another disaster is the specially designed lift. It is also poorly finished, with rubber showing through unevenly, the stainless steel edges have been filed down to get them to meet, rather ineptly, you can see the fabric of the building through the lift glass and right down the shaft of the unfinished bottom. How could these issues be dealt with?…"

231. It was in February 2007 that further specific issues were raised following the completion of the lift itself and the removal of protective coverings on the lift. SLW wrote to Mr Bates of WLC on 21 February 2007 saying, amongst other things, "the quality of the stainless steel installation to the glass lift shaft, particularly in Plot C, is

unsatisfactory". Haran Glass, WLC's subcontractor for the lift shaft, had gone into liquidation shortly after mid-February 2007 and various relatively minor defects were noted at a client meeting on 26 February 2007.

232. On 1 March 2007, Malishev Wilson sent an email to WLC making further complaints about the lift shaft, saying;

> "… In our specification we asked for bow in glass tolerances of + or - 2 mm. Some of the glass panels observed were not complying with this requirement. We believe that the bow is not due to the loading but fabrication or installation fault. Strictly speaking these panels should be replaced.
>
> We have observed that some of the csk bolts were not done properly which may compromise the strength or rigidity of the steel frame especially under temporary conditions (when the glass panel is being replaced).…
>
> Structural silicone application around the perimeter of the panels appears to be of low visual quality and is subject to Architect's approval…"

233. On 2 March 2007 BLDA wrote to WLC stating that during a site inspection on 27 February 2007 "it became apparent that there are certain defects to the glazed lift shaft". As a result, BLDA indicated that the enclosed interim certificate had been adjusted to take into account this defect; the total amount which otherwise would have been allowed for the glazed lift shaft would have been £133,697.39. On 6 March 2007 a meeting was held to discuss snagging and outstanding works to all three properties The meeting was attended by BLDA, WLC, and G&T (amongst others); BLDA highlighted the following three main issues with the lift shaft, namely, grinding of joints (worse on the landings), poor quality of mastic with silvery lines caused by light "diffracting" and glass bowing. It was however reported that Mr Malishev considered that the shaft was generally fit for purpose and compliant with the specification. On 7 March 2007 Knowles wrote to WLC saying that the full value of the lift work, £133,697, would be withheld by DMW. This was clearly an aggressive move, which was probably unjustified given both that Mr Malishev considered that the lift was broadly compliant with the specification and that there had already been a reduction within the interim certificate for what BLDA and G&T believed was appropriate for the perceived lift defects.

234. After 14 March 2007 BLDA issued a snagging report (wrongly dated 14 February 2007) which was sent by email to WLC on 19 March 2007. Noted defects in the lift glass had been circled and the marks transcribed on to a series of site sketches of each panel which were attached to the report. Amongst other things, it was noted in the report that:

> i) A 2m straight edge laid against the side of the corner stainless steel box sections indicated that the corner RHS could be as much as 2-3 mm out of vertical;
>
> ii) There was misalignment of some junctions and the linishing (grinding/polishing) had led to a noticeable dip on some of the joints;

iii) Several glass panels were found to have a "pronounced bow outwards". BLDA recorded 4 mm of outwards bow as a difference of level compared to the adjacent RHS box section;

iv) Large runs of the sealant on most of the panels were exhibiting silver streaking visible through the edge of the glass, indicating that the black sealant was not fully contacting the edges of the glass nor penetrating the V of the edge of the PVB interlayer. The result was that the edge of the panel was made to look uneven thereby detracting from the visual effect of the shaft;

v) Scratches on the inside and outside of the glass panels; and

vi) Loose screws and a problem with the bulkhead at the top of the lift shaft.

235. At a meeting between Mr and Mrs Mackay, G&T and BLDA on 15 March 2007 Mr Lloyd Davis reported that WLC had been asked to put forward proposals to deal with the problems. WLC had instructed a subcontractor to improve the mastic joints and reported that the glass scratches could be polished out; WLC had suggested that a capping on the uprights might be a solution. Mr Mackay indicated that he had ordered a survey of the lift shaft for verticality and alignment.

236. There was a progress meeting on 20 March 2007 at which WLC reported that the results of its survey would show that the lift shaft was built within vertical tolerance. WLC agreed that the silvering/refraction problems with the mastic sealant were unsightly and also agreed to polish out any non-compliant scratches on the outside surfaces of the glass. WLC also stated that it was considering methods of covering the steel structure with capping. It was accepted that there was a bolted connection at the top of the shaft which was not satisfactory and that it would correct this. It was also reported that WLC had investigated and considered the mechanics of taking out the entire lift shaft and that this would take between 6 to 9 months. WLC would not accept liability for the cost or time involved with this. Mr Mackay was to comment by email dated 12 April 2007 that the capping proposal had some potential.

237. By its letter dated 30 March 2007 to Knowles, WLC, addressing the substantial withholding of moneys by DMW, accepted that the mastic was not of the required standard and said that they were 'taking measures to address this deficiency.' It is also clear that WLC accepted responsibility for the scratches on the lift shaft and for the bowing of the glass. Essentially, WLC made clear that it considered that the withholding of the entirety of the G&T valuation for the glazed lift shaft, which assumed that it had no value whatsoever, was "clearly incorrect".

238. In March, April and May 2007, WLC arranged for its various subcontractors to carry out much of the remedial work. As reported at a walk around meeting on 23 April 2007, the bowed glazed panels had been replaced and the scratches on the outside of the lift shaft had been polished. The stainless steel trims had been inspected by BLDA and found to be acceptable as complying with the specification as had the joint couplers. There was an issue between the parties in relation to the mastic; although WLC accepted that the mastic exhibited a "mirroring effect" which was neither aesthetically pleasing nor accepted by the Mackays and that some of the mastic was of a poor standard, it believed that the silvering or mirroring effect was essentially an unavoidable design problem attributed at least in part to the impact of the use of glass.

This was recorded in a report dated April 2007 from WLC who had also brought in the Glass and Glazing Federation to report. The works which WLC accepted responsibility for were mostly put right in the first half of May 2007.

239. The minutes of the Client Site Walk Around meeting on 23 April 2007 recorded (at Item 3.04) that:

> "WLC confirmed that the bowed glazed panels have been replaced and that the scratches on the outside of the shaft had been polished. GM stated he is interested in pursuing the bronze capping option as now that the interior design of the house has progressed there is more bronze than stainless steel…."

The reference to the "bronze capping option" was a reference to a proposal which WLC had made to over-clad the corners of the lift so as to conceal both the joints and also the mastic. WLC had commissioned further samples of over-cladding for the box sections so as to conceal the mastic joint. At that stage, WLC was seeking a formal instruction acknowledging the time and cost implications of executing the works and the proposal was not therefore pursued.

240. On 10 May 2007 Knowles issued a further withholding notice and made the following comments in relation to the lift shaft:

> "The glazing, alloy trims, joint couplers and mastic seals are defective. The glazed shaft has been valued by the QS at nil in the present Valuation and their recommendation for payment is nil, hence there are no monies withheld again in this notice but emphasise, for clarity, herein that the lift shaft is considered defective by your employer and no monies be paid to you in respect of this element."

It is clear that, as DMW and BLDA knew even if not Knowles, much of these complaints had been attended to effectively by WLC. Another similar notice was served on 1 June 2007. On 6 June 2007, there was a Client Site Walk Around meeting at which Mr Mackay is reported to have said that "he had had the lift shaft surveyed for verticality and it was found to be within tolerance". He said that he would accept bronze capping. WLC subsequently wrote to BLDA on 11 June 2007 stating that, in response to the notice of withholding, it "had carried out a detailed dimensional survey, which had proved that the Lift Enclosure was fully compliant with the Contract Specifications" and that the survey had been copied to BLDA by e-mail on 4 May 2007 but no response had been forthcoming. It must have become apparent by then if not before that the total replacement of the lift and lift shaft was simply not going to be required.

241. BLDA replied on 14 June 2007 stating that that the issue of the verticality of the lift shaft appeared to have been resolved and suggested that "this matter has now blown up out of all proportion". However, there remained a number of areas in dispute, namely, the finish to the stainless steel joints/couplers was said to be unacceptable, the bowing to the glass panels had, it was said, not been satisfactorily resolved and BLDA remained of the view that the mastic was unsightly and that the fixing detail at the head of the lift shaft was unsatisfactory. WLC wrote back on 27 June 2007 substantially disagreeing. WLC's site diaries record that its sub-contractor, Eagle

Mastics, was carrying out some remedial works to the lift shaft between 11 June and 25 July 2007.

242. BLDA wrote to DMW on 6 July 2007 indicating that scratches had been remedied, and that one of the two glass panels had been rectified. The problem with stainless steel joints could only be overcome by over-cladding. The silvering of the mastic was to be expected but it was patchy; re-masticing had improved the situation. WLC had procured a report from the Building Research Establishment dated 11 July 2007 which concluded that the appearance of the sealant at the glass edge was a consequence of the design.

243. On 20 June 2007 WLC referred the dispute to adjudication. On 30 July 2007 the Adjudicator issued his decision. He decided that the value of the lift frame should have been included in the previous interim certificate as it was not defective. He found that scratches to the glass had been adequately addressed and any scratches existing on 1 June 2007 were minimal and insufficient to justify withholding of the value of the glazing. He found that the general finish and appearance of the alloy trims and joint couplers was not satisfactory as they were not fixed or cut in accordance with the lift shaft specification; he found that a deduction of £5,000 for this default was reasonable. The surface finish of the mastic joints was generally inconsistent and poor in places and the rear face of the mastic had not been recessed as detailed. Although he accepted the BRE report, he found that £25,000 represented a reasonable sum in relation to what he found was a defective application of the mastic. In total therefore, the adjudicator found that over £100,000 had been wrongfully withheld.

244. WLC proceeded with some limited further mastic work to the lift shaft but by 5 September 2007, as evidenced by a Client Site Walk around meeting on that date, it was envisaged that WLC would submit a proposal for over cladding. At another such meeting on 12 September 2007 Mr Bates of WLC demonstrated some bronze cladding. On 13 September 2007, WLC made to Mr Mackay a without prejudice proposal with regard to over-cladding. It offered (for free) to over clad the lift enclosure vertical steel hollows with bronze cladding on the basis that neither DMW nor WLC made any claim for delay against the other. It was predicated upon the basis that "irrespective of the standard of finish achieved to the joints, you dislike the general appearance of the exposed mastic and steelwork". Mr Mackay's e-mailed response on the same day was the over cladding was in principle acceptable but he wished to preserve his right to liquidated damages.

245. BLDA wrote to WLC on 18 September 2007 stating that the "major item preventing the issue of a Practical Completion certificate is the fact that the Lift Shaft has still not been built…in accordance with the Contract". On 28 September 2007 Mr Mackay sent to Mr Bates a draft letter (drafted by Knowles) offering to resolve the matters in issue on the lift. On 2 October 2007, Mr Bates of WLC wrote to Mr Mackay offering that WLC would over-clad the stainless steel frame with bronze metal at its cost, expressly accepting that the works would be carried out in accordance with Clause 8.4.3 of the Contract (and no extension of time would therefore be sought by WLC for those Works). This was agreed to by Mr Mackay and the over-cladding work proceeded.

246. WLC placed an order with Bassett and Findlay Ltd for this over cladding work on 3 October 2007, a quotation for which had been sought a few days before. As Mr Howie attested, the work commenced on 11 October 2007 and was finally completed on 21 November 2007; most of this was completed by the end of October 2007 but a damaged piece of over-cladding was re-fitted over several days leading up to 21 November 2007. On 26 November 2007, BLDA and Mr Mackay confirmed their acceptance of the over-cladding work.

247. There was much evidence as to whether the over-cladding work prevented or restricted access to the first and third floors whilst it was going on. By October 2007, the only means of access to the upper floors was by way of the staircase that went around the lift shaft from the ground to the third floors. It is undoubtedly the case that the over-cladding work primarily between about 11 or 12 October and the end of that month did somewhat restrict access but it certainly did not prevent it. Mr Howie and Mr Joyce gave evidence to this effect; Mr Bartlett indicated that artists and tradesmen directly employed by the Mackays were working on the upper floors during this period. The clients and the Design Team were able to get access.

248. It is strictly speaking unnecessary to decide whether or not WLC was liable for any of the defects which led to the need for the over-cladding. This is because WLC accepted at the time that it would carry out these works at its own costs and as if doing it pursuant to an instruction requiring remedial works under Clause 8.4.2 of the Contract Conditions, which necessarily implies that it was putting right something which was its responsibility; there was to be no extension of time, and indeed it is no part of WLC's Case or evidence that it was in any way delayed by the need to do the over-cladding work. The agreement to do this simply arose from WLC's wish to draw a line under the lift issues and, although a significant part of its reasoning was that the over-cladding work resolved aesthetic or design objections which Mr Mackay (for which WLC was not responsible), another part of its reasoning was that there remained some mastic and other workmanship issues which would be difficult to address.

249. As for the deficiencies, such as mastic, glass scratches, bowing panels and bolt heads, I am satisfied that these were deficiencies in workmanship on the part of WLC and its sub-contractors. However, these were put right mainly in the period up to the adjudication decision and they did not take an enormous amount of time or resources to resolve. It is clear that Mr Mackay either allowed himself or Knowles to exaggerate the extent, impact and scope for the Lift defects but that is consistent with the adopted strategy. A particular and good example is the continued withholding from WLC of a sum representing the total value of the lift and lift shaft works which was not simply unjustified; it was aggressive and it must have been known to Mr Mackay certainly by the adjudication and probably well before that the chances of holding on to the whole of the retained sum was close to nil.

250. I will address the impact of the lift on delay in the extension of time part of this judgment.

Barrisol Ceilings

251. The ceiling finishes to the Pool Hall and the Cinema in the Basement of Plot C incorporated illuminated ceilings which comprised two principal elements, the first of

which is an elaborate lighting installation fixed within a recess to the structural soffit of the ground floor above; the intention was to provide diffused light which changed colour on a recurrent basis. The second element is the "Barrisol" ceiling which is fixed below the lighting installation. A Barrisol ceiling is essentially a suspended ceiling system consisting of two basic components, a perimeter track and lightweight PVC membrane. The aluminium track is first installed to the line and shape that the finished ceiling will take. Once the track is installed, lined and levelled, the PVC sheet (less than a millimetre thick) is then laid out and heated so that the PVC sheet becomes workable and able to be stretched. Once the PVC sheet has been sufficiently heated it is then stretched and clipped into the perimeter track. The PVC sheet then cools and tightens into its final shape, tension and consistency. The PVC was about 50 m² for the swimming pool area and somewhat less for the Cinema.

252. There is no issue remaining as to whether there are any defects for which WLC remain responsible and no suggestion that WLC was responsible for the design either of the Barrisol ceiling itself or the lighting above it. Equation was responsible for the design of the lighting, which proved to be unsatisfactory or at least not acceptable to Mr and Mrs Mackay. To the extent that it features in the delays, it is only the work to the ceilings in 2007 going into January 2008 that is material.

253. Because the Barrisol ceilings were regarded as "fine finishes" and susceptible to damage and dirt, it was agreed that this would be installed only after dirty works to the Pool Hall (such as the pool screens, mastic to the drainage channel and stone flooring which remained incomplete in February 2007) had been completed in order to prevent damage to the Barrisol ceiling. Similarly, it was agreed that the Barrisol ceiling to the Cinema would be installed after the completion of DMW's directly employed contractors (in particular Sound Ideas) had completed their works.

254. The Barrisol ceiling to the Cinema was not in the event installed until 24 May 2007 following the completion of the dirty works in that room. Between the date of installation of this Barrisol ceiling to the Cinema and the Client Site Walk Around meeting on 6 June 2007, concern was expressed in relation to the lighting effect of this Barrisol ceiling in that dark lines appeared across the ceiling. This was due to the configuration of the lights above the Barrisol ceiling. The Barrisol Ceiling, as instructed, was removed on 20 June 2007 and the lighting re-designed to address the problem.

255. This concern was also raised at the 6 June 2007 Client Site Walk Around meeting in relation to the gaps between the lighting installed for the Barrisol ceiling to the Pool Hall. The gaps between the ends of the fluorescent strip lights resulted in dark areas (or lines) running perpendicularly to the direction of the lights. Equation asked WLC to have the Barrisol sub-contractor to hold up a sample so that they could test the lights before the ceiling was put in place. There were problems with Sound Ideas, a firm directly engaged by DMW to supply and install equipment in the ceilings and, as recorded in an e-mail dated 22 June 2007 from WLC to BLDA, it was proposed that Barrisol should not complete their installation until Sound Ideas had adjusted their equipment. This work by Sound Ideas took some time, until about 5 July 2007.

256. On 9 July 2007, AI478 was issued requiring WLC to remove all lighting fittings and wiring to the cinema ceiling; this involved WLC having its electrical subcontractor, Norstead, do the work; this was changed again by BLDA on 11 July 2007 with

changes of position of the light fittings. The Barrisol ceiling in the pool was installed on 20 July 2007. By 26 July 2007, there had been continuing experimentation by WLC with the lighting effects in the pool hall ceiling and there continued to be a striping and shadow effect which was not acceptable to the client. A similar problem in the cinema ceiling was also reported at the Client Site Walk Around meeting on 26 July 2007. On 27 July 2007, BLDA issued AI485C which instructed WLC to request Stretch Ceilings (the installers of the Barrisol Ceiling) to remove the Barrisol ceiling in the Pool Hall. The Barrisol ceiling in the Cinema had already been taken down on 20 June 2007 (pursuant to AIs 492C and 496C) and was reinstalled (although not for the final time) on 28 August 2007. A complaint was made about the Barrisol ceiling material, which was manufactured in certain widths and was therefore jointed at the seams, to the effect that the joints should have been centralised. However as WLC pointed out, in an e-mail to BLDA on 27 July 2007, there had to be joints and there had been no specification as to the position of the jointing; in effect this could not be a valid criticism.

257. Alterations were required again to the lighting in both the cinema and the pool. In August 2007, BLDA issued variation instructions AIs 485, 486, 491 and 492 as well as those referred to below in relation to the Barrisol ceilings. RLB reported to Knowles on 6 August 2007 that Equation acknowledged this as "their fault" and had "offered to put it right at their cost". Pursuant to this concession, Equation itself provided six additional fluorescent batons to be installed to the Cinema ceiling and for existing fittings to be relocated to replace six of the fittings. These fittings were still awaited on 15 August 2007. On 16 August 2007 AI498C instructed further lighting revisions to the Pool Hall ceiling. Equation spent the whole week commencing 13th August 2007 on the site seeking with various workmen to resolve shadowing in the pool hall ceiling. AI513C on 20 September then instructed further changes to the Pool Hall ceiling, changing the lights to LED rather than fluorescent in order to achieve a “twilight” effect.

258. At the Client Site Walk Around meeting or 5 September 2007, a programme for the additional works to the pool ceiling was identified as being a minimum of six weeks, followed by the need for the ceiling to be inspected before the Barrisol ceiling and was re-fixed. There was no suggestion that this programme was unreasonable. More changes to the lighting were instructed by AI513C dated 20 September 2007 based on a directive received by BLDA on 19 September and revisions to Equation’s design; work on the new free issue lighting had been suspended by Mr Mackay and Equation on 19 September 2007. Between 20 September and 4 October 2007 two types of sample lighting at either end of the swimming pool were installed. On 20 September 2007, WLC made it clear it could not complete the works in the cinema until the ceiling lighting was resolved.

259. On 10 October 2007, Mr Mackay instructed further alterations to the lighting installation in the pool hall Barrisol ceiling, these being confirmed by WLC in writing on 15 October; a sample of these alterations were inspected on 22 October 2007 and approved by BLDA in AI 526C; this instruction required WLC’s sub-contractor to carry out additional and varied works to the pool hall ceiling using free issue LED lighting provided by Equation. On 7 November 2007, WLC was instructed by RLB in effect to permit the pool ceiling works to be done by a directly employed contractor but this was rescinded. The final work was finished on 26 November 2007 and, the

following day, AI547C instructed WLC to prove the new lights by running them for 100 hours over a period of 1 week. This had been done by 5 December 2007. The Barrisol ceiling was fitted again.

260. At a Client Site Walk Around meeting on 5 December 2007, it was reported that the pool Barrisol ceiling was damaged. At a similar meeting a week later, it was reported that Barrisol did not accept responsibility as all reasonable care was taken when it dismounted and reinstalled the ceiling; it would not place the ceiling without an instruction. AI551 was issued to this effect after the meeting. Barrisol's position was justified on the basis that the ceiling material had been taken up and down on a number of occasions and it simply and unavoidably got somewhat stretched as a result and that Barrisol had acted with reasonable care. AI552C also issued after the site this meeting on 12 December) instructed Norstead to install the newly specified LED lights to the Cinema. This work was carried out between 8 and 28 January 2008. By about this time the ceilings in both the pool and the cinema so far had been completed, they were demonstrated to and accepted by DMW.

261. I am satisfied that, whatever the impact on overall progress, the Barrisol ceiling and related electrical works above, in both cinema and pool hall, were materially delayed by late instructions and variations between July 2007 and the end of January 2008. This was mostly attributable to the need constantly to change and adjust the lighting and the lighting configurations; it was unnecessary to decide whose fault this was on DMW's side but certainly the evidence strongly points to Equation to a large extent. There was never any real suggestion that WLC was responsible for the delays involved in securing completion of these two areas of work.

The Stingray Doors

262. The Stingray doors were double doors which provided access from the Entrance Hall into the Drawing Room and the Kitchen/Family Room. The height of the doors is approximately 3.6m. The terminology of "stingray" doors was used to describe the texture and finish of the doors, which are intended to resemble the skin of a stingray. The stingray finish was to be achieved by first cutting to size 12mm MDF panels which are then faced with bronze cladding. The bronze cladding was to be sent off site to a company based in Greenwich called Based Upon to be finished with the "stingray finish" which was applied off-site. The finished stingray panels were to be positioned into a brass trim frame fixed to the door blanks. In order to form the MDF panels it was first necessary for the brass trims and other ironmongery (such as pull handles and ironmongery) to be applied to the door blanks for site measurements to be taken. The MDF panels were then sent off site to be cut to size before having their stingray finish applied.

263. There are two areas of issue relating to the Stingray doors, delays and defects. In relation to delays, WLC's pleaded case is that firstly, following the installation of the Stingray frames and doors between November 2006 and January 2007, delays occurred to the forming of the MDF stingray finished face panels due to the late supply of free issue bronze angles on 13 July 2007 which formed the frames for the MDF stingray panels. Secondly, there was a delayed start between 13 July 2007 and 8 August 2007 of the initial cutting and temporary installation of the door face panels and the bronze angles until all the other components (including the leading edge angles and door handles) had been delivered to Adams, WLC's sub-contractor.

Thirdly, the initial cutting and installation of the door face panels, bronze angles and other components took 6 weeks between 8 August 2007 and 21 September 2007. Fourthly, the period for the off-site application of the Stingray finish to the MDF face panels took 6 weeks between 21 September 2007 and 29 October 2007. Next, installation of the Stingray finished MDF face panels was delayed due to the late confirmation of an approval sample of the patinated leading edge angle and design of the doorstops between 29 October 2007 and 3 December 2007. The on-site installation of the stingray finished MDF face panels then took 2 weeks between 3 December 2007 and 18 December 2007. Finally, it is said that the installation of the door handles was prolonged following the completion of the stingray finished door panels due to the late supply to WLC of the free issue adhesive required to fix the door handles and back plates by 6 weeks between 18 December 2007 and 25 January 2008.

264. In March 2006, JSI issued drawings showing the concept design of the doors and a schedule of finishes. A Tender Progress Meeting was held on 19 May 2006. The purpose was to deal with problems with the design and detailing of the doors, so as to allow Adams to fully price the package. In May and June 2006 BLDA provided WLC with tender information for the doors. On 2 June 2006 BLDA issued general layout and door detail drawings for construction. On 6 June 2006 BLDA asked WLC to provide a quote for the door package and the tender documents were sent to Adams, who on 22 June 2006 quoted for the supply and installation of the doors, frames and ironmongery. A 22 week programme from the order was identified by Adams, albeit not as part of its quotation, this being set out in WLC's tender report; this programme left blank the installation of the ironmongery as "delivery details [are] awaited from Manufacturer".

265. On 14 July 2006 BLDA issued an instruction (AI308C) to WLC to place an order with Adams for the "supply and installation of" the doors, frames and ironmongery, including the Stingray doors. On 19 July 2006, WLC issued a site instruction to Adams to supply and fit the doors, frames and ironmongery. On 21 July 2006, WLC wrote to BLDA with an extension of time notification in effect for the late issue of AI308C saying that the completion date for the Stingray doors based on the late receipt of the instruction was now 11 December 2006. The substance of this letter was never challenged by BLDA.

266. There remained issues about outstanding information relating to the doors and ironmongery. This was confirmed, for instance at the site meeting held on 25 July 2006 when BLDA confirmed that outstanding elements would be clarified later that day. Throughout August 2006, DMW was deciding whether to arrange for the supply of the ironmongery itself and there was uncertainty as to what the ironmongery would be. This was referred to in WLC's report for the site meeting on the 22 August 2006 ("Ironmongery to plot C joinery remains unresolved"); the report went on to say that Adams was waiting for approval of certain ironmongery details but that those items were on an extended delivery and that therefore doors would lag well behind the installation of other joinery. At the site meeting on 5 September 2006, it was reported without demur that WLC was "awaiting instruction regarding plot…C ironmongery. Hoffmans has issued spec to [BLDA and SLW]. BLDA to revise instruction." Hoffmanns (or "HOF") was to be the supplier. Ironmongery was again reported as something likely to affect progress in WLC's report for the site meeting a fortnight

later. At that meeting, it was minuted that the joinery ironmongery was still to be approved by JSI and the current plan was "for this ironmongery to be post fitted".

267. By the site meeting of 3 October 2006, it was confirmed that all door handles were to be omitted; it was at about this time that DMW decided that it would procure all the ironmongery for the Stingray doors. Somewhat later, probably by December 2006, it was resolved by DMW that it would issue such ironmongery to Adams, to fit to these doors. Mr Joyce said in evidence that Adams' fabrication drawings were "only able to be issued on 16 November 2006" The reason given was "protracted design development and changes to the door panel sizes." When asked about it in cross examination, Mr Joyce said that he thought the panel sizes changed in size and number but was unable to provide any further detail. When it was put to him that there was little or no documentation evidencing what he was suggesting, and that if it had been causing a significant problem one might have expected to see letters or emails making that known, he only said that "there was a lot going on at this time". Certainly, there was uncertainty about ironmongery for the Stingray doors, not only as to whether Adams was to procure it but also as to what it was to be.

268. For reasons within their control, DMW and its Design Team between them were unable to confirm what the specification for the door furniture and handles for these doors would be. As Mr Joyce said in his first Witness Statement (upon which in this respect he was not effectively challenged), WLC could not assemble the Stingray doors without the free issue materials; this was because the ironmongery back plates, bronze angles and brass division strips were required in order to work out the exact length and dimensions of the MDF panels before they could be individually cut and dry fitted before being sent off site for the finish to be applied. This was well understood by BLDA as is evidenced by its internal e-mail of 24 April 2007. The door frames and blanks for both doors were manufactured and installed by 24 January 2007.

269. On 1 June 2007, WLC wrote to BLDA saying that WLC could not complete the Stingray doors for a number of reasons including:

> "Drawing Room & Kitchen main doors client free issue bronze ironmongery and features are still awaited; delivery was expected 21st May. The Works production slot has been missed, and a new time reservation will need to be made but will be longer than that currently advised".

This was not challenged but someone obviously chased up DMW's suppliers because some of the ironmongery was delivered by courier on 8 June 2007. Eight of the angles supplied were too short and the bronze division strips were flat and twisted and not what was required by the drawings issued to Adams. The back plates were only delivered to site on 26 July 2007 and the correct brass angles on 16 August 2007. Some changes to the design and shape of the MDF finished panels were instructed by DMW through Janine Stone in July 2007. Whilst the Stingray doors had been designed by BLDA to open in one direction only, Mr Mackay made it clear in mid August that he wished to consider the doors opening both ways; it was only on 22 August 2007 that he indicated that he was prepared to accept the original design intention. Between mid-August and the third week in September 2007, Adams marked up and cut the MDF panels which were to be fixed adjacent to the back plates; these had to be fixed to the door blanks.

270. The MDF panels were then sent to Based Upon in Greenwich to have the Stingray finish applied which was done by 29 November 2007. The next step was for the finished panels to be permanently installed. However this was delayed because BLDA failed to approve the sample of patination of the leading edge angles until 31 October 2007 and because it was decided by DMW**'s** design team that doorstops needed to be provided to prevent or limit friction damage to the edges of the hinges to the doors. WLC reported without demur at a Client Site Walk Around meeting on 7 November 2007 that the top panels to the Stingray doors could not be fixed until the door stops were in place. Bev reported that a design had been priced and that once client approval was obtained the manufacturing could commence; he was instructed to issue WLC with the relevant details.

271. The detail for the door stops was sent to WLC on 15 November 2007 and finally resolved by JSI by 21 November 2007. However, the installation of the panels was still held up because the door stops to be delivered by others were not so delivered until 8 January 2008. However, the Stingray finished MDF panels installation took place between 3 and 18 December 2007. However, the door handles could not be installed because WLC was not issued with the necessary adhesive or the specification of fixing the free issue door handle plates or an elevation showing the door handle heights. This issue was raised at a meeting on 5 December 2007 but the adhesive tape was only finally issued to and received by WLC on 20 December 2007. The installation of the doors could only be completed by 25 January 2008 because the free issue through bolts for the door handles were only delivered finally in January 2008.

272. I am satisfied that, whatever the impact on overall progress, the Stingray doors work was materially delayed by delayed delivery of free issue ironmongery, late instructions and variations between January 2007 and the end of January 2008. This was mostly attributable to the decision on the part of DMW to procure the ironmongery itself, delays by the Design Team to secure earlier delivery of the ironmongery than was achieved, delays in the provision of information, and changes being made or considered. Again, it is unnecessary to decide whose fault this was on DMW's side but certainly the evidence strongly points to JSI and DMW's ironmongery suppliers to a large extent. There was never any real suggestion that WLC was responsible for the delays involved in securing completion of these two doors.

273. There is a complaint by DMW in its Counterclaim about the finish. The expert architects' agreement is as follows

> "14.1 The bronze finish to the stingray door handles and faceplates is poor and uneven. It is understood that this ironmongery was free issued by DMW to WLC.
>
> 14.2 The cause is unclear, but it appears to have occurred prior to Practical Completion.
>
> 14.3 The remedial works in relation to the doors will involve taking the doors down and sending down to a patinator/finisher to have the faceplates and handles made good …[and]to have the handles and faceplates removed and sent to a patinator for re-patination."

A protective film was applied to the units during the works. When the film was removed, it was found that it had contaminated or damaged the bronzed finish of the ironmongery. An unsuccessful attempt was made to clean and re-finish the surface.

274. DMW's case in relation to the stingray doors is that parts of the ironmongery are missing (linking strips) and other parts are now loose, that ironmongery was not left clean or in the specified condition and that metal decor strips have come loose or are inadequately fixed. The sum claimed in respect of remedial works is £18,068.12.

275. HAF was the supplier directly engaged by DMW; patination was required to the ironmongery but for reasons best known to itself HAF was not prepared to do this work at least on site and so it was that AI504C was issued to WLC by BLDA on 7 November 2007 for its sub-contractor, Bassett and Findley, to do this work; this was done a few days later. There was then discussion as to how the door handles and plates were to be affixed. There was a free issue to WLC by HAF of adhesive tape ("Millionaire's tape") on 20 December 2007 which was then used by Adams to fix the handles and faceplates. The adhesive when removed seems likely to have left marks on the ironmongery. It seems likely that WLC attempted to remove the marks.

276. The amount claimed by DMW for this alleged defect is £18,068.12 but the quantum experts' figures are that for DMW's remedial work case (removal of doors from site for re-patination £10,060.20 (Mr Pontin)) and £9,355.50 (Mr Hunter) and on WLC's remedial work case (remove the ironmongery alone for re-patination £3,390.96 (Mr Pontin) and £3,153.43 (Mr Hunter).

277. DMW originally sought to raise allegations of design as well as workmanship issues against WLC in relation to the Stingray doors. The former was dropped by amendment but some of the latter remains. The source of the protection tape for the ironmongery was HAF, DMW's directly employed ironmongery supplier.

278. The relevant Specification Z10 which was issued to WLC states with regard to "adhesive generally" that the contractor was to "remove surplus adhesive using methods and materials recommended by the adhesive manufacturer and without damage to affected surfaces".

279. Mr Josey said that the tape left adhesive residues on the surface and the resulting attempts to remove them caused damage to the finish. He also said that WLC or Adams Joinery should have obtained and acted on manufacturer's advice on rectification (which was to remove the plate and return it to the factory for rectification) rather than attempt rectification on-site. Mr and Mrs Mackay both noted in their witness statements that WLC engaged contract cleaners to remove marks left by the removal of the protective material to the bronzework. This cleaning fluid has damaged the finish to the bronzework itself.

280. On balance, I consider that WLC did fail to exercise appropriate care in seeking to remove the adhesive from the bronze ironmongery, even though it was not its contractual fault that there were adhesive residues left. There is no reason to believe that the adhesive was not removable without damaging the patination. So far as the complaints that parts of the ironmongery are missing (linking strips) and other parts are now loose are concerned, this has simply not been proved. If ironmongery was missing, it must have been because either it was not supplied to WLC to fit or it has

been taken off by others, there being no reason why WLC should have removed it. As for loose pieces, this was not noted in 2008 on snagging and it is not possible to say probably what or who caused them to be loose.

281. As for quantum, I can not accept that the total removal of the doors is either necessary or reasonable. The ironmongery can be removed and taken off site for re-patination and then returned and re-fixed on site. There is little between the quantum experts on this and £3,250 is a fair allowance. However, for reasons dealt with elsewhere, I would have allowed nothing by reason of the settlement which DMW reached with the other third parties to the proceedings**.** In this particular case, DMW did allocate in the settlement £12,045.41 to the Stingray Doors problem. This by a large percentage exceeds what I would otherwise have awarded in any event.

Leather in the Library

282. The importance of the issues relating to the Leather in the Library revolve around responsibility for the design of the leather and the extent to which WLC had responsibility for the speed or (or lack of speed) of the requisite sub-contractor, Adams Joinery, in producing samples which were acceptable to the Mackays. There is a major issue as to whether it caused overall delay.

283. The supply and installation of the Leather in the Library relates to the lining to the purpose made book shelving units. The shelving units comprised a 60mm thick MDF construction and lined all around in leather with decorative stitching in order to form an architectural feature of the Library. It is common ground that the leather lining had to be installed to the joinery components prior to their on-site installation and that until the leather lined joinery had been installed no other joinery could be installed to the Library. In addition to the library shelves, further leather finishes were required in the Lower Hall lobby walls which were situated in the basement between the Library, the Cinema and the lift shaft.

284. Mr Mackay stated in his witness statement that it was his idea to clad the library shelving in leather at a relatively early stage in December 2004; it is clear that Bev took a major role in seeking to organise this. He produced various sketches. He produced some photographs in June 2005 showing examples of the stitching detail which the Mackays were happy with and then organised a company called Anthony Vahimis to produce a sample. This sample was produced some time thereafter and again the Mackays were happy with this. There is no suggestion that either WLC or Adams Joinery were involved in any part of this process.

285. The history relating to the eventual engagement of Adams Joinery (as set out in relation to the ABW issues above) applies in relation to the Leather for the Library, because this was ordered as a variation to its joinery work. On 27 May 2005 Adams Joinery amongst others was invited to quote initially for joinery work for a number of rooms which did not initially include the Library. On 17 May 2005 BLDA produced drawings for the Library No. 2353 C/816A and C/817A. On 7 June 2005 BLDA produced an Elemental Description Schedule for the Library (cross referred to drawings No. C/816 and 817). The section dealing with the joinery had an item (4.10) relating to the shelves which provided that the MDF shelves in the Library were to be "clad all around with decorative stitching to ID specification and to architect's approval" but stated that the material was to be confirmed. It is not clear what the

"ID" specification was although there was a National Building Specification reference to Z10 and M60/185. The drawings do not assist with the type of leather or stitching.

286. Adams Joinery was also asked to quote for the Library and provided its quote for the supply and installation of joinery to various rooms including the Library. The quotation was qualified by Adams Joinery to the effect that it had not "allowed for the supply or upholstering the Leather… until further specification". It was also qualified by Adams Joinery to the effect that "no allowance has been made for constructing full working samples".

287. It is common ground that AI16C by which BLDA instructed WLC to place an order with Adams Joinery excluded the supply of the Leather for the Library until further specification. This suggests that either BLDA was unaware that the Mackays had made up their mind about the Leather or that they had not yet finally made up their mind. Indeed when BLDA issued its next version of the Elemental Description Schedule the Leather was still to be confirmed.

288. When WLC entered into its sub-contract with Adams in or about March 2006, the sub-contract did not include for the leather. However, Adams had requested that information about the leather specification be provided by 23 December 2005. It had been informed at least informally by 16 February 2006 that the leather type was to be "Spinneybeck-Lucente 1601". It appears that no specification was provided. Mr Joyce gave unchallenged evidence that Adams requested more information relating to the leather specification. He also said that on 20 May 2006 Adams provided a large sample of the leather clad library units to JSI.

289. Bev was in a state of confusion or ignorance as to whether Adams had initially priced the leather in the library. In an e-mail to the Mackays, he wrote:

> "1. LIBRARY…re leather costs…DLD [BLDA] explained that the initial costs of the leather, had failed to take into account that the leather was on all internal sites. The subsequent amendment to suit the issued design details, resulted in a cost increase. It was agreed that to resolve this that [sic] the vertical shelf providers would be lacquered, finish to suit the agreed dark grey RAL colour"
>
> 2. LIBRARY… Adams are currently trying to source a cheaper leather, as a further attempt to reduce costs. JSD (Bev) will do the same. We have however a 'liquid' leather (man made) which is a good match to the leather, and will be considerably cheaper."

290. The reference to "leather costs" in the first numbered paragraph is probably to such costs as had been allowed in the budget and this explains why Adams was being asked to find a cheaper leather than the Spinneybeck-Lucente previously identified for which Adams Joinery had submitted a price (not in the court papers). On 22 June 2006, BLDA reported on Adams Joinery "Variations of cost", stating in relation to the library:

> "The ID asked for a sample of the library to be manufactured. Adams did this, it is now in Janine Stone's offices, and they have charged for it. G&T should confirm that this price is correct.

> After tender the library was redesigned by the ID omitting joinery, and extending the use of leather. Adams re-priced the whole room and the price of the joinery was reduced [from] £35k to £25k approximately.
>
> The leather coverings, which now covered all the faces of shelves, carcass and backs but was stuck not stitched, were priced by Adams as an additional £46k. Adams had investigated cheaper leathers and should have budget prices this week.
>
> Client and ID discussed reducing the amount of leather. Instructions awaited."

ID is an acronym for Interior Designer.

291. Matters had still not been resolved by the end of June 2006. WLC reported at the site meeting on 27 June 2006 that the changes to Unit C including "some long lead in items eg leather cladding" were delaying the construction programme and were on long procurement times. On the same day, Bev e-mailed BLDA with an idea for an alternative specification for the leather for the back panels of the shelving. BLDA forwarded this e-mail to Adams Joinery asking for a revised cost for the library area using this alternative material; this was not copied to WLC. Mr and Mrs Mackay were kept informed as to what was going on; for instance at a design meeting on 6 July 2006, BLDA reported to them that the leather was being re-priced and that alternative samples and prices were awaited from Adams Joinery.

292. On 11 July 2006, Adams quoted for amongst other things Leather in the Library; the sum quoted was £43,632.20. It had sourced alternative leathers and it provided samples: "Avionappa Ivory and Parchment leathers would give a saving of £14,620.03. The Specially Dyed Sonia-Panna leather would give a saving of £4008.73". A 50% deposit was required to place orders for the leather and fabric. This was passed on to BLDA on 12 July 2006. On 13 July 2006, BLDA asked Adams to "research the viability of the re-specification of the leather to the library to Sonia Panna, as tabled" at an impromptu meeting that day; BLDA was concerned about the impact on the programme as the leather would have to come from Italy.

293. There was an exchange of e-mails between Adams Joinery, BLDA and Bev (with WLC not being copied in) on 19 and 20 July 2006. Bev had been talking to Adams Joinery about joints and stitching details for the Leather in the Library, saying that they would be issuing outstanding information later on 19 July 2006 but Adams Joinery was not sure what Bev meant. BLDA told Adams Joinery that "Bev requires any stitching detail around the edges of the shelving and is keen to see where the jointing is going to happen" and thought that he was "waiting for a detail/sample from" Adams Joinery whose response was that this had all been held up pending the order being placed for the "Library change of Leather". BLDA e-mailed back to Adams Joinery on 20 July 2006 saying:

> "We are still awaiting your comments on any impact the change of leather specifications may have on the programme. As you are aware from our meeting on the site, both the client and the Interior Designer working to use the alternative that you table for the library. However it was agreed that due to the fact that it would have to be specially dyed in Italy, Adams would investigate its viability.

> Once this information has been received, we will hopefully be in a position to place the order for the leather. In the interim it would be useful to use this time to agree the aesthetic of the stitching and joining details.
>
> Please can you confirm if this is acceptable and when we will receive this outstanding information?"

294. BLDA issued an instruction (AI311C) on 18 July 2006 for numerous variations for Adams Joinery which had not been formally instructed; these did not include the Leather to the Library. It is clear that Adams Joinery was unwilling to spend time and resources researching the issues relating to the leather without clear instructions. At the site meeting of 25 July 2006, WLC repeated their concern about changes and the lack of instructions in relation to leather cladding as this was delaying the construction programme.

295. On 9 August 2006, WLC sent to BLDA an extension of time notification based in part on the fact that it was still awaiting instructions regarding the supply and installation of Leather to the Library as well as the Lower Hall and lobby. The same point was emphasised in WLC's progress report of the site meeting of 22 August 2006. BLDA never sought to challenge these assertions.

296. It was only on 21 August 2006 that BLDA by e-mail identified to WLC (copied to Adams) that the Leather for the Library and lower hall was to be "Sonia Panna". WLC confirmed this in writing that day and on the following day sent a site instruction to Adams Joinery in relation to this. On 25 August 2006, WLC reminded BLDA that Adams Joinery required a 50% deposit for the leather and fabric, albeit that WLC would pay for this out of advance payments; these payments were probably certified the following month. There was at this stage no information as to how the leather was to be applied; there had been talk of adhesive and stitching.

297. WLC reported for the site meetings of 19 September and 17 October 2006 that, although there were substantial delay on the joinery, Adams Joinery was currently processing the leather goods. On 27 October 2006, Bev e-mailed BLDA asking for an update on the status of samples amongst other things for the "leather stitching for the library shelves". Up to this stage, WLC and Adams had not been asked to provide any sample of the leather stitching but on 30 October 2006 BLDA passed on to Adams Joinery and WLC Bev's e-mail. Bev indicated in an e-mail dated 8 November 2006 to Mrs Mackay that he was going to visit "the guys who are doing all the leather work next Wednesday to ensure that they have understood what it is we are after and to do a level of quality control" going on by asking: "Do you have any feedback on the sample of the shelf and it's stitching I left on Monday"? It is not clear who "the guys" are; although it could be Adams Joinery or Courtney Contract Furnishers ("Courtney"), WLC's report for the site meeting of 14 November 2006 identifies that a visit to "the upholsterer is planned for w/c 13 Nov".

298. The upholsterers were Courtney and they wrote probably following that meeting that their latest sample was the best answer to what was achievable using the specified materials. Courtney wrote to this effect to Adams on 22 November 2006 and adding:

> "Unfortunately, it would be almost impossible to have accurately sewn stitching lines on the horizontal surfaces of the shelves to mirror those on the vertical

> surfaces (as sample). Upholstery is not always an even thickness and certain parts of the hide are softer, therefore you get inconsistency of how much it may stretch, so with the number of datum lines involved it would be virtually impossible to keep those stitch lines straight and parallel."

It then goes on to offer a further price for supplying and applying an interliner to wall shelves and back boards. It is a reasonable inference that any sample was provided to Bev and the reservations highlighted in this letter passed on to him. It is unclear if Mrs Mackay attended the meeting.

299. WLC reported for the site meeting of 12 December 2006, following that meeting with Courtney, that a "revised sample for the library shelving incorporating padding is now ready for approval". It is probable therefore that the different ideas, including providing padding between the latter and the MDF, were being considered.

300. There was on 18 December 2006 an internal meeting between BLDA, Bev, SLW and RLB at which Bev raised "concerns regarding the quality of the leather stitching sample sent by Adams [to Bev] for their approval." A subsequent meeting had been arranged for 5 January 2007 at BLDA's offices to discuss stitching with Adams and Courtney. The following day Bev e-mailed Adams (copied to WLC) as follows:

> "Apologies for the delay in getting back to you all…
>
> As far as the sample is concerned I am afraid that the stitching that joins two pieces of the leather together on the vertical is still not acceptable.
>
> Please refer to attached photo as it shows the leather tearing slightly at the stitch. I understand that this is a difficult detail but we must find a better way to achieve this. I am at pains to show this to Giles and Caroline as it is less than perfect.
>
> There are also potential issues with what exactly is expected by Giles and this illustrates the quality that he is expecting. Note that via Caroline, Giles is expecting stitching details that are similar to the leather upholstered room within say an Aston Martin. I think that due to the budgetary constraints that this item at this level was never achievable, and is a discussion that will need to be had with Giles and Caroline when I present the sample".

This followed a follow up e-mail on 18 December 2006 from Adams referring to another sample sent to site the previous week. The meeting planned for 5 January 2007 was postponed by several days.

301. It was at this meeting or shortly thereafter that further thought was being given to changes to the shelf detail. This is referred to in Bev's e-mail dated 15 January 2007 to BLDA, copied to Mr Mackay but not to WLC or Adams:

> "Can you please give me an update or confirm that we are still on track to receive the revised leather shell sample with the following alterations by the end of this week.
>
> 1. Amended stitching to the leather joins.
>
> 2. Stitching removed off from face and replaced by line detail.

3. Implications of alterations"

This e-mail was passed on to Adams by BLDA. Mr Joyce said, and I accept, that the stitch detail was changed by Mr Mackay so that it would run horizontally across the joints instead of in line with the joints in the leather. Mr Hawks of Adams Joinery e-mailed BLDA on 17 January 2007 to say that he and Courtney was "not having much luck with producing the stitching detail"; he had even visited a car showroom without success and asked for a photo to be taken as to what was required so that they could understand the detail better.

302. WLC reported to the site meeting of 23 January 2007 that the "library shelving is subject to development/specification/requirement." This was not challenged by BLDA. On 23 January 2007, BLDA reported to Mr Mackay:

> "Adams made a large sample of the leather clad library unit and delivered it directly to your Interior Designer on 20th May 2006.
>
> There were discussions both about the design and quality until Adams arranged the visit to the upholsterers on 15th October 2006 to view what was thought to be the final agreed sample.
>
> At this meeting the Interior Designer asked for the leather to be padded and the stitching to be straighter and more uniform.
>
> Adams produced a second sample which was seen by the Interior Designer on 14 December. He was unhappy with the stitching.
>
> On 10th January the Interior designer explained in detail what the client wanted with the upholsterer, Adams & BLDA (i.e. horizontally across the joints instead of in line with the joints).
>
> At present, Adams are waiting for a photograph of the type of stitching required by the Interior Designer. They have sent their upholsterer to look at car seat stitching but need more guidance."

303. In its letter to BLDA of 1 February 2007, WLC wrote amongst other things that, whilst Adams Joinery had targeted to complete other work by the end of January 2007, areas that would not be complete included the Library where it had been agreed that the leather coverings should be left until completion of the clients' final decorations.

304. At the site meeting of 6 February 2007, the following was noted:

> "The Library is waiting for confirmation on the leather stitching, [BLDA] reported that the meeting took place 5 February 2007 with [Bev] and…Adams. [Adams] presented 10 samples of stitching including hand stitching. [Bev] will confirm a sample with the client 6 Feb 2007. This is urgent as it affects installation of the Library joinery, the door and the large panels in the Lower Hall. [Mr Joyce] stated that none of the Library joinery can be fixed because it is dependent on the upper sections being covered in leather first and these are in abeyance until the leather stitching has been agreed."

Mr Mackay was sent a copy of these minutes and said in relation to this note:

> "We have been waiting for these stitching samples for months and months – why has it taken so long to arrive? We signed off this design in early summer 2006".

These comments were eventually passed on to WLC on 27 February 2007 whose response was:

> "Rejection of samples offered complying with the specification by reference to 'Range Rover' and 'Aston Martin' upholstery (see Interior Designer's e-mails) is the case up to now. A further 10 samples of differing specification were offered, with pricing implications but no instructions yet received."

305. On 9 February 2007, WLC was still awaiting design decisions on leather stitching as confirmed in its e-mail of that date to Adams Joinery. WLC reported to the site meeting of 20 February 2007 that installation of leather work generally was delayed and was outstanding. It is absolutely clear that by 18 February 2007 no decision had been reached in relation to the stitching because on that date Adams Joinery was providing quotations to WLC for three alternative types of stitch ("small hand-stitched, zigzag and looped"). On that date WLC produced a list of outstanding works which in relation to all joinery in the library said that it was "awaiting instructions the leather stitching. 10 further samples offered 5th February"; it was explained that once the stitching was accepted a price and programme would have to be offered. Adams Joinery e-mailed WLC on 19 February 2007 that the leather work would take 17 to 19 weeks to complete "once we have the green light". The costs and timetable were forwarded to BLDA on 24 February 2007.

306. At a meeting between the Mackays and their design team on 2 March 2007 it was recorded that Mr Mackay would "call a separate meeting to discuss the Library shelving stitching" and would send BLDA "a picture of the effect desired", it being recognised that the "stitching detail also affected the low wall panelling." An explanation for the lack of urgency on the part of the Mackays is that some consideration was being given at least by Mr Mackay to omitting the Leather in the Library from WLC's scope.

307. On 8 March 2007, WLC wrote to BLDA stating that it still had "no instruction to date in respect of this leather"; they referred to the fact that the leather work would not be complete until 20 July 2007 if an instruction had been received by 2 March 2007; it said that this was a Relevant Event under Clause 25 of the Contract and requested an extension of time with costs. This date would need to be adjusted in the light of the actual instructed date. On 14 March 2007 Adams in relation to the Leather Stitching stated that preliminary costs based on a 23 week programme would be £41,330 and that the work if instructed by 19 March 2007 would be complete on 30 July 2007.

308. A meeting between the Mackays, Bev and BLDA held on 19 March 2007 recorded elements of the agreement between them as to what should be required in relation to the leather. Thus, the faces of the shelves were to have a single machine stitch on long panels with black stitching, the junctions between the hides on long shelves should be minimal (stitched through on the back with a single crease and no thread showing) and that it should be "backed with a bumping" and that the lower panels should have no seams if possible. At a site meeting on 20 March 2007, Mr Joyce was told by

BLDA that it was still discussing the leather stitching with Mr Mackay and Mr Joyce reiterated that an extension of time should be granted in relation to this item.

309. On or about 20 April 2007, at BLDA's request, Adams Joinery produced a further sample for approval. This sample was presented at the site meeting of 23 April 2007 which was attended by Mr Mackay. The minutes record that it was agreed "that the stitching was not acceptable as it was not straight" but BLDA "explained this is a difficult effect to achieve because the leather needs to be stitched first then stretched across the shelves across the bumping." It was also recorded that "the leather is very soft so the parallel lines are easily distorted" although Mr Mackay stated "that he has seen examples of this done successfully". It was agreed that a meeting should be organised with Courtney to discuss the technical solution. That meeting took place on 26 April 2007 attended by Courtney, Adams Joinery, WLC, BLDA and Bev; they looked at a sample which Mr Mackay had provided and there was agreement that it was not relevant; however having discussed the matter in some detail it was resolved that Courtney would produce one more sample. For instance, there was agreement that to avoid a raised seam effect the timber shelf underneath was to be grooved to take the double thickness of leather at joints. It was clear, as confirmed as a client site walk around meeting on 2 May 2007 decisions for the manufacture of leather panels to the Lower Hall were dependent on approval of the leather stitching.

310. The further stitching sample was presented to Mr and Mrs Mackay at a client site walk around meeting on 16 May 2007. They confirmed that a sample with cream stitching was acceptable (it previously having been indicated that black stitching was more acceptable); the use of a thicker thread was to be looked into.

311. On 22 May 2007, Adams Joinery indicated that its programme in the light of the approval would involve completion of the leather work by 3 September 2007. On 29 May 2007, WLC on a Question and Answer Sheet sought a decision as to whether the price for the leather to the Lower Hall Lobby (£9112.17) was accepted. Mr Mackay was reticent about accepting this.

312. On 1 June 2007, Mr Joyce of WLC wrote to BLDA indicating that Adams Joinery would have difficulty in completing the leather work by reason of incomplete works from directly employed sub-contractors. It was recorded at the Client Site Walk Around Meeting of 6 June 2007 that Adams Joinery would complete the joinery in the Library by mid September 2007.

313. On 19 June 2007 BLDA issued AI471C instructing leather works to the Lower Hall lobby. WLC instructed Adams accordingly on 22 June 2007 and it is clear that this was tied in with the Main Order to Adams Joinery. As confirmed by WLC's Q&A Sheet No. 1677 the supply and installation of this additional work required a 14 week period, resulting in the leather to the Lower Hall lobby forecast to be complete by 25 September 2007. Following a 2 week period to complete any snagging work this would indicate an overall completion of the leather work to this area in early to mid October 2007.

314. On 23 July 2007 AI 481C was issued requiring additional works in connection with an additional air duct to the Library fireplace; this had been presaged at the Walk Around Site meeting on 18 July 2007. Adams was instructed accordingly by WLC on 27 July 2007. The first delivery of leather joinery for the Library arrived on site on 15

August 2007. As a result of the additional AI 481C, WLC was anticipating completion of the leather joinery in the Library by the end of the first week in October 2007.

315. Mr Joyce gave substantially unchallenged evidence that the leather work in the Library and the Lower Hall Lobby was in practice dealt with as one commission by Adams Joinery, which is not surprising given that the leather was the same, even if stitching was not required for the Lobby area. He also gave unchallenged evidence that the Leather work was delayed whilst a decision was made by the Design Team in relation to the number of panels to the sliding door between the Lobby and the dining area; these works were done between 4 and 18 September 2007. Work was further delayed as a result of the need to install a fresh air duct behind the Library joinery, this work was not completed until 6 September and affected the installation of the shelving. A further design change affecting joinery installation in the library was that instructed by AI510C on 4 September 2007 which resolved a design clash between a bulkhead and the higher level leather clad shelving. A further variation contained in AI508C received by WLC on 19 September 2007 required the installation of a frame to a ceiling ventilation grille which impacted upon the library shelving.

316. WLC's Site Diaries confirm that Adams Joinery was carrying out the works to the Leather Library shelving up until 26 October 2007 at which point this work seems to have been completed. Adams then completed the leather panelling to the Lower Hall Lobby.

317. There was no complaint by BLDA that Adams Joinery was in any way culpably in delay in or about its performance of the Leather in the Library procurement or work. Indeed, from about April 2007 onwards, there was no complaint by the Mackays as such about delay on the part of Adams Joinery thereafter in relation to this work.

318. One first needs to analyse whether WLC had any design responsibility transferred to it in relation to the Leather in the Library. For reasons already given in relation to ABW, there was no such CDP transfer to WLC; nothing in the history of events relating to the introduction of the Leather in the Library suggests any such transfer. WLC as between it and DMW had no such or any material design responsibility. Even if there was an obligation imposed on Adams by WLC to "complete the design/detailing" of this Leather, that would not create some sort of design responsibility as between WLC and DMW. In any event, the Leather work was excluded from the Adams Joinery quotation which WLC was instructed to accept and it only came back into the equation by way of a relatively informal variation arrangement; in relation to the Leather in the Library (as opposed to the Lower Hall Lobby), there was no formal Architect's instruction, albeit there is no issue that WLC was asked to instruct Adams Joinery ultimately to do this work.

319. I am wholly unconvinced that, even if WLC had an obligation to DMW to "complete the design/detailing" of the Leather in the Library, that would include deciding what leather to use or indeed what type of stitching to deploy. Those were essential elements of the design, which, once decided upon by the Mackays, Bev and BLDA, would remain to be completed.

320. Because WLC had no or no material design responsibility for the Leather in the Library, any delay in the selection of the leather or the stitching regime was not the

responsibility of WLC. Even if and to the extent that Adams or its upholsterer sub-contractor, Courtney, were involved in the process of selection, any delay or incompetence on their part in that process would not be the contractual fault of WLC. To the extent that BLDA and Bev decided to use Adams Joinery and Courtney to help them assist Mr and Mrs Mackay in their selection of leather and stitching, that was their choice.

321. In any event, I am satisfied that in all probability neither WLC nor Adams Joinery nor Courtney delayed matters in relation to the Leather in the Library. They had no responsibility at all prior to March 2006 when the sub-contract between WLC and Adams Joinery was entered into. They had no responsibility indeed until about August 2006 when it could first legitimately be said that WLC was instructed, albeit informally, to go ahead with instructing Adams Joinery to proceed with the Leather in the Library.

322. Even if there had been some responsibility earlier, I have formed the overwhelming impression that the delay was all on the side of the Design Team and in part on the Mackays themselves. Whilst it is true that Mr Mackay had indicated to Bev that he had approved in mid-2005 what Bev had shown him, there is no indication that this was passed on to Adams Joinery or indeed to WLC. Indeed, all the documents produced (such as the Elemental Descriptions) were telling WLC that the type and detail of the Leather was "to be confirmed". There was no Interior Designer specification which identified the type of the leather or the type of stitching, at least which was produced to WLC. It is clear that going into 2006 the Design Team was worried about cost and tried to secure from Adams Joinery prices for other leathers. It was only in August 2006 that the Mackays and the Design Team indicated to WLC that they had selected what turned out to be the eventual type of leather to be used.

323. There was no specification for the type of stitching initially and Bev appears to have taken it upon himself to talk to Courtney in November or December 2006 as to what might be appropriate. There was then essentially a development primarily by Bev, albeit occasionally consulting with the Mackays, of an understanding of what might be not only acceptable to the clients but also practicably achievable. In effect, Bev largely but to a lesser extent BLDA were working out what they (together with their clients) wanted. This included consideration of different types of stitching detail and the provision of padding under the leather. This process went on up until May 2007. DMW suggests that the delays up to May 2007 were largely attributable to the production by Adams Joinery or Courtney of "unacceptable" samples. Whilst it is true that most of the earlier samples were not accepted by Bev, BLDA or the Mackays, that does not mean that they were or were necessarily sub-standard. There was simply, in my judgement, an evolving design process by which the Design Team and the Mackays got to a point that what was eventually produced in May 2007 was acceptable to them, aesthetically and practically. The whole process was in any event confused by changes of mind on the part of the Mackays, not the least of which was the requirement that the stitching should be like that on leather seats in an Aston Martin or Range Rover car.

324. Once the decision was made to go ahead with the selected leather and stitching in May 2007, I am satisfied that WLC and Adams Joinery proceeded with all due diligence in connection with the Leather in the Library. From May 2007 through to 26 October 2007, they went as expeditiously as was reasonably possible.

Plasterwork

325. This issue relates primarily to plasterwork which was found to be defective mainly in about February 2007 and which was put right over the next 3 to 4 months. It is said by DMW that it was the need to put right such plasterwork which was the cause of delay initially during this period. This issue does not involve the consideration of design issues.

326. It is common ground that two specifications issued to WLC by BLDA are applicable, K10 "Plasterboard dry linings/partitions/ceilings" and M20 "Plastered/rendered/roughcast coatings". These were based on generic National Building Specification documents. They distinguished between skim coated plaster on plasterboard and thicker plaster coatings on blockwork or concrete walls or columns. In relation to plaster on plasterboard, K10 provided for "permissible" deviation across joints of 3 mm, external angles of 4 mm and internal angles 5 mm (Paragraph 650a); for the "skim coat plaster finish" of a thickness of 2-3mm, the finishing was to be "Trowel/float to a tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks".

327. As for M20, the plastering of masonry backgrounds is specified in Paragraphs 210a, b and c. The plastering was to comprise 13mm Thistle undercoat with a 2mm Thistle finish. Where the background substrates were dissimilar there were to be two 8mm coats of Thistle Bonding Coat over lath with a 2mm Thistle finish. Concrete surfaces were to receive an 11mm thick Thistle Bonding Coat undercoat and a 2mm Thistle finish. Paragraph 710a defined general standards applicable to all wet plastering as follows:

> "Application Generally:...
>
> Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, reduce, cracks and crazing
>
> Accuracy: "Finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square."

328. Paragraph 715a specified the degree of surface flatness generally as follows:

> "Deviation of plaster surface: measure from underside of a straight edge placed anywhere on surface – permissible deviation (maximum) for plaster not less than 13 mm thick: 3 mm in any consecutive length of 1.8 m".

A series of clauses specify the particular requirements for certain locations and backgrounds. So far as the finish is concerned, the requirement is (with one exception) stated to be: "Smooth as clause 777a" which provides that:

> "Appearance: A tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks. Avoid water brush, excessive trowelling and over polishing."

For one particular location, namely concrete walls around service stairs, Paragraph 210c also provided that:

> "Extreme care is to be taken to ensure that all surfaces reflect the design intent with smooth and accurate transition between any adjacent radius dimensions and surfaces are perfectly flat and vertical."

329. Thus, NBS M20 deals with internal plaster coatings. It provides particular specifications related to specific backgrounds and specific locations. It deals with thick coatings (exceeding 13 mm thickness) onto solid backgrounds as well as skim coatings onto plasterboard backgrounds. Paragraph 715a specified the maximum permissible deviation for plaster not less than 13mm thick, namely 3mm in any consecutive length of 1.8m. There was no definition of dimensional limitations or any defined tolerance limits as to the deviations in the surface for thin coating work (i.e. under 13mm thick), such as would apply to skim coating of plasterboard, covered by K10.

330. WLC believed that a high quality finish was required. There was an exchange of correspondence between Simon Spiers (WLC) and Andrew Crispin (WLC) on 22 and 23 September 2005 concerning an appropriate contractor. In his email dated 22 September 2005, Mr Spiers asked Mr Crispin:

> "...Apart from David Andrews do we have a plastering sub-contractor who can provide the quality required on this project along with the workforce to cope with these three houses?"

In his reply dated 23 September 2005, Mr Crispin said:

> "Given the quality required and the output/volume required, I maintain we can only propose one subcontractor – David Andrews. I suggest you email the whole Client team advising them that we are only aware of one plasterer who can achieve the quality required, given the volume, sequence and time restraints. Ask them to put forward names within 2 working days who we can talk to and obtain references on.
>
> Failing that we tender to one contractor!"

331. A problem with the quality of the plasterwork first became apparent in November 2006. Mr Mackay said that the issues with the plastering first became apparent when he was asked to look at the completed flooring in the drawing-room. Although the flooring looked "great", his eyes were drawn to the plaster finish on the walls which to him looked appalling. He reported what he saw in an email to BLDA and others on 27 November 2006. Bev wrote to BLDA on 24 November 2006 that:

> "Further to my walk around with Giles earlier today I would like to confirm and comment on the following:
>
> 1. Sub standard plastering to the drawing room. I gather that Walter Lilly were already aware of this and are proposing to re-skim. However does this have any knock-on effect in time. Can we room by room (rooms where the spray coat has been applied) have a walk about with the lighting on to check the quality of the plaster. This will enable us to cross check that WL are aware of such issues?..."

BLDA responded on 28 November 2006 stating that the plastering in question had been observed and had already been condemned. They said that the repair work was being delayed in order to avoid delaying completion of the flooring.

332. The plastering works at Plot C were at least nominally completed in early 2007. However, on 9 February 2007 Mr Mackay visited the site and walked around most of the rooms in the house and complained about sub-standard plaster in almost every room; he emailed Bev on the same day:

> "I understand that some rooms are to be handed over for snagging next week. I cannot see the point in this whilst as far as I can see every room in the house has defective plastering. The corner/angles are not straight or square and the walls are not flat.
>
> The coffers are not true and in some cases the ceiling details are lower on end from another – all of this is not acceptable and will be rejected."

333. On 21 February 2007 Mr Martin Walker (SLW) sent an email to Mr Ron Bates (WLC) saying:

> "The clients have expressed grave concerns about the quality of the plaster finish to walls and ceilings, they have made it clear that they are dissatisfied with the current standard of workmanship, and remedial work is necessary."

Mr Bates forwarded the email to the WLC team the same day saying that 'it needed their action, mindful of the specification we are working to achieve.'

334. On 27 February 2007 Mr Mackay provided his comments on the minutes of the site meeting held on 6 February 2007:

> "3.04 We visited the site on 10.02.07 last week – the house was a complete mess – with joinery still being cut in several of the rooms and plaster being mixed in various areas – I had a conversation with the site manager about it and sent an e-mail. The house is nowhere near complete – amongst other things – the plasterwork in every area is defective for a job of this quality and "price"…"

By letter dated March 2007 to WLC, Knowles stated that the employer would deduct some £104,000 in respect of defective plaster throughout the house.

335. On 8 March 2007 RLB sent an email to BLDA:

> "...both sides of the wall to the studies are not acceptable due to excessive making good (patches), excessive undulations (despite perhaps being within tolerances) and the loss of bond to the plaster (hollowness).
>
> Ian (Symes) (BLDA) and I spent a considerable time yesterday checking most of the walls in Plot C and he is to send me a note today of those that were outside tolerance or otherwise defective and therefore not acceptable....
>
> The schedule of defects should be sent directly to WLC for their immediate attention."

The results of Mr Symes' inspection were contained in a report dated 7 March 2007 and he found defects in the rooms surveyed. The survey was discussed at a Client Meeting on 14 March 2007. It was recorded that:

> "5.02 David Lloyd-Davis confirmed a snagging list for the majority of the plaster walls in Plot C had been issued. Vernon Bardsley and BLDA had examined these walls together. VB was concerned that BLDA were not using a straight edge. DLD did not agree and said that he himself had used a straight edge in one session.
>
> 5.03 Giles Mackay was concerned that the piecemeal way WLC were trying to patch up the plaster was not working and was only delaying more effective remedial work. DLD confirmed that he had warned WL that the method they were using to repair small areas of undulation was not helping and creating more problems.
>
> 5.04 DLD explained that the Architect could not dictate how remedial work should be done, but could only say if it was acceptable or not acceptable."

336. It is clear that BLDA at least considered that the plastering defects required WLC's attention as is evident from its email to WLC that was circulated internally, on 14 March 2007:

> "…Can we meet at Lots Road and have a practical session as to how you intend to complete the houses.
>
> At the moment we have no clear idea of your programme and need certainty. I also need to understand how you intend to put right the defects in the lift shafts and the plastering being the most difficult to resolve"

337. However, what WLC (Messrs Howie and Joyce) were contending was that, while there were some defects (which had begun to be repaired), there was substantial compliance with the specification. BLDA went some way to agreeing this in that it applied the same tolerance standard as that suggested by WLC, namely deviations not exceeding 3 mm in any consecutive 1.8 m direction were acceptable (as referred to in a report of Knowles dated 6 March 2007). It is also clear that even Knowles considered that the plastering defects said to exist in the coffered ceilings were exaggerated. BLDA said at the "Snagging and Outstanding Work" meeting on 6 March 2007 that Mr Lloyd Davis had seen many of the rooms and that "many may be within the specification and that the problem areas may be caused by visual deceptions relating to viewing angles"; he went on to say "there are two problems making it worse than it appears. The first coat of brush applied paint is naturally patchy and catches the light differently, and second, the fine finishing filler is being applied with a metal edge"; he suggested that a plastic edge be used. By 20 March 2007, Mr Joyce reported to a Progress Meeting that the remedial plasterwork had been finished and that the walls were within tolerance.

338. The differences between the parties are reflected in an e-mail sent by SLW on 26 March 2007 to Mr Ron Bates of WLC in which he said:

> "As you may know I met on site in Plot C drawing room with John Howie, David Lloyd Davis and others today primarily to establish if we could come to agreement on the quality issues in respect of the plastering.

> I was disappointed that John was not prepared to engage in positive discussion and relied on the empirical test of tolerance contained in the specification without apparently taking note of the visual criteria. John's suggestion that the specification provided for no greater quality than that found in commercial premises was particularly worrying.
>
> Whilst it was pointed out that some of the plaster repairs still did not meet the tolerance John simply noted that snags were not complete and not ready to be offered for re-inspection. When asked when the snags would be complete and ready for re-inspection John was unwilling or unable to advise a timeframe. John was also unable to advise when the reports on the plaster quality commissioned by you weeks ago would be available.
>
> Further, in response to my question as to when all the WLC works would be complete in Plot C, apart from those areas/items awaiting information, John was again unwilling to commit. Indeed he went on to say why should WLC "bust a gut" to finish the works when information remained to be provided and we should wait until WLC have completed all their work before critiquing it
>
> My suggestion, repeated many times before the WLC should mitigate some of the delays by fully completing all the work they are able and "locking the doors" again appeared to fall on deaf ears..."

339. Mr Joyce explained in evidence that WLC felt that BLDA were unreasonably snagging the plasterwork. They therefore called in an independent expert, namely the Federation of Plastering and Drywall Contractors technical panel who, after inspecting all of the rooms, reported on 20 March 2007 that the standard of dry lining work was of a "commercially acceptable standard" and recommended that the work be accepted by all parties as such. The report also said that the work was found "to be of a high standard" and that it was in effect visually acceptable.

340. BLDA maintained that WLC seemed to be ignoring the specification requirements both as to visual quality and as to flatness. Thus, for example, in a handwritten note of a meeting held on 21 March 2007 (and not attended by WLC) it is recorded that: "DLD and VB have looked at the plaster in Plot C – WLC say they have finished the remedial works but this is clearly not the case. WLC seem to be taking the stance that the walls are within tolerance but DLD says the specification also has requirements with regard to aesthetics."

341. Similarly, in an email to Mr Mackay dated 30 March 2007, Mr David Lloyd-Davis said that:

> "The visual quality of the plaster is referred to in our specification as well as a qualitative requirement for flatness. The specification is not that for "commercial premises". In addition to the specification, at tender interview, WLC were made very aware by Second London Wall and BLDA of the quality expected on the project…"

This was however in response to an e-mail from Mr Mackay which complained that the specification put forward by BLDA was deficient.

342. By letter dated the 30 March 2007, WLC wrote to Knowles complaining about the withholding of monies amongst other things in relation to the plaster. It asserted that

the great majority of the plasterwork had been executed in accordance with the contractual requirements but it did accept that there were a small number of areas identified (in conjunction with the architect) where the quality did not achieve the specified standard.

343. Meanwhile, Knowles on behalf of Mr Mackay had retained surveyors called Chantons in March 2007 to survey the premises. On 3 April 2007, Mr Mackay demonstrated in an e-mail to Knowles that he was taking a very personal interest in the exercise involving Chantons, in particular in relation to a meeting several days later; specifications should be got together "so we can prove the defects"; he called for lights on site to shine at the walls to "help show up these defects", ending up that this was "our best chance to nail this once and for all". On 5 April 2007 there was a site meeting at which two setting out engineers from Chantons were present. Mr Joyce recalled in evidence that Mr Mackay claimed that all of the plastering in Plot C was defective and that he instructed one of the setting-out engineers to "prove" this by applying a carpenter's square to both internal and external corners. He says that he was asked by Mr Mackay to agree that the plaster was "defective" but he refused to do so. There was then another meeting at which Mr Mackay was not present (attended by Mr Joyce, Mr Bates and Mr Rough for WLC and Mr Bardsley of RLB) at which Mr Joyce demonstrated the correct way to measure the surface tolerances of plaster. There is little doubt that a large majority of items previously identified as defective were found to be within the acceptable tolerance. However an agreed method for a detailed plastering survey was agreed on and the following week Chantons went through the house and physically marked on the walls those areas which were out of tolerance, by reference to the agreed method.

344. On 12 April 2007 there was another meeting attended by the same people but Chantons' representative put an alternative set of findings based on its interpretation of the specification; Mr Joyce however believed that that was an incorrect interpretation as he believed that they were not measuring the plaster in accordance with the British Standard or using the approved measuring equipment. However, what was done was to identify and mark on the relevant walls with tape the relatively few areas of plastering which were outside the agreed tolerances. Knowles wrote an e-mail on 18 April 2007 to Mr Mackay attaching what was said to be the agreed survey schedules which identify just over 40 relatively small areas of plasterwork. However, this document was never issued as such to WLC; it is curiously dated 19 October 2010 and it is likely that it was never issued to WLC. Mr Joyce said and I accept that the plastering defects marked out on-site were not very widespread and there were not many of them; he said that they were "just localised very small areas" and it did not take WLC very long to do the relevant remedial work.

345. It is common ground that all or least the large bulk of the identified defective areas of plasterwork (as marked on the walls) were put right by about the end of April 2007. For instance at a Client Site Walk Around meeting on 23 April 2007 Mr Mackay agreed that the remedial work on the third floor looked better, albeit that he said that it required more work to be done to bring it to an acceptable standard. The work in question was substantially completed by 25 April 2007. It does appear that there were one or possibly two minor areas identified on 9 and 16 May 2007. It appears likely that several other minor plastering deficiencies were noticed in November 2007 albeit it is probable that they were put right.

346. It is worthwhile observing both that the perceived problems with the plastering defects arose very shortly after Mr Mackay had retained Knowles and had embarked upon the strategy to put pressure on particularly BLDA and WLC and that it was he, Knowles and RLB who took the lead in complaining about the plasterwork defects. There can be no doubt that there were some defects but it is equally clear that they were exaggerated. I do not suggest that Mr Mackay deliberately and dishonestly exaggerated the extent of the defects but he was much too quick off the mark to criticise WLC. He was not supported wholly by his own architect in these criticisms. The truth is that ultimately, upon advice, he accepted that the specification drawn up by his own Design Team did not provide as high a quality as he might have expected for the plasterwork; it may be that the Design Team can be criticised for that and for producing a more "commercial" level of specification. He was also prepared to accept the accommodation reached between Chantons, RLB and WLC in April 2007 whereby only the areas marked by tape on the walls (and possibly ceilings) were to be put right.

347. In my judgment, the plastering problem identified primarily between February and April 2007 was and turned out to be a very limited one which was put right within a short time. As will become apparent in considering the question of extension of time, I cannot begin to see how this relatively minor problem either did cause or could realistically be seen to have caused any overall delay.

348. There are said to be some subsisting defects upon which Mr Josey reported in his first report. However, in this context the Architectural experts are agreed that as to cracking in finishes as noted, these are such that might occur during the defects liability period as a result of drying out and shrinkage and would be resolved as part of the contractor's normal defects liability duties. They do not indicate a deficiency in construction. As to the crack in “His Study”, this is likely to have occurred as a result of blockwork shrinkage and remedial work would entail cutting out the plaster along the cracked line, filling/grouting the block work crack, fixing reinforcement mesh and reinstating plaster locally. In those circumstances, I do not consider that there is any liability on the part of WLC.

Snagging

349. The issues about snagging relate on analysis to two periods, February 2007 to about March 2008 (whilst BLDA was still engaged) and April to July 2008. Their main relevance lies in whether or not the snagging operations caused any overall material delay.

350. There is no doubt that BLDA and WLC considered in late 2006 and early 2007 that, all things being equal, there was a reasonable prospect of achieving Practical Completion in the early part of 2007. It is clear from earlier in this judgement however that it was understood that there were elements of the works that were not going to be complete by such an early stage. Indeed, as 2007 went on, for instance with the Leather in the Library and the Light Wall, it must have been clear to all that Practical Completion would be later rather than sooner.

351. Part of the anticipation that Practical Completion would be achieved early in 2007 was based on Mr Mackay’s declared assertions that he did not wish WLC to carry out any other previously uninstructed work and that he or DMW would be instructing

directly employed artists and tradesmen thereafter. Mr Howie said in evidence, which I accept, that the building to all intents and purposes looked complete by the middle of February 2007, that remaining major works such as outstanding external works had been omitted and that many of the otherwise outstanding works such as the Light Wall, the swimming pool and cinema ceilings and Stingray doors were all driven by the need for the Design Team to resolve design issues. This explains why it was resolved that the snagging process started as between BLDA and WLC in late February 2007.

352. The snagging process effectively involved WLC preparing a given area for snagging and inviting BLDA to come in and identify what remained to be completed or put right. BLDA was to produce a list for that area and WLC and their sub-contractors would then work through that list and finish or put right the listed items. This was to be repeated for all of the rooms.

353. At a site meeting on 6 February 2007, Mr Joyce agreed with BLDA that snagging must commence as soon as possible but he said that it would have to take place elementally because there were unfinished and delayed items in most rooms. On 8 February 2007, Mr Joyce wrote to BLDA offering Plot C as likely to be practically complete on 16 February 2007 and asked for an inspection for 19 February 2007. WLC wished to undertake an elemental snagging process and he confirmed that this would commence in conjunction with BLDA on 12 February 2007. BLDA's response on the same day was that there were no areas which could be snagged. Notwithstanding this, Mr Syme of BLDA issued Preliminary Snagging List No 1 on 23 February 2007.

354. Over the following months in 2007 more detailed snagging lists were provided and it is clear that a substantial number of the individual snags were put right. It is also clear that, almost without exception, the identified snags, although numerous, were minor, consisting of loose screws, dirty marked surfaces or poor paint finishes and the like. It is unnecessary and undesirable to examine these hundreds of items in any detail. There is no suggestion that that any one of the listed snags was particularly serious and there is no doubt that they could all have been put right promptly and expeditiously. However, as the earlier and later parts of this judgement make clear, there still remained throughout 2007 substantive work which remained incomplete; this for instance included the Light Wall, the Barrisol ceilings, the Leather in the Library and the Stingray doors. As 2007 went on, it was and must have become clear that, irrespective of the snagging which was being identified and was being put right, the Works would not be achieving Practical Completion by reason of other matters.

355. There were in addition other issues between the parties relating to snagging. As 2007 went on, there was an increasing number of directly employed artists and tradesmen working for Mr and Mrs Mackay on the site and there can be little or no doubt that their presence contributed to the amount of snags which had to be addressed, albeit that the impacts in 2007 were limited. Nonetheless, I accept Mr Howie's evidence that their presence disrupted the snagging process in 2007; he said for instance that BLDA had difficulties in snagging because artists and tradesmen were in the way and protection provided by WLC to its finished work was preventing them from getting on. Additionally, there was some dilatoriness on the part of BLDA in its participation in the snagging process; they engaged an independent consultant, Mr Syme, to do this exercise and it is clear that he was seriously overstretched both in terms of time and

also because he had not previously been involved significantly in the project; this was highlighted in a letter of Mr Howie to BLDA of 19 September 2007.

356. Mr Howie attached to his first statement a detailed analysis (Exhibit JCH1) of the snagging lists (issued in 2007) and when each snag was attended to. He also classified the snags in to categories: "Not a defect" (120), "Not WL - Out of Contract" (104), "Not WL – Damage by A&Ts" (4), "WL but de minimis" (1193), "WL not de minimis" (38), "Info required to complete" (57) and "Already PC (staff areas)" (138). He identifies a total of 1654 snags. Whilst it is possible that this classification is not 100% accurate, I am wholly satisfied that it is broadly accurate. The largest category (the WLC "de minimis" work) was such that I am satisfied that but for the other problems the snagging operation in 2007 did not materially or at all impact upon the overall completion. This is because I have no doubt that if the snagging was the main and critical item of work left to be completed it would all have been resolved in all probability within several weeks at most. In so far as there is any criticism in relation to the other heads, it is not valid for the reasons given by Mr Howie.

357. Although Mr Howie was challenged to a very limited extent about JCH1, DMW (particularly Mr Mackay) and to a lesser extent its Counsel waited until the final written closing submissions to produce a detailed analysis of the lists and of Mr Howie's work on the lists. This involved a more detailed analysis of the WLC diaries. However, Mr Mackay's extensive work and many of DMW's Counsel's observations were simply not put to Mr Howie. It is generally unacceptable and undesirable, if any significant points are to be made on the evidence in closing, for key elements not to have been put to the relevant witnesses on the other side. It means that Mr Howie did not have the opportunity to react to any such points and it strongly gives the impression that the points only taken in the closing submissions were either not considered at all before the end of the evidence or have simply arisen as afterthoughts on what might have been the case. In this case, DMW's Counsel accepted that Mr Mackay's analysis attached to the closing submissions was in part materially based on documents which were not in the Court bundles. This again is very unsatisfactory. It leads me to the view that I should attach very little weight to this analysis. Insofar as DMW is simply making the observation (which it does) that in 2007 and early in 2008 few of the snags were attributable to damage or incompetence on the part of directly employed artists and tradesmen, I have broadly already accepted that and, indeed, Mr Howie's own analysis shows only 4 of the 1654 snags were attributable to damage by them.

358. It is common ground that the number of snags had reduced substantially by the end of 2007 (in December 2007 there are only some 69 snags). By the time that BLDA left in March 2008, a further 130 snags were identified.

359. In relation to snags in 2008, it is clear, and I accept that throughout the period from about January through to July 2008 there was a much greater impact on WLC's snagging operations as a result of the activities of the directly employed artists and tradesmen. The essence of what both Mr Joyce and Mr Howie say is that there were substantial numbers of workmen engaged by such artists and tradesmen and that they were substantially responsible for many of the further snags listed in 2008, initially by BLDA but after their dismissal later by or on behalf of Navigant. Navigant employed a firm called Hickton to do the snagging exercise. Mr Howie produced a further analysis (JCH2) of the Hickton snagging lists which showed that of the 1696 items

listed, 1048 were attributable to directly employed artists and tradesmen, 145 required instructions from Navigant, 67 involved damage by others and only 436 (26%) needed to be addressed by WLC. WLC's evidence, which I accept, was that matters which were the responsibility of WLC (which were extremely minor) were addressed promptly but their progress was impacted by all the other snagging work which was not its responsibility. There was and is a somewhat sterile debate on the evidence as to how many directly employed artists and tradesmen were on site. It is unnecessary to decide precisely how many but it is absolutely clear that there were a substantial number in 2008 in the period leading up to certified Practical Completion.

360. I accept Mr Howie's evidence and analysis in relation to the Hickton exercise. He said under cross-examination that his analysis was based on what was essentially agreed between Mr Gad of WLC and Hickton at the time. This was based on an Excel spreadsheet compiled by Mr Gad from the lists produced by Hickton onto which he put his comments as to who was responsible, these then being sent back to Hickton and Navigant, who agreed them. He said in evidence that it was "absolutely definitively agreed". He was not challenged in any material way about the contents of his second exhibit and he was convincing. The efforts made by Mr Mackay in his extensive A3 analysis (attached to his Counsels' closing submission) to seek to undermine that are wholly unconvincing because he was not directly involved in the snagging process; DMW decided not to call anyone from Navigant or Hickton as a witness. At most, Mr Mackay has simply tried on some ex post facto and second or third hand basis to try to undermine what Mr Howie has said. That is essentially an exercise to which I can give little weight.

361. I will deal with the impact of the various snagging exercises on completion in the next chapter of this judgement which deals with extension of time.

Extension of Time

362. It is first necessary to consider what the Contract between the parties requires in relation to the fixing of an appropriate extension of time. Whilst the Architect prior to the actual Practical Completion can grant a prospective extension of time, which is effectively a best assessment of what the likely future delay will be as a result of the Relevant Events in question, a court or arbitrator has the advantage when reviewing what extensions were due of knowing what actually happened. The Court or arbitrator must decide on a balance of probabilities what delay has actually been caused by such Relevant Events as have been found to exist; that is by analogy to the exercise that the Architect has to do within 12 weeks of Practical Completion under Clause 25.3.3. How the court or arbitrator makes that decision must be based on the evidence, both actual and expert.

363. Clause 25.3.1, which deals with extensions of time being granted prior to Practical Completion, clearly envisages that the extension must relate to the extent to which "completion of the Works is likely to be delayed" by the Relevant Event or Events. The extension to be granted within 12 weeks after the date of Practical Completion (Clause 25.3.3) is to involve the fixing of a Completion Date which is "fair and reasonable having regard to any of the Relevant Events". Reading the two sub-clauses in context and together, they essentially mean the same thing. If at the latest stage it is clear that the Relevant Event in question has actually delayed the Works by, say, 10

weeks, it would be an extraordinary state of affairs if the extension of time then granted as fair and reasonable was anything other than 10 weeks.

364. In **Balfour Beatty Building Ltd v Chestermount Properties Ltd** (2003) 62 BLR 1, Mr Justice Colman had to address several issues (under a JCT contract in similar form to the Contract here) one of which was whether in granting an extension of time the Architect should grant as an extension only the number of days delay actually caused by the Relevant Event. The argument was run that, if towards the end of a period of culpable delay a variation order is issued which delays completion, the Contractor was entitled not simply to an extension for the period of delay actually caused by the variation but (by reason of its timing) to a full extension up until the time that the variation was executed. The learned judge said that the "net" method was correct. He said at Page 34:

> "Fundamental to this exercise is an assessment of whether the relevant event occurring during a period of culpable delay has caused delay to the completion of the Works and, if so, how much delay."

This is consistent with the wording of Clause 25 in this case.

365. In the context of this contractual based approach to extension, one cannot therefore do a purely retrospective exercise. What one can not do is to identify the last of a number of events which delayed completion and then say it was that last event at the end which caused the overall delay to the Works. One needs to consider what critically delayed the Works as they went along. For instance in this case, it would be wrong to say that the problem with the Courtyard Sliding Doors delayed the Works until it emerged as a problem in April 2008. Put another way, it did not delay the Works (if at all) until it emerged as a problem which needed to be addressed.

366. There has been a substantial debate between the parties as to how what is called concurrent (or sometimes concurrent and co-effective) causes of delay should be dealt with. This debate is only germane where at least one of the causes of delay is a Relevant Event and the other is not. It relates to where a period of delay is found to have been caused by two factors. Of course, the debate will depend upon the contractual terms in question but most of the debate in cases in this country and elsewhere has revolved around extension of time clauses similar to those contained in Clause 25 where the Architect has to grant an extension which is "fair and reasonable". The two schools of thought, which currently might be described as the English and the Scottish schools, are the English approach that the Contractor is entitled to a full extension of time for the delay caused by the two or more events (provided that one of them is a Relevant Event) and the Scottish approach which is that the Contractor only gets a reasonably apportioned part of the concurrently caused delay. The Scottish Approach is highlighted in the Inner House case of **City Inn Ltd v Shepherd Construction Ltd** [2010] BLR 473.

367. In **Henry Boot Construction (UK) Ltd v Malmaison Hotel (Manchester) Ltd** (1999) 70 Con LR 32, Mr Justice Dyson had to decide primarily whether an arbitrator had jurisdiction to deal with a defence by an employer that events such as variations and late information had not delayed the contractor but that other matters were causes of the delay. At Paragraph 13, he referred to some common ground between the parties:

> "Second, it is agreed that if there are two concurrent causes of delay, one of which is a relevant event, and the other is not, then the contractor is entitled to an extension of time for the period of delay caused by the relevant event notwithstanding the concurrent effect of the other event. Thus, to take a simple example, if no work is possible on a site for a week not only because of the exceptionally inclement weather (a relevant event), and if the failure to work during that week is likely to delay the Works beyond the completion date by one week, and then if he considers it fair and reasonable to do so, the architect is required to grant an extension of time of one week. He cannot refuse to do so on the grounds that the delay would have occurred in any event by reason of the shortage of labour."

It could thus be said that the learned judge was simply repeating the common ground between the parties rather than reach a considered decision on the issue. That said, the judge seems to have "run with the ball" in his second and third sentences and appears to have endorsed that common ground.

368. Mr Justice Edwards Stuart said in **De Beers v Atos Origin IT Services UK Ltd** [2011] BLR 274:

> "177. The general rule in construction and engineering cases is that where there is concurrent delay to completion caused by matters for which both employer and contractor are responsible, the contractor is entitled to an extension of time but he cannot recover in respect of the loss caused by the delay. In the case of the former, this is because the rule where delay is caused by the employer is that not only must the contractor complete within a reasonable time but also the contractor must have a reasonable time within which to complete. It therefore does not matter if the contractor would have been unable to complete by the contractual completion date if there had been no breaches of contract by the employer (or other events which entitled the contractor to an extension of time), because he is entitled to have the time within which to complete which the contract allows or which the employer's conduct has made reasonably necessary."

369. In a shipbuilding contract dispute in **Adyard Abu Dhabi v SD Marine Services** [2011] EWHC 848 Comm, Mr Justice Hamblen quoted as good law what Mr Justice Dyson said at Paragraph 13 in the **Henry Boot** case (above):

> "277. It is to be noted that this example involves a relevant event which caused a period of actual delay to the progress of the works – no work could be done for a week due to the weather. If that is established then the contractor is entitled to his extension of time even if there is another concurrent cause of that same delay. A useful working definition of concurrent delay in this context is "a period of project overrun which is caused by two or more effective causes of delay which are of approximately equal causative potency" – see the article *Concurrent Delay* by John Marrin QC (2002) 18 Const LJ No. 6 436.

370. In any event, I am clearly of the view that, where there is an extension of time clause such as that agreed upon in this case and where delay is caused by two or more effective causes, one of which entitles the Contractor to an extension of time as being a Relevant Event, the Contractor is entitled to a full extension of time. Part of the logic of this is that many of the Relevant Events would otherwise amount to acts of

prevention and that it would be wrong in principle to construe Clause 25 on the basis that the Contractor should be denied a full extension of time in those circumstances. More importantly however, there is a straight contractual interpretation of Clause 25 which points very strongly in favour of the view that, provided that the Relevant Events can be shown to have delayed the Works, the Contractor is entitled to an extension of time for the whole period of delay caused by the Relevant Events in question. There is nothing in the wording of Clause 25 which expressly suggests that there is any sort of proviso to the effect that an extension should be reduced if the causation criterion is established. The fact that the Architect has to award a "fair and reasonable" extension does not imply that there should be some apportionment in the case of concurrent delays. The test is primarily a causation one. It therefore follows that, although of persuasive weight, the **City Inn** case is inapplicable within this jurisdiction.

371. The delay experts did not agree about very much. What they did agree in their Joint Statement of 13 December 2011 was as follows:

> "4. It is necessary to analyse events primarily in the period after 16 February 2007 in order to assess the parties' respective contentions…as to the causes of delay during that period. However, in so far as events prior to 16 February 2007 also need to be examined in order to set the parties' contentions in their proper factual context then those matters will also be considered relevant.
>
> 5. It is important to have regard to the actual context in the period after February 2007, as opposed to examining events in isolation.
>
> 6. Very few programmes were formally issued by WLC after 16 February 2007. In particular there is no programme of all the works outstanding at that date which could sensibly be used as a baseline in a retrospective programme analysis. It is therefore not possible to carry out a "traditional" delay analysis which uses the Claimant's programmes to identify the critical path during the period after 16 February 2007 in the way one might normally expect. It will instead be necessary for the experts to form a view as to what were the critical (or driving) delays in the period after 16 February 2007 without the assistance which would normally be available from contemporaneously produced programmes.
>
> 7. Despite the lack of programmes in the post 16 February 2007 period, it ought nevertheless to be possible to form conclusions on criticality during this period, based on an objective view of the available evidence."

A note to Paragraph 6 refers to the fact that in May 2007 WLC produced a programme (revised from time to time thereafter) entitled "Target Programme for Recently Instructed Works" which did not identify other works going on or outstanding at the time. The experts considered that this programme did not provide sufficient foundation for a "traditional" programme-based delay analysis but Mr Robinson considered that it was nevertheless of some evidential value.

372. There was some disagreement between the experts as to what "Practical Completion" meant. In reality it means completion for all practical purposes and what that completion entails must depend upon the nature, scope and contractual definitions of the Works, as they may have developed by way of variation or Architect's

instructions. Clause 17.1 of the Contract Conditions simply requires the Architect to certify when he or she considers that Practical Completion has been achieved. There is common ground between the experts, and rightly so, that *de minimis* snagging should not be a bar to Practical Completion unless there is so much of it that the building in question cannot be used for its intended purposes. Dr Aldridge however goes further and suggests that Practical Completion requirements can be relaxed in effect by agreement between the parties; he is correct to this extent. In this particular case, DMW through its Architect was entitled to omit items of work and it must follow that once an item of work is omitted it is no longer part of the Works and the fact that it has not been done or completed thereafter should not hold up Practical Completion.

373. Both experts say that they have adopted an objective approach but Dr Aldridge accepted that there were subjective elements at least to some of the exercises which he did.

374. For reasons summarised earlier in the judgement, I found Mr Robinson to be at least in this case the much better expert. He adopted a much more objective approach than Dr Aldridge and was much more careful in accepting what his client had told him. Dr Aldridge's approach was, as he put it, to consider this question: "what were the most significant matters which, at any given time, were preventing practical completion from being achieved?" This on its face appears to be not an unreasonable question to pose but, in seeking to answer that, he proceeded in what was in many respects a subjective way. Thus, he suggested that the defective plasterwork (which was substantially addressed by WLC within a few weeks and well before numerous other items of work which were always bound to be completed months later) caused substantial delay on no basis other on analysis than it needed to be dealt with before Practical Completion could be certified. Again, he selected the problems with the Lift in 2007 as a major cause of delay in that year but this approach was wholly flawed for the following reasons:

(a) He tried to assert that the Lift problems were "significant" because by about March 2007 there was a possibility (and no more) that a 6 to 9 month operation of replacement might be required; this was clearly dependent on at the very least the lift shaft being materially out of vertical, which it never was and replacement was never done.

(b) He based his view in part on "significance" in effect on the strength of his clients' views at the time about how serious a problem it was. The reality is that WLC actually did a significant amount of remedial work and the eventual re-cladding work was in the overall context of the job minor work. The clients' views, leaving aside the fact that I have found them to be coloured (at least in the case of Mr Mackay), were found by the adjudicator at the time (whose view has not really been departed from in this case) to be grossly exaggerated and there had been a wrongful but substantial retention of money against this item.

(c) His view was also based in part on the physical impact on the upper floors of the work being done particularly in October and November 2007 on the re-cladding. He asserted, without any real factual basis, that this work would effectively have prevented completion of work on the upper floors. This was undermined by the facts that there was little work to be done in those upper floors

by WLC at or after that time (the bulk remaining to be completed in the basement) and that directly employed contractors and some workmen were able to and did get access whilst the re-cladding work was being done. Indeed, meeting minutes indicate that those attending the Client Site Walk Around meetings were able with reasonable impunity to get access to all floors throughout September, October and November.

375. Another serious flaw in the approach adopted by Dr Aldridge was his willingness to proceed on the basis that one could ignore a number of the possible causes of delay in so far as they affected work which might have been (but which was not) omitted by DMW or its Architect. By doing this, he felt able to seek to undermine various possible causes of delay as being causative because he could say that, if a particular item of work could or might be omitted, it could not be causing a delay. This was wholly illogical. If both parties were aware that the client was considering omitting an item of work (and as a result the Contractor did nothing on the item of work) and then it was omitted, then that may or may not cause delay depending on whether other items of work were dependent upon the omitted item of work being done. If only the client was aware that it might omit the item, whether it was eventually omitted or not, delay could still be caused if the Contractor's progress was delayed. If the item is never omitted and the Contractor has to carry it out, the Contractor may still be delayed not only by the need to execute such work but also by the delayed decision as to whether the work should go ahead or not. The reality check should generally be to consider whether or not the actual item of work which is said to cause delay was actually omitted or not.

376. The Court should be very cautious about taking into account, in the exercise of determining what delays were caused by what events, theoretical possibilities as to what one party or the other might have done (but did in fact not do). Thus, Dr Aldridge seemed to suggest that various items of work such as the Leather in the Library could be discounted in whole or in part as a cause of delay because it was possible that DMW might have omitted it altogether from the Works. In that example, of course, the Leather was not omitted. This possibility is and would be completely irrelevant to the exercise considering whether the Leather in the Library delayed the Works; it is not as if WLC was ordered to suspend work on the Leather in the Library.

377. Whilst ultimately it must be for the Court to decide as a matter of fact what delayed the Works and for how long, I was impressed by the way Mr Robinson approached the exercise and unimpressed by Dr Aldridge's approach in this case. What Mr Robinson did was to analyse on a month by month basis (broadly) from February 2007 onwards what was in reality impacting upon progress. What he sought to do was to identify as far as possible WLC's actual progress with the Works on a monthly basis and its planned intentions for executing the remainder of the Works.

378. Mr Robinson had regard to the likely longest sequence of the outstanding work on a monthly basis as being the primary pointer to what was delaying the work at any one time. This was a wholly logical approach and, indeed is the approach used by most delay experts when there is a usable baseline programme from which to work. The logic is simply that if there are, say, two outstanding items of work, A and B, and A is always going to take 20 weeks to complete but B is only going to take 10 weeks, it is A which is delaying the work because B is going to finish earlier; overall completion is therefore dictated by the length of time needed for A. Put another way, it does not

matter if B takes 19 weeks, it will be the completion of A which has prevented completion. Thus, if one is seeking to ascertain what is delaying a contractor at any one time, one should generally have regard to the item of work with the longest sequence. There was some sterile debate about whether Mr Robinson was adopting a purely "prospective" approach when he made it clear that "as a reality check" he had regard to what actually happened. There is in my view nothing wrong with such a "reality check". An example might be that, say in February 2007 WLC was saying albeit in good faith that an item of work would take 25 weeks from then onwards. If in reality it only took two weeks, one would need to have regard to the efficacy of the earlier statement that it would take longer. Therefore it is necessary to have regard to how long individual items actually took to perform and not just have regard to what one party or the other at the time was saying it would take.

379. In the assessment of what events caused what overall or critical delay, one needs also to bear in mind that it is not necessarily the last item or area of work which is finished last which causes delay. Thus, often on building projects, the last item of work is the final clean up of the site. That may only take two people one day to do but it is (almost always) the job which must be done on the last day of the job. It is what delays that final operation which in itself takes no longer than it was always going to take which must be assessed. This is of some importance in this case because it is argued that snagging (or an excessive amount of it) itself delayed the project. It is, rightly, common ground that snagging always has to be done because, with the best will in the world, there will be minor deficiencies, blemishes or incomplete items of work which will be required to be completed before hand over. Obviously, if there is an excessive amount of snagging and therefore more time than would otherwise have been reasonably necessary to perform the de-snagging exercise has to be expended, it can potentially be a cause of delay in itself.

380. The debate about the "prospective" or "retrospective" approach to delay analysis was also sterile because both delay experts accepted that, if each approach was done correctly, they should produce the same result. An underlying problem, accepted as such by both experts, was the absence of a contemporaneous critical path programme from February 2007 onwards. If there had been one and its logic was sound, then both experts would in all probability have done the prospective exercise, albeit in the light of the events which happened. When that exercise can be done, the experts take what are called time slices (usually every month) to review against the programming logic the actual progress achieved and likely to be achieved in the future. That may produce, for instance, a delay in Month 1 of three weeks caused by Factor X, which might be adjusted downwards (or indeed upwards) in Month 3, to take into account actual progress in relation to Factor X. That could not readily be done here because there was no such programme. In my judgement, WLC cannot in practice be criticised throughout 2007 for this because completion was perceived by all parties to be not very far away and there were numerous individual items of work which needed to be done, many of which were variations.

381. Thus, Mr Robinson's approach was a sensible variant on the conventional approach of delay experts which was to review on a month by month basis what in each month was probably delaying overall completion. He then applied a cross check by reference to what actually happened. However, both delay experts' approach (albeit to a lesser

extent Mr Robinson's) involved in reality doing the exercise that the Court must do which is essentially a factual analysis as to what probably delayed the Works overall.

382. Again, in the delay assessment exercise the Court should be very cautious about giving significant weight to the supposedly contemporaneous views of persons who did not give evidence. Obvious examples are BLDA, Knowles and Navigant all of whom could have given possibly useful evidence if they had been called. Thus, BLDA expressed the view in the summer of 2007 that the problems with the Lift were seriously impacting on overall completion. One can give that little weight because it is unclear whether the relevant person who made that statement had done any analysis or had considered all the matters which have been put in issue in these proceedings or even whether it was an informed view. It is also clear that BLDA was placed under the closest scrutiny and pressure by Mr Mackay who was not only constantly critical of them but also had retained Knowles in effect to keep them under control as he would have seen it. Knowles was effectively often telling the Design Team what it could and could not do and there was undoubtedly contractually improper pressure placed on BLDA and G&T. It is clear that Mr Mackay and Knowles put pressure on BLDA not to grant any further extensions of time; indeed Knowles was asked to review the extensions of time already granted. It is a fair inference that BLDA felt pressurised to withhold signs of accepting complaints or claims made by WLC.

383. The Court should also be cautious about attaching weight to what Mr and Mrs Mackay thought was important. This is for two reasons, the first being the less than favourable view which I have formed about the reliability of Mr Mackay's evidence. The second reason is that both Mr and Mrs Mackay did not, obviously or at all and perhaps not surprisingly, analyse what were the contractual risks and responsibilities of DMW and WLC respectively, particularly in relation to design and to some extent procurement. It remains unclear what DMW were advised by the Design Team or Knowles and, of course, the Court can not know what DMW was advised legally was the position. Much of the Mackays' thinking was predicated upon the basis, at least ultimately, that WLC was responsible for the design of most of the matters in issue, such as the ABW, the Light Wall, the Courtyard Sliding Doors, and the Leather in the Library and their views appear to have been coloured by their incorrect assumption that WLC was responsible.

384. These areas of caution highlighted above are important generally but also because a significant part of Dr Aldridge's views were related to the "significance" of particular items or areas of work, on the basis that a "significant" area of work which was delayed would or at least could therefore be critical work which delayed the Works overall. His views on what were "significant" works were substantially (albeit not entirely) dictated by what he ascertained or assumed was the view of Mr and Mrs Mackay or their Design Team as to significance.

385. Another area of caution revolves around how one treats what the parties were saying at the time in relation to issues which later were resolved. An example of this relates to the Lift shaft, which initially was believed by some on DMW's side to be vertically out of alignment. Within several months however, and certainly by the time of the Adjudicator's decision on the issue in late July 2007, it was accepted on all sides that this complaint was not justified. In the early stages, there was a limited possibility that all the Lift and Lift shaft work might have to be taken out and replaced and that this could all take 6 to 9 months. In the result, this did not happen. In my view, it is

therefore totally irrelevant in any analysis of what caused the delay, because certainly neither the supposed lack of verticality nor any need to replace the Lift was ever agreed upon, established or implemented. In logic also, the fact that one side (wrongly) perceives that a particular problem is more serious than it turns out to be is in itself unlikely to be relevant in ascertaining whether that problem caused delay.

386. I will now turn to an analysis and assessment of what actually caused the overall delays in this project. In so doing, I will proceed on a month by month assessment because both experts accept that this would be relevant and helpful and this is a view with which I concur.

387. It is first necessary to review the position as at 16 February 2007 which was the extended date for completion allowed for by BLDA. DMW now accept that the extensions of time until 16 February 2007 are not challengeable or at least they are not challenged. It is worth commenting that all the extensions of time granted in effect reflect delayed instructions or additional work. I said at the beginning of this judgement that this project was a "disaster waiting to happen" and this it proved to be. It is clear that Mr and Mrs Mackay were very unhappy with BLDA and that is a primary reason why Mr Mackay called in Knowles. Whether all the problems which occurred up to mid-February 2007 were the actionable fault of the Design Team can not now be ascertained, largely because this trial has not been concerned with the professional culpability of the Design Team. An example is the Leather in the Library (referred to in detail above) in which Mr Mackay apparently believed that he had approved the leather in about May 2005 but no-one seems to have told WLC about this let alone what the leather was. Either Mr Mackay is mistaken in his evidence or his Design Team let him down because they were telling WLC later that the leather was "to be confirmed". Either way, that is not the fault of WLC, or indeed Adams. There may well also in mid-2006 have been a realisation on the part of the Design Team that the leather which had not been quoted for by Adams but which their client wanted would be too expensive, possibly compared with the budget. However, it was their decision (with the knowledge or consent of Mr Mackay or not) to seek further quotations for different types of leather. Again, the cause of the lateness of the instruction ultimately in relation to the Leather in the Library falls somewhere within the Design Team/Mackay axis and it matters not for this Court whose fault or responsibility within that axis it was.

388. It was broadly common ground in January 2007 that there was a fair prospect that most of the works would be completed at least internally by the end of January 2007 (as referred to in the minutes of the site meeting held on 9 January 2007). External works were running several weeks behind this, albeit much of these works were omitted a few weeks later. However, WLC qualified its views, for instance in its Progress Report on 19 January 2007 which indicated that amongst other things the Light Wall would not be complete by the end of January 2007 along with various other work including work as yet uninstructed.

389. The very fact that BLDA and WLC began seriously to talk about snagging in February 2007 suggests strongly that they both considered that the Works overall were not far off completion, because snagging invariably precedes Practical Completion. However, Mr Mackay started again to raise issues relating to plastering which doubtless bothered him but which in the result turned out to be exaggeration at least in relation to that for which WLC was responsible.

390. In its letter of 13 February 2007, in the context of the proposed snagging regime WLC referred to the fact that its extension of time claims already indicated completion as late as May 2007, one of them being the "late leather selection & choice of stitching". In its Report dated 16 February 2007, WLC indicated that significant delays continued to be recorded in relation to the pool areas, lifts, doors and frames, courtyards and external works. Although it continued to target completion within February 2007, it highlighted that the Light Wall, the Courtyard works, the library shelving and joinery and the installation of leather work generally (amongst several other items of work) would not be complete. This report was not challenged by anyone at the time as containing any material error, save possibly for the continuing furore emanating from DMW about the plasterwork. The other items of work which were listed in this report were not said by anyone at the time or during the trial as being items which did, would or might cause any overall delay to the project.

391. In my judgement therefore as at 16 February 2007 the key or more important outstanding items of work were the Light Wall (the Second Generation of which had just been found to be insufficiently opaque), the Lift (which was beginning to be noted as defective), the Library joinery including the Leather which was to go on and behind it (no final instructions having then been given), the Barrisol ceilings in the cinema and the pool areas and the lighting above it and the Stingray doors (the ironmongery for which had still not been resolved). This does not mean that there were not other items of work still to be completed and these included such of the plasterwork as needed repair, the snagging that remained to be done and other items of work which have not featured as relevant to the issues of delay.

392. I will now turn to reviewing the project as it went along from mid-February 2007 through to mid-August 2008 when Practical Completion was certified. It was argued through cross-examination of Mr Robinson that it was artificial to review delay by reference to a monthly analysis, or, as he had done, as at the end of the month. In one sense, it is artificial because one could take any period of time or any time of the month to conduct one's analysis; one could do it on a daily or a quarterly basis. It is however a proportionate and sensible basis to look at delays on a monthly basis and indeed most delay experts proceed on that basis. As a tribunal, let alone a delay expert, one has to get a handle on what was delaying the project as it went along.

End of February 2007

393. On 27 February 2007, WLC produced to BLDA a List of Outstanding Works to which there was no, let alone a comprehensive, response. It estimated that the bulk of the outstanding work would be completed by about April although it was difficult to be sure about the Pool Hall and three of the WCs. The one item of work which it was clear was not going to be completed by then was the Leather in the Library. It was known by the end of February 2007 that Adams needed 17 to 19 weeks from the time they were given the "green light". No approval had been given in relation to the stitching and there was no prospect of there being an immediate approval. It followed therefore that, as no one suggested at the time or during the trial that this was an unreasonable period, this leather work was not going to be finished until July 2007 at the earliest. As appears from BLDA's email dated 2 March 2007 to Mr Mackay, even BLDA thought that the leather was on "the immediate critical path".

394. I discount the problems with the plasterwork as causing or contributing to any overall delay during this or indeed any later period. There clearly was a very substantial exaggeration (which may not have been deliberate) by Knowles and Mr Mackay as to any problem which could be attributed to a default on the part of WLC. In the result, although there were many areas which needed some attention by WLC, the remedial works overall were minor. Often, as one witness described it, all that was required was the brushing of a millimetre or two of plaster onto relatively small areas to make it sufficiently flat or level. The "reality check" in the case of the plastering defects is to consider how long in practice it would have taken if it had been the only thing holding up practical completion. The answer would have been no more than a few days work for several plasterers. It is inconceivable in those circumstances that this work which in the result was substantially completed by late April 2007 in any way materially delayed the works.

395. I discount also the relevance of the lift defects at this stage. Although substantial complaints were being made by the end of February 2007, there was uncertainty as to what was going to be required. Some of these complaints were not justified.

396. I do not consider that outstanding snagging was a cause of delay at this stage either. It was or must have been clear to all concerned, as it is now clear to the Court, that the Works overall were not going to be completed at least until July 2007 and it was and is more than probable that any snagging that needed to be done would and could be completed within that timeframe.

397. Mr Robinson's view in relation to the position as at the end of February 2007, with which I concur, is that on any proper analysis the Works were being critically delayed by the delayed instructions in relation to the design, procurement and installation of the Leather in the Library. This was a significant item of work and it had the longest sequence as at that stage; all things being equal, if there had been no problem either with the procurement of the Leather or with anything else, the Works would not and could not have been practically complete before the Leather work in the Library had been completed. Indeed, I find that in those circumstances all the Works would have been completed by then.

398. Mr Robinson assesses the critical delay at this stage as 22 weeks from 16 February 2007. However, a more accurate analysis from the end of February 2007 would be 18 weeks on the assumption that BLDA, Bev or Mr Mackay gave Adams the "green light". Adams had effectively quoted 17 to 19 weeks from that stage and 18 weeks would take completion to 12 July 2007. In my judgement therefore, looked at as at the end of February 2007, WLC had been delayed by 18 weeks as a result of the delayed instruction and approval in relation to the stitching to the leather.

End of March 2007

399. Essentially the position remained the same in this period. The mechanical and electrical works were approaching completion during the early part of this month albeit that a few areas remained outstanding some of which was dependent upon completion of works by contractors directly employed by DMW (Sound Ideas and Odyssey Glass) and some other works which required more information; final commissioning remained to be done. The Light Wall remained in a state of flux whilst

BLDA, Equation and Mr Mackay decided upon what was the best approach to overcome the opacity problem.

400. The Leather in the Library continued as before with no decisions and no approval given to enable Adams to proceed. A further 31 days delay in that operation was therefore attributable to the continued failure to make decisions and instruct WLC and Adams what to do.

401. By the end of March 2007, the Barrisol ceiling in the cinema was apparently complete but that in the swimming pool area was not; this was because it had been resolved that the ceiling fabric should not be installed until the dirt- causing works were completed (which they had not been). Such external works as remained within the responsibility of WLC were nearing completion.

402. In relation to the Lift, some remedial works had been done and there was continuing discussion as to what was required. Although there was talk about the possibility of the whole Lift and Lift shaft being replaced, WLC made it clear that this was unnecessary and, if instructed, could only be instructed as a variation. I do not consider that it was ever considered by anyone to be a realistic option to replace everything and in the result it was never done; if it had been ordered, it would have had to have been by way of variation. There was a growing disagreement about what needed to be done but it is clear that Mr Mackay at that stage was disenchanted with the lift which he described as a "monstrosity". Certainly, given what happened later, I do not consider that the Lift problems such as in truth there were (in contra-distinction to what DMW said they were) caused any delay in this month.

403. Therefore, for similar reasons to those given in relation to February 2007, in my judgement WLC was delayed by a further 31 days in March 2007 by the continuing hiatus relating to the Leather in the Library. This would take the delay to Practical Completion up to at least 13 August 2007.

End of April 2007

404. Similar considerations apply in relation to April. It was in this month that there was a final resolution in relation to the plastering defects and these were substantially put right by the end of April 2007; this demonstrates in the result that they did not materially impact on completion in any event. The position in relation to the Lift continued as before with there being differences between the parties but some remedial work was being continued by WLC. The Light Wall continued to give rise to debate but it was anticipated that following the production by Firman of a full-size sample on or by 25 April 2007 the Light Wall would be completed by 11 June 2007.

405. There were numerous small items of work being discussed and worked on, some involving Sound Ideas. A number of doors were to be increased in height in some of the upper rooms. Again there has been no hint or suggestion that any of these other items of work impacted on the delay.

406. On a parity of reasoning as before, my assessment is that the Works overall were delayed by the continuing lack of instructions and approval relating to the Leather in the Library. A further 30 days delay occurred which would take completion of to 13

September 2007. The Leather in the Library represented the longest clearly identifiable sequence of work judged at the end of April 2007.

End of May 2007

407. It is clear that by May 2007 the Works, as a whole and with some very obvious exceptions, were closer to completion. Mr Whidborne of G&T said in an e-mail to Mr Mackay on 2 May 2007 that the "works are virtually complete apart from snagging". There were various changes to the Works discussed as the month went on and a number of variation instructions (at least 20 in number) were issued in the month in relation to them. It was however not correct to say that the works were virtually complete except the snagging. Snagging work remained outstanding albeit that a substantial amount of the notified snagging had been put right or completed. It was not however the snagging which was driving completion at this stage. The Light Wall was incomplete and sub-contractors (Gruppo) were just starting to install different stone flooring to the Pool Hall which would take about six weeks to complete. There continued to be some problems relating to the Barrisol ceilings or the lighting above it in the cinema and the pool hall but, all things being equal, it can not have been anticipated that this would take more than a few weeks at most to resolve. The Stingray doors remained an issue as the free issue ironmongery had still not been issued. The lines remained drawn over the Lift with Mr Mackay wanting to have his own survey on verticality.

408. It was the Leather in the Library however which remained the key operation with the longest sequence both on an anticipated as well as a retrospective basis. The final revised sample was approved, albeit with some qualification, on the 16 May 2007 and on 22 May 2007, as Mr Joyce said in evidence, Adams confirmed its proposed programme; indeed on 24 May 2007, Adams issued manufacturing drawings for the Library shelving. On 1 June 2007, WLC confirmed the likely completion as mid September 2007.

409. There was therefore no further delay overall caused by events in May 2007 and, all things being equal, completion would have occurred by mid- September 2007.

End of June 2007

410. Most of the work done during June 2007 involved either additional instructed work or snagging and cleaning works. Indeed additional relatively minor variations were ordered by BLDA. The Third Generation of the Light Wall was delivered to site and installation began on 22 June 2007, although it was interrupted by BLDA's instructions suspending work whilst decisions were made about the fibre-optic lighting and the scalloping effect which was emerging. As Mr Joyce said, this was because BLDA wanted both to arrange for DMW to inspect and to experiment with tape and diffusion silk to improve the spread of light. Nonetheless, this state of affairs was not considered so urgent that there would be overall delays. The Barrisol ceilings were again in a state of flux with that in the cinema to be taken down again; the problems were again to do with the lighting design. Although some ironmongery for the Stingray doors was supplied towards the end of June 2007, it was the wrong type.

411. By June, it was fully accepted by DMW and BLDA that there were no problems with the verticality of the Lift Shaft. Mr Mackay indicated at the Client Site Walk Around

meeting of 6 June 2007 that he would accept a bronze capping solution but Mr Bates of WLC indicated that once the remedial mastic work had been done all instructed work would have been completed in this area. There remained differences however as to the extent and scope of remedial work and WLC continued with remedial work. Adjudication was started on 20 June 2007 in relation to the withholding of money, including that in relation to the Lift.

412. ABW emerged as an increasing problem. However, as I have formed the view that WLC was not contractually responsible for the problems experienced in relation to ABW and because ultimately all that was done by them was the staining requested by the Mackays on 19 September 2007, this did not at any time in 2007 delay WLC.

413. It was the Leather which again was a key factor relating to progress. On 19 June 2007, BLDA's instruction AI471C instructing the leather works to the Lower Hall Lobby was issued. This (amongst other variations) was the subject matter of WLC's Extension of Time Request No 76 which suggested that an extension of time up to the week commencing 8 October 2007 was called for. A 14 week period was required for this work which, from the date of the order by WLC to Adams would take the completion to about 28 September 2007. It is clear however, and indeed turned out to be the case, that the Leather in the Library was in practice intimately associated by Adams with the Leather in the adjacent lobby area and that this additional work was to delay the overall Leather in the Library.

414. In my judgement therefore, the Leather in the Library was delayed until about 28 September 2007. It was inevitably however going to be the case that following the completion of the Leather in the Library there would have to be final snagging and completion of the cleaning and other operations which would need to follow that work and the Light Wall. Thus, it is the case that the Works overall were delayed by reason of events in June 2007 and before by a further two weeks until 12 October 2007 and I accept the evidence of Mr Joyce and Mr Robinson in relation to this two week period.

End of July 2007

415. A number of minor additional works were initiated during July 2007, many to do with additional or altered lighting (in the Lower Hall lobby, the Drawing Room, the swimming pool, the cinema ceiling and the first floor). A further 15 Architect's Instructions were issued in this month.

416. The Light Wall continued to give rise to difficulties and Firman was being required to experiment with lighting under the auspices of Equation who together with BLDA failed to give clear and finite instructions as to what was required. There was little progress but it was broadly being anticipated that the problems could and would be resolved by sometime in September, particularly following the issue by BLDA of AI490C which required, by way of variation, additional work thereto. By the end of July 2007, the Barrisol ceilings, although installed, were appreciated as being unsatisfactory so far as the lighting was concerned and this remained to be dealt with, albeit largely at the expense of Equation. The Stingray doors did not progress because of the late delivery of ironmongery from the free issue suppliers.

417. The adjudicator issued his decision on 30 July 2007, deciding in effect that there had continued to be a substantially exaggerated set of complaints by DMW in relation to the Lift. However, he did find that there was a justification for withholding some £30,000 and in effect that there were some continuing defects. WLC had done some remedial work earlier in June and July 2007. Mr Mackay and family were away, apparently on holiday, from mid-July until September 2007 but, although the over-cladding solution was considered by the Mackays at a meeting on 11 July 2007 as acceptable, it seems to have been put on a "back-burner" until the adjudicator published his decision and the Mackays returned from holiday. This suggests that it was not considered by anyone in July and August 2007 as likely to impact overall in relation to delay. Accordingly, I do not consider that the Lift issues delayed that Works at this stage.

418. The Leather in the Library was subject to a further important variation, AI481C which involved the running of a duct through the ceiling void and behind the library shelving. As Mr Joyce has said and I accept, this would and did affect the installation of the shelving and because the shelving was to be covered with leather, affected the Leather in the Library operation. That this did delay that operation is clear because the shelving could not be fully installed whilst this ducting operation was being completed. It was not to be completed until 6 September 2007 and at least five weeks was required thereafter to complete the installation. The impact of AI481C was to delay the Leather in the Library by just over six weeks (23 July (the date of issue) to 6 September 2007) but allowing for the fact that WLC envisaged that the Leather in the Library would be completed by the end of the first week in October 2007 and allowing again a further two weeks thereafter for the completion of final snagging and clean up, the Leather in the Library again delayed completion in this period up until about 21 October 2007.

End of August 2007

419. August 2007 was taken up mostly with a combination of snagging and additional and varied works, much of which was to do with lighting, for instance in relation to the Cinema and the swimming pool ceiling. 16 further Architect's Instructions were issued and a number of directly employed contractors attended to carry out works for Mr and Mrs Mackay. There was little progress on the Light Wall because Firman were not to be in a position to return the screens to site until early September 2007 although it was anticipated that the work would then only take about two weeks.

420. The first delivery of leather joinery for the Library arrived on 15 August 2007 and by the end of August 2007 it was being anticipated that WLC would complete the Leather Work in the Library by the end of the first week in October, this primarily being attributable to the need to deal with the air duct variation issued on 23 July 2007.

421. The Stingray doors work was delayed further by the late delivery of the free issue bronze angles and handles and there was a hiatus over a few days as to whether the doors were to swing in one or both directions.

422. In relation to the Lift, WLC was proceeding to address snags identified by BLDA with identified works on 16 areas of imperfection in the surface of the mastic, 40 areas of void within the mastic joint, 43 packing pieces showing through the mastic,

three areas of scratching and some cover pressings to be replaced. WLC replaced the cover pressings and the mastic and glass sub-contractors carried out some remedial works in the last week of August 2007. Otherwise WLC sought instructions from BLDA on how to overcome some of the mastic problems. The parties were obviously awaiting the return of the Mackays from holiday before deciding what an appropriate solution was.

423. There was a continuing and serious problem in the lighting in the pool ceiling lighting described in the Barrisol ceiling Chapter of this judgement. Equation had essentially made errors and was at its own expense seeking to overcome them, albeit WLC and Norstead were deployed to effect the requisite remedial solutions. A series of Architect's Instructions began to be issued in August 2007 to overcome these errors and it was inevitable that this would take time to achieve. It is difficult to be certain as to precisely how much delay overall was occasioned by these issues but there certainly was overall and additional delay being caused by these lighting variations and the time being taken to decide upon them. My best assessment on all the evidence is that by the end of August 2007 the Barrisol ceiling delays had caused and made it inevitable that an additional three weeks of delay overall would occur. This is in part at least borne out by the Target Programme for Recently Instructed Works dated 31 August 2007 produced by WLC which identified the works with longer sequences as the leather works in the Lower Hall and the lighting alterations instructed under AI498C, with completion overall indicated as mid to late November 2007. I do not see however that there were particular reasons which led to those leather works being extended, albeit that, as turned out to be the case, the lighting issues in the pool continued to have to be resolved over the next 9 to 10 weeks.

424. Thus, the problems with the Barrisol ceiling lighting work rendered it inevitable that overall completion was delayed by another three weeks, that is until 11 November 2007.

End of September 2007

425. It was in September 2007 that the issues with the ABW assumed greater importance in the minds of Mr and Mrs Mackay. However, as before, I do not consider that the staining works initiated by WLC in the latter half of this month delayed the works. All that was done was staining work which went through into October 2007 and that only took several men 2 to 3 weeks to do. There was no critical delay from this because the Works overall were never going to be completed in any event in October, for reasons unconnected with the ABW.

426. More relatively minor variations were issued, although there were further significant additional works ordered for the pool lighting.

427. The Light Wall was installed by Firman again to the amended design by about 21 September 2007, although towards the end of the month the problem with apparent blemishes was emerging and being investigated.

428. As for the Leather in the Library, this was being fitted throughout the month albeit it was to continue into the following month. This was delayed during the month by the design changes instructed by BLDA on 3 and 4 September 2007 (AI508C relating to a ceiling ventilation grille and AI510C resolving a clash between a bulkhead and the higher level than ever shelving) and other changes relating to the library sliding door. The leather panels in the Lower Hall Lobby, the carcassing having been fixed between 10 and 18 September 2007, were fixed between 18 September and the end of the month. This work was much simpler than that in the Library and largely comprised vertical panels to the walls.

429. The work on the lighting above the Barrisol ceiling in the pool was again delayed by more changes, with works initially being suspended on 19 September 2007 by BLDA and then varied to install LED strip light fittings and two new banks of lights to the soffit. There were further amendments to the lighting in the Barrisol ceiling in the cinema. Thus, although work was done during the month, it remained incomplete.

430. A major problem began to occur in relation to the Stingray doors. Although the work of cutting and preparing the MDF panels for these doors was done on site up to 24 September 2007, Based Upon, which was to apply the specialist Stingray finish, had so much other work on by this stage that it said that it was not able to start this work until November 2007 and it would take some four weeks to complete. As all the delays relating to the Stingray doors were the responsibility of DMW, this meant that the Works would not now be completed until December 2007.

431. As for the Lift, the parties had moved a lot closer to deciding upon the use of bronze over-cladding and, although the final agreement was not reached until early October 2007, it was increasingly probable that this solution would be accepted. Although the final accepted offer dated 2 October 2007 attached a programme for the work indicating completion by 14 December 2007, in the result, the Lift remedial works, which were the risk and responsibility of WLC, were substantially completed in early November 2007.

432. As before snagging was continuing and by the end of September there were relatively few snags which remain to be carried out although by reason of all the continuing work in the basement (pool, Library, cinema and Lower Hall Lobby) it would not be completed until that work was itself complete. The snagging clearly was not delaying the Works overall.

433. By the end of September 2007, the Works had been further delayed by the delays in relation to the Stingray doors together with the continuing lighting amendments which remained to be done. The delay in completion had extended to 7 December 2007 as a result.

End of October 2007.

434. Throughout most of October 2007, Adams was completing the joinery in the Library including the skirtings to the leathered joinery. New lighting was being installed towards the end of October 2007 above the Barrisol ceilings in both the cinema and pool areas. There was some other work going on but most of it was relatively minor and much of it was additional work. Some 14 official Architect's Instructions were issued for extra work

435. A major row erupted between Mr and Mrs Mackay and BLDA as to the absence of under-floor heating on the ground floor to the Kitchen and family Room. This generated substantial heat but it is not suggested that either it was the fault of WLC or it contributed to any overall delay.

436. In October 2007, the Third Generation Light Wall came under close scrutiny in relation to the apparent blemishes that were present. This was investigated and considered in this month but it was not until later that the screens and doors were removed yet again to be re-assembled off site.

437. The Lift re-cladding work was started on 11 October 2007 and was still being carried out at the end of the month, albeit it was to be completed relatively shortly thereafter.

438. The Stingray doors were off site at Based Upon's works awaiting the Stingray treatment and there was to be no improvement on the completion date of early December 2007.

439. There was therefore no particular additional delay caused by events in October 2007 with completion still delayed until 7 December 2007.

End of November 2007

440. Various changes and delays occurred in relation to the Stingray doors, with the issues about the door stops and patination. The finished door panels remain to be delivered back to the site and installation was to occur in December. Snagging, as before, was keeping pace with the general progress and very few snags remain to be attended to. The re-cladding work to the Lift was finally completed in about mid-November 2007 and accepted as satisfactory. The Light Wall screens were being re-constructed under the closer control of BLDA and it was inevitable by the end of November 2007 that these works on site would not be completed significantly before Christmas 2007 (as indeed they were not). The Leather in the Library had been completed but the free issue ironmongery had to be installed. This work and that in the Lower Lobby was completed in November. The Barrisol ceiling lighting in the pool was completed but at the end of November (AI547C) WLC was instructed by way of variation to test and run the lights for 100 hours over a one-week period; this continued until 5 December 2007.

441. I am satisfied that WLC was further delayed by another two weeks (up until 21 December 2007) by the further events which occurred in November 2007, from essentially the continuing further changes to the Stingray doors and the continuing additional work being called for in relation to the Light Wall.

End of December 2007

442. Only Adams and Norstead of WLC's sub-contractors were working on site in this month. The Stingray doors were being installed between 3 and 18 December, albeit that the work could not be completed. Other relatively minor items of work were discussed but even when the Works did not seem to be far off being practically complete a further six Architect's Instructions for variations were issued. The Fourth Generation Light Wall was delivered to the site but its installation was not completed by the end of December 2007. There were problems with the Barrisol ceilings which

had inevitably been damaged due to them being taken on and off on numerous occasions to enable all the lighting changes to be carried out. BLDA issued AI55C in mid-December 2007 instructing the provision of a new ceiling in the Pool Hall; this was anticipated to be provided and installed by the first week in January 2008. Another Architect's Instruction AI542C called for the provision of additional lighting in the cinema which was to be carried out in the second half of January 2008.

443. By 20 December 2007 only 67 outstanding snags were noted by BLDA and it is likely that these would have been completed by the time that the remainder of the work was completed.

444. I have formed the view that the events of December 2007, and in particular and primarily, the Light Wall issues, caused the Works to be yet further delayed. This was necessarily impacted by the Christmas and New Year Holiday and the overall additional delay was three weeks which would have taken completion to 11 January 2007.

January and February 2008

445. It is convenient to take these two months together. Although relatively minor items of work remained to be completed, such as snagging, the installation of several taps, the final fixing of the belatedly delivered ironmongery to the Stingray doors and of other ironmongery, the key item of work which remained outstanding was the Light Wall but which was carried out throughout the January (and indeed the February) 2008 period. It had not been completed by the end of January because, although largely fixed in place, there had to be numerous adjustments as called for mostly by Equation to improve light projection into the doors. Mr Mackay expressed concern in early February 2008 about whether there were differences in the light levels between various doors. By 11 February 2008 Equation was indicating that things were somewhat better but by 20 February 2008 Mr Mackay was pointing out that he did not like the stainless steel angles fixed to the side of the glass panels, but some of the panels were bowed and the light was not uniform across all of the panels. These issues metamorphosed into the final argument between the parties as to whether and to what extent if at all WLC was liable for the quality of the final installation.

446. On 21 February 2008, WLC wrote to BLDA referring to the fact that it had instructed the subcontractor to complete the final finish to the floors (final oiling of wooden floors) which was to be completed by 28 February 2008. Otherwise, WLC was saying that it considered that the Works would have reached Practical Completion by 29 February 2008 and, in anticipation, it intended to do what was appropriate to leave the site.

447. Mr and Mrs Mackay apparently did not want to take over the site and on 27 February 2008 Mr Mackay e-mailed BLDA saying in effect that the house was clearly not finished, primarily due to the Light Wall and the continuing deficiency as he saw it in the ABW. It is clear that he applied as much pressure as he could on BLDA not to award Practical Completion. Of course, by this stage there were an increasing number of directly employed contractors on site.

448. I am satisfied that the events of January and February 2008 (effectively the Light Wall) delayed the completion of the Works until 29 February 2008. The main reason

was the implementing and then adjusting of the Fourth Generation Light Wall which still did not satisfy Mr Mackay; although one can understand his disappointment, he had been advised by Knowles that BLDA was largely to blame but he continued to believe, quite wrongly, that it was the fault of WLC.

March to August 2008

449. I take this composite period as one in which the dominating events which impacted upon delay were the Light Wall (still in the opinion of the Mackays deficient), the ABW (considered by the Mackays as the fault of WLC which needed to be remedied) and, as from April 2008 the Courtyard Sliding Doors (again the responsibility for which was to be levelled at WLC). It is clear however that irrespective of these issues Unit C was not ready for occupation by the Mackays until August 2008 in any event by reason of the extensive work, fittings and furnishings be carried out in 2008 by artists, tradesmen and other contractors engaged directly by them or DMW.

450. By about February 2008 there were less than 100 snags to be attended to by WLC. It was in any event impossible or at the very least impracticable for WLC to complete the snagging in its entirety until the basement works were completed. This is highlighted by the fact that in BLDA's snagging list of 21 January 2008 there were only 59 outstanding snags identified, 48 of which were in the basement where the Light Wall works were proceeding.

451. February and March 2008 were complicated administratively by the fact that BLDA was in the process of being dismissed by DMW and it is clear that BLDA's hands were somewhat tied. No further snagging lists were produced in February 2008. On 11 March 2008, WLC wrote to BLDA:

> "We refer to our letter of 5 March 2008 where we noted that the areas/rooms, which you consider have not been snagged, have in fact been completed for many months. It seems to us that the reason why you feel you cannot snag these rooms is because of the presence of DMW's artists & tradesmen. We confirm that the artists & tradesmen are working under the direct supervision of DMW and its site based project manager, therefore, we consider it wrong for you to imply that we are preventing you from snagging these areas. Had we been aware of this situation sooner we would have put steps in place to ensure that you had unimpeded access to these areas.
>
> …With adequate prior notice, we can make arrangements with Gavin Bartlett for DMW's artists and tradesmen to vacate these areas. We will also remove all protection and carry out a modest clean.
>
> We point out that the protection is only in place because of the presence of DMW'S artists and tradesmen. Also, the condition of the site, as we have mentioned to you on numerous occasions, is a direct result of DMW's artists and tradesmen…"

This letter highlights the hiatus which was occurring on site. Apart from the Light Wall and the ABW problems, WLC could not effectively do the final operations which were the removal of the extensive protection (for instance packing and plastic sheeting) and the final clean because the numerous operations being carried out by the

directly employed contractors were going on. This was confirmed in an e-mail dated 5 May 2008 from Mr Bartlett of RLB to the Mackays in which he agreed at least "in part" that the majority of the dust had been "generated by the out of contract trades".

452. However, clearly under pressure and almost as its last administrative act, BLDA produced a further snagging list on 18 March 2008 showing a total of 360 new snags between the basement and first floors. This was surprising given that the ground and first floor had already been substantially de-snagged in 2007 and January 2008. However it is clear that a substantial number of these were attributable to the acts or omissions of the directly employed contractors.

453. The snagging process, in so far as it involved the Architect, largely went into a state of limbo following the departure of BLDA and it is clear that, when Navigant came on board, it felt unable itself to get involved in the snagging process, which required the Architect to list the snags which needed to be attended to. Therefore, Hicktons were retained by or on behalf of DMW to initiate the process again and the lists were not produced until late May going into June 2008. It is not surprising that neither Hicktons nor Navigant could expect to be fully cognisant of all the issues and as to who was responsible for what. All primarily that they could focus on was that there appeared, say on the face of all a wall or a cupboard, a deficiency which would then be listed to be dealt with. They could not be criticised for finding it at least difficult if not impossible to differentiate initially between deficiencies which were the responsibility of WLC and the directly employed contractors. It is clear that WLC addressed snags extremely promptly and efficiently; this is demonstrated by the fact that of the 436 snags identified in WLC's works by Hicktons by 10 June 2008, 283 had been attended to by 26 June, and the vast majority, exceeding 1600, had been dealt with by 7 July 2008, when Navigant considered internally that Practical Completion had been achieved (bar the Light Wall and the Courtyard Sliding Doors).

454. Elsewhere in this judgement, I have made findings as to the responsibility in relation to the Light Wall, the ABW and the Courtyard Sliding doors. In relation to the ABW, it is, rightly, common ground that the instruction by DMW to Interior Joinery to re-stain the ABW took that work out of the Contract. As the responsibility for the Light Wall and the Courtyard Sliding doors issues was not WLC's, Navigant had no right to issue instructions to WLC to put right at its own expense the deficiencies; it could have, arguably, instructed WLC to do the further work, largely unspecified, as a variation but since WLC had no design responsibility such instructions would have had to have included directions as to what to do. If that had happened, WLC would have been entitled to an extension of time for as long as it reasonably took to comply with such instructions.

455. Even Navigant believed that, apart from the Courtyard Sliding doors and, possibly Light Wall, the Works were practically complete on 7 July 2008. It is equally clear that Mr Mackay was simply not prepared to accept this. Ultimately, only about five weeks later and only shortly before when the Mackays wanted to move in, the outstanding work relating to the Courtyard Sliding doors and Light Wall were omitted and Practical Completion was certified.

456. It is suggested on behalf of DMW that the real cause of delay during this final 5½ months was the snagging operation. This is an alternative case because the primary case is that the ABW, Light Wall and the Courtyard Sliding doors between them were

the main and dominant causes of the delay up to mid August 2008. This is however a factually unjustified suggestion. As indicated in the Snagging chapter of this judgement, the large majority of the snags were effectively caused by the directly employed contractors or by other factors for which WLC was not responsible. A significant part of this delay was caused by the absence of any effective involvement by the newly appointed Architect or Hicktons in the snagging process much before the end of May 2008. In my judgement, the snagging for which WLC actually was contractually responsible would, absent these factors have been dealt with within several weeks at the outside.

457. I have formed the view that Practical Completion occurred on 7 July 2008. Virtually all the snags had been attended to and they could not have effectively been attended to before then by reason of the presence of the directly employed contractors on the site, who were not only causing there to be a substantial number of snags but who were getting in the way of any final finishing off of the de-snagging work. A second reason in reality and concurrently with this was the failure of Navigant to provide effective and detailed instructions to WLC as to what to do in relation to the Courtyard Sliding Doors and the Light Wall. There is no issue that the Court does have jurisdiction to fix the appropriate date of Practical Completion.

458. I am satisfied that WLC was delayed therefore by factors occurring in the March to July 2008 period that entitle it to an extension of time through to 7 July 2008 when the Works were, properly analysed, practically complete. These factors were the absence of effective and informed instructions from the Architects as to what should be done in relation to ABW, the Light Wall and the Courtyard Sliding Doors. A concurrent cause was the delays and additions to the snagging caused by the presence of the numerous directly employed contractors which was not the risk or responsibility of WLC.

Conclusion on Extension of Time

459. In my judgement, WLC is and was entitled to an extension of time through to the date of Practical Completion, 7 July 2008. The issues of concurrent and co-effective delays do not arise because none of the actual causes of delay after that date were the fault, risk or responsibility of WLC. The only occasions when there were concurrent causes of delay arose where such causes were all the contractual risk of DMW. Most of the actual or alleged major causes of delay (the ABW, the Light Wall, the Courtyard Sliding Doors, the Leather in the Library, the Stingray Doors or the Barrisol ceilings) were positively not the contractual responsibility of WLC. Whilst some of the plasterwork and the Lift complaints raised in 2007 were the responsibility of WLC, they had no impact on the overall delay.

460. In conclusion, the delays to overall completion were caused by the following:

(a) February to July 2007: Leather in the Library from 16 February 2007 to 21 October 2007 (late instructions and variations).

(b) August 2007: Barrisol ceilings from 21 October to 11 November 2007 (late instructions and variations).

(c) September 2007: Stingray Doors and Barrisol ceilings from 11 November 2007 to 7 December 2007 (late instructions and variations).

(d) October 2007: None.

(e) November 2007: Stingray Doors and Light Wall from 7 to 21 December 2007 (late instructions and variations).

(f) December 2007: Light Wall from 21 December 2007 to 11 January 2008 (late instructions and variations).

(g) January to February 2008: Light Wall from 11 January to 29 February 2008 (late instructions and variations).

(h) March to 7 July 2008: ABW, Light Wall, Courtyard Sliding Doors and delays by artists tradesmen and others from 29 February to 7 July 2008 (late instructions and variations and artists and tradesmen delays).

Quantum - Delay

461. WLC claims £1,429,177 in respect of its own prolongation costs (whilst DMW considers that £68,340.80 is due; a difference of £1,360,836.20), £678,251.98 in relation to sums paid or proposed to be paid to sub-contractors for delay and disruption (DMW's original case being that nothing at all was due in that regard but now accepting that £91,377.99 in respect of payments for loss and expense included in the QS's valuation no. 47 is indeed due), a difference between the parties of £586,873.99, and £276,171.98 in relation to loss of overheads and profit (DMW contending that nothing at all is due in relation thereto).

462. The key provision is Clause 26 of the Contract Conditions as amended:

> "26.1 If the Contractor makes written application to the Architect that he has incurred or is likely to incur direct loss and/or expense (of which the Contractor may give his quantification) in the execution of this Contract for which he would not be reimbursed by a payment under any other provision in this Contract…because the regular progress of the Works or of any part thereof has been or is likely to be materially affected by any one or more of the matters referred to in clause 26.2; and if and as soon as the Architect is of the opinion that…the regular progress of the Works or of any part thereof has been or is likely to be so materially affected as set out in the application of the Contractor then the Architect from time to time thereafter shall ascertain, or shall instruct the Quantity Surveyor to ascertain, the amount of such loss and/or expense which has been or is being incurred by the Contractor; provided always that:
>
> 26.1.1 the Contractor's application shall be made as soon as it has become, or should reasonably have become, apparent to him that the regular progress of the Works or of any part thereof has been or was likely to be affected as aforesaid; and

> 26.1.2 the Contractor shall in support of his application submit to the Architect such information as should reasonably enable the Architect to form an opinion as aforesaid; and
>
> 26.1.3 the Contractor shall submit to the Architect or to the Quantity Surveyor such details of such loss and/or expense as are reasonably necessary for such ascertainment as aforesaid.
>
> 26.1.4 in the reasonable opinion of the Architect the Contractor has complied with the provision of clause 26.1.1 to 26.1.3 inclusive.
>
> 26.2 The following are the matters referred to in clause 26.1:
>
> …26.2.1.2 failure of the Architect to comply with clause 5.4.2…
>
> 26.2.7 Architect's instructions issued
>
> under clause 13.2 or clause 13A.4.1 requiring a Variation…
>
> under clause 13.3 in regard to the expenditure of provisional sums…"

463. Both sides' Counsel accept that the provision of a timely written application with supporting information and details is a condition precedent to WLC's entitlement to "direct loss and/or expense" under Clause 26. However, in considering Clause 26, one must bear in mind that most of the matters which entitle the Contractor to such loss and expense are the "fault" or at least the risk of the Employer, such as variations or the late provision of information or instructions by the Architect. One therefore needs to consider with some care precisely what the words mean, without construing them in any way against the Contractor as such. It is clear from the above wording that the application may be made when the Contractor either has incurred or is likely to incur the loss or expense. It can therefore be prospective (before the loss or expense has been incurred) or retrospective (after it has been incurred). Thus, for time related preliminary costs, the Contractor can wait until it is clear that the loss or expense has been incurred; thus, if the delay has not actually happened, the extended preliminary costs will (often) not have been incurred and the Contractor can therefore wait before serving its application until it has actually been incurred. The same sort of wording is used a few lines later in relation to progress having been or being likely to be materially affected by the matters listed in Clause 26.2; therefore the Architect may not have to ascertain the loss or expense until it has been incurred. This is of some importance when one comes to consider the loss of head office overhead and profit related to delay because that will generally not be incurred until the actual delay beyond the original contractual completion date begins to accrue.

464. It is also clear from the clause that there are essentially two conditions precedent within it. The first relates to the making of the timely application to the Architect (Clauses 26.1.1 and 26.1.2) and the second to the provision to the Architect or the Quantity Surveyor of details of loss or expense to enable the ascertainment to be made. There has been a substantial debate as to what information must be provided in relation to the first and second conditions. It is difficult and undesirable to lay down any general rule as to what in every case needs to be provided. It is legitimate to bear in mind what knowledge and information the Architect already has. For instance, the

Architect (as in this case) attended meetings regularly and frequently throughout the project and was the recipient of scores of applications for extensions of time from WLC; it might legitimately be thought that the Architect already had a very substantial amount of information at its fingertips so that, arguably, less information needed to be provided by the Contractor in its application because all that is required is that the Architect must be reasonably put into a position in which it can form an opinion that "direct loss and/or expense has been incurred or is likely to be incurred…because the regular progress of the Works…has been materially affected" by the given events. This is consistent with the decision of Mr Justice Vinelott in **London Borough of Merton v Leach** (1985) 32 BLR 68 at page 97 and 98. Of course, Clause 26.1 expressly says that the application under Clause 26.1 does not have to be given with a money quantification, because the bracketed wording suggests only that the Contractor "may give his quantification".

465. Construing Clause 26.1.3 in its context, an entitlement to various heads of loss and expense will not be lost where for some of the loss details are not provided. Otherwise, one can have the absurd position that where £10 out of a £1 million claim is not adequately detailed but the rest of the claim is, the whole claim would fail to satisfy the condition precedent. That can not have been intended. Again the condition precedent within Clause 26.1.3 only requires the Contractor to submit details which "are reasonably necessary" for the ascertainment of loss and expense. It does not say how the details are to be provided but there is no reason to believe that an offer to the Architect or Quantity Surveyor for them to inspect records at the Contractor's offices could not be construed as submission of details of loss and expense; this happened in this case as Mr McMorrow said credibly in evidence. One must also bear in mind that what is required is "details" of the loss and expense and that does not necessarily include all the backup accounting information which might support such detail. It would have been possible for the clause to say that the Contractor should provide "details and all necessary supporting documentation" but that is not what the clause says.

466. There is no need to construe Clause 26.1.3 in a peculiarly strict way or in a way which is in some way penal as against the Contractor, particularly bearing in mind that all the Clause 26.2 grounds which give rise to the loss and expense entitlements are the fault and risk of the Employer. Mr Pontin suggests in Paragraph 6.2 of his first report that he would expect the Contractor to include in its written applications under Clause 26.1 a long list of items:

> "a) Staff allocations and actual costs.
> b) Labour allocations and actual costs.
> c) Scaffold, utilities, expense and other materials/sundry expenses scheduled with copy invoices and explanations for the items in question.
> d) Subcontract accounts having already discounted, if appropriate, the matters which were not the Employer's responsibility.
> e) Such other data as is necessary to enable the actual costs incurred to be vouched as correct and relevant to the matter(s) the subject of the notice."

467. I consider that this approach is not a standard one that would apply in every case. Mr Pontin's approach is almost akin to saying both that every conceivable detail and back up documentation which may or may not be needed must be provided and all evidence required to prove the claim as correct needs to be deployed. Clause 26.1.3

talks about "such details…as are reasonably necessary for such ascertainment". This is all qualified by what is "reasonably necessary". Thus, a very common head of loss and expense (as here) is delay related preliminary costs, such as extended management, site supervision and site facilities provided by the Contractor. If delay has occurred by reason of one of the Clause 26.2 matters (say, variations or late instructions), it will often be obvious to everybody including the Quantity Surveyor and Architect who visit the site regularly that such preliminary heads of cost are being incurred; examples might be the site huts or the senior supervisors working on site. In terms of the costs of such items, there could be fulfilment of the condition precedent if the details of the expense relating to such preliminaries were defined by reference to the prices in the contract between the parties for such items. It is legitimate to bear in mind that the Architect and the Quantity surveyor are not strangers to the project in considering what needs to be provided to them; this is consistent with the judgement of Mr Justice Vinelott in the **Merton** case (see pages 97-8). In the current case, there was a very detailed breakdown of the preliminary activities including site staffing, temporary accommodation, telephones, site labour, temporary services and various sundries with rates or prices individually shown. It would be properly arguable that loss and expense of the preliminaries could be valued by reference to the contract rates or prices for such preliminaries on the basis that those rates or prices represent the loss (if not the expense) to the Contractor of having such staff for or other preliminary activities on the project for longer than anticipated.

468. Clause 26.1 talks of the exercise of ascertainment of loss and expense incurred or to be incurred. The word "ascertain" means to determine or discover definitely or, more archaically, with certainty. It is argued by DMW's Counsel that the Architect or the Quantity Surveyor can not ascertain unless a massive amount of detail and supporting documentation is provided. This is almost akin to saying that the Contractor must produce all conceivable material evidence such as is necessary to prove its claim beyond reasonable doubt. In my judgement, it is necessary to construe the words in a sensible and commercial way that would resonate with commercial parties in the real world. The Architect or the Quantity Surveyor must be put in the position in which they can be satisfied that all or some of the loss and expense claimed is likely to be or has been incurred. They do not have to be "certain". One has to bear in mind that the ultimate dispute resolution tribunal will decide any litigation or arbitration on a balance of probabilities and at that stage that tribunal will (only) have to be satisfied that the Contractor probably incurred loss or expense as a result of one or more of the events listed in Clause 26.2. Bearing in mind that one of the exercises which the Architect or Quantity Surveyor may do is allow loss and expense, which has not yet been incurred but which is merely "likely to be incurred"; in the absence of crystal ball gazing, they cannot be certain precisely what will happen in the future but they need only to be satisfied that the loss or expense will probably be incurred.

469. There are scores of applications in writing made by WLC to BLDA under Clause 25 for extensions of time and under Clause 26 for loss and expense. There is on analysis no point taken or maintained that these were not made within time. The real issue is more whether or not an appropriate level of detail was provided within or in connection with the applications. It is undoubtedly the case that the Quantity Surveyors and the Architect did include within interim certificates substantial sums for loss and expense and it is therefore a fair inference that they considered that they had sufficient detail at least to certify what they did. Examples of what WLC did by

way of particularisation are in a series of letters dated 24 November 2005, one each relating to the different extension of time claims submitted. The wording of the letter is usually similar:

> "…we enclose our revised assessment of Loss & Expense in respect of Extension of Time claims EoT 2/4.
> A detailed evaluation of Walter Lilly's direct costs associated with this event has been carried out totalling £134,805.85 [total includes Plots A, B & C and provisional sums totalling £11,000.00 in respect of potential subcontract the claim is the delay and disruption arising out of this event, but excludes overheads and profit] and this is attached for your consideration.
> We trust the above is satisfactory and look forward to your response."

What is attached is a listing of all the preliminary activities (site staffing, temporary accommodation and so on) as set out in the original tender with a number of weeks, percentage of resource being applied and rate, against which in a box headed "Loss & Expense Due to Delay" there is then set out against the individual activity how many weeks (and from and to which particular week) that particular resource is said to have been deployed multiplied by the tender preliminary rate. At the end there are added the provisional figures in relation to particular subcontractors for potential claims. Later claims had a "Comments" column which provided additional explanations. These were revised and supplemented on a monthly basis.

470. This provides, particularly to an architect or quantity surveyor who is well acquainted with what is happening on the project, all the detail that is reasonably called for by Clause 26.1. It is linking the loss and expense claim to the particular factors relied upon to a specific extension of time claim; it is identifying each head of loss or expense, spelling out the precise period for which it is claimed and the precise cost or loss which is put forward. It is not necessary that the details provided are actually correct but they need to be what the Contractor is putting forward. The fact that what is put forward is not accepted by the Quantity Surveyor or Architect or even that it does not provide all the details absolutely necessary to prove beyond doubt every penny's or pound's worth of loss or expense does not mean that the condition precedent is not achieved at least in respect of what is reasonably capable of being established.

471. The monthly claims for loss and/or expense were included in WLC's applications for payment. These applications by arrangement were made in relation to all three Units, A, B, and C. Whilst the value of the works is varied between the three units, many of the heads of claim were allocated on a one third basis in relation to each Unit. Thus, by way of example in the valuation for 31 August 2006 the claims for "Prolongation", "Loss and Expense including SC prolongation" and "Sundry Loss and expense") were one third each of the total cost or loss as claimed. This was because it was accepted by all concerned at this stage that this apportionment was sensible and the best which could be achieved.

472. By November 2006 (Valuation 28), some £480,000 had been certified for delay related loss and expense, albeit that by the end of the year over £1.4 million was being claimed in relation to Unit C. By the end of March 2007 (Valuation 32), just under £600,000 had been certified for loss and expense. By late September 2007 (Valuation 38), some £750,000 had been certified. By the end of 2007, WLC was claiming over

£2 million for loss and expense (including sub-contractor loss). By September 2008, about £620,000 for loss and expense had been certified.

473. The sums claimed for preliminaries fall into two categories, the extended time or delay related preliminaries and what are called the thickening preliminaries, which by reference to the pleaded case are:

> (a) Item 1: thickening costs up to March 2006 (the original contract period); £92,428 (total of £118,528 less the £26,100 allowed for by DMW).
>
> (b) Item 2: preliminaries costs up to 16 February 2007 (the point to which DMW/ Mr Mackay do not dispute that WLC is entitled to an extension of time); £9,206 (total of £304,965 less £295,759 allowed for by DMW).
>
> (c) Item 3 – thickening up to 16 February 2007; £157,315 (£243,183 less £85,868 allowed for by G&T).
>
> (d) Item 4 – prolongation up to 6 February 2008 (the point to which on WLC's pleaded case Practical Completion was achieved); £297,046.
>
> (e) Item 5 – thickening up to 6 February 2008; £297,910.
>
> (f) Item 6: prolongation beyond 6 February 2008; £164,383.
>
> (g) Item 7: cleaning; £6,750.

"Thickening" in this context means the provision of additional resources over and above the anticipated preliminaries said to have been necessary to deal with or overcome the consequences of variations and late instructions and information.

474. These claims are said to comprise a "global" claim and, DMW argues, are therefore barred by authority in the circumstances of the case. It is therefore necessary to review the law which has grown up over the last 50 years on the topic. In **Crosby v Portland UDC** (1967) 5 BLR 121, Mr Justice Donaldson (as he then was) dealt with a number of issues arising out of a contract incorporating the ICE Conditions, on the old case stated procedure which used to pertain in arbitration. The arbitrator in that case, amongst other things, had awarded delay and disruption related compensation on a lump-sum basis; the Council argued that the arbitrator could not do this but should find amounts due under each of the individual heads of claim upon which the Contractor relied in support of its overall claim for delay and disruption. The judge upheld the arbitrator's award and approach at pages 135-6:

> "The claimants disavow any intention of founding a claim under clause 52(4) or upon clause 66 of the contract. They say that where you have a series of events which can be categorised as denial of possession of part of the site, suspension of work, and variations, the result is, or may be, that the contractor incurs the extra costs by way of overhead expenses and loss of productivity; these extra costs are all recoverable directly under clause 40 or clause 42 or indirectly under clauses 51 and 52. I say 'indirectly because any revised rate or price and the scheduled day work rates must include a large cost element even if they go further than this and also cover profit. Since, however, the extent of

> the extra cost incurred depends upon an extremely complex interaction between the consequences of the various denials, suspensions and variations, it may well be difficult or even impossible to make an accurate apportionment of the total extra cost between the several causative events. An artificial appointment could of course have been made; and why, they ask, should the arbitrator make such an apportionment which has no basis in reality?
>
> I can see no answer to this question. Extra costs are a factor common to all these clauses, and so long as the arbitrator does not make any award which contains a profit element, this being permissible under clauses 51 and 52 but not under clauses 41 and 42, and provided he ensures that there is no duplication, I can see no reason why he should not recognise the realities of the situation and make individual awards in respect of those parts of individual items of the claim which can be dealt with in isolation and a supplementary award in respect of the remainder of those claims as a composite whole. This is what the arbitrator has done…He has further ensured that there is no duplication…and there is no profit element in this particular award…"

475. In **London Borough of Merton –v- Stanley Hugh Leach** (1985) 32 BLR 68, Mr Justice Vinelott dealt with an interim award from an arbitrator in relation to disputes under a JCT contract which was a forerunner to that used by the parties in this case, where Clause 24 was comparable to the current Clause 26. One of the issues for consideration was whether contractual terms about the recovery of direct loss/expense permitted the Contractor to recover the same in respect of any alleged event when it is not possible for it to state in respect of that alleged event the amount of loss/expense attributable thereto. He referred to the **Crosby** case. He found Mr Justice Donaldson's reasoning "compelling" and went on at page 102 to say this:

> "The position in the instant case is, I think as follows. If application is made (under clause 11(6) or 24(1) or under both sub-clauses) for reimbursement of direct loss or expense attributable to more than one head of claim and at the time when the loss or expense comes to be ascertained it is impracticable to disentangle or disintegrate the part directly attributable to each head of claim, then, provided of course that the contractor has not unreasonably delayed in making the claim and so has himself created the difficulty the architect must ascertain the global loss directly attributable to the two causes, disregarding, as in *Crosby*, any loss or expense which would have been recoverable if the claim had been made under one head in isolation and which would not have been recoverable under the other head taken in isolation. To this extent the law supplements the contractual machinery which no longer works in the way in which it was intended to work so as to ensure that the contractor is not unfairly deprived of the benefit which the party is clearly intended he should have.
>
> …I think I should nonetheless say that it is implicit in the reasoning of Donaldson J, first, that a rolled up award can only be made in the case where the loss or expense attributable to each head of claim cannot in reality be separated and secondly as a rolled up award can only be made where apart from the practical impossibility the conditions which have to be satisfied but before an award can be made have been satisfied in relation to each head of claim."

476. **Wharf Properties Ltd –v- Eric Cumine Associates** (1991) 52 BLR 1 was a Privy Council appeal from Hong Kong ultimately on whether a somewhat voluminous statement of claim should be struck out as disclosing no cause of action. Leave to appeal having been given because it was initially thought that a point of general significance had been raised, their Lordships ultimately thought that there was no question of any general importance. Developers sued the architect in relation to a development, with the statement of claim running to over 400 pages with schedules. The delay of just over two years in completion (broken down in the pleading into six separate periods) was identified along with 15 separate breaches on the part of the architect which was said to have caused the delay. The loss claimed was the loss of rent, some HK$199m. The Privy Council was satisfied that the pleading was insufficient; the Hong Kong Court of Appeal had decided that the action was one in which the real cause of action rested upon the establishment of an essential link between the action or inaction alleged on the part of the architect and the damage which was claimed by way of relief, the key pleading issue then being whether all the material facts had been pleaded. The Privy Council felt unable to follow the Court of Appeal's view that the case should be struck out on the grounds that no reasonable cause of action had been pleaded:

> "Certainly there are portions of the pleading which ought quite properly to be struck out as failing to establish any relationship at all between what is alleged and the damages claim which could not be cured even by the delivery of the particulars claimed…But their Lordships do not feel able to say that the statement of claim discloses no reasonable cause of action…It has been observed on many occasions that the power to strike out a pleading as disclosing no reasonable cause of action is one that should be observed for "plain and obvious" cases. "'Reasonable cause of action" means a cause of action with some chance of success when (as required by rule 192 () only the allegations in the pleading are considered" (*per* Lord Pearson in *Drummond Jackson v British Medical Association* 1970 1 All ER 1094 at page 1101).

However, the Privy Council upheld the Court of Appeal's judgement on the basis that the pleading was "hopelessly embarrassing". The **Crosby** and **Merton** cases were referred to in argument. Lord Oliver who gave the judgement said this at Page 20-21:

> "Those cases establish no more than this, that in cases where the full extent of extra costs incurred through delay depends upon a complex interaction between the consequences of various events, so that it may be difficult to make an accurate apportionment of the total extra costs, it may be proper for an arbitrator to make individual financial awards in respect of claim which can conveniently be dealt with in isolation and a supplementary award in respect of the financial consequences of the remainder as a composite whole. This has, however, no bearing upon the obligation of a plaintiff to plead his case with such particularity as is sufficient to alert the opposite party to the case which is going to be made against him at the trial"

477. The **Wharf** case was therefore concerned with a pleading issue and, as such, primarily the correlation between the events or breaches relied upon as causing the delay. Byrne J in the Supreme Court of Victoria addressed the issue of global or total cost claims in **John Holland Construction & Engineering Pty Ltd –v- Kvaerner**

RJ Brown Pty Ltd (1996) 82 BLR 81. This was a case also dealing with the quality of a pleading which involved a "global claim [which] is in fact a total cost claim" (page 85E). The judge said this having reviewed a number of authorities, including English ones, at page 90I:

> "In my opinion, the court should approach a total cost claim with a great deal of caution, even distrust. I would not, however, elevate the suspicion to the level of concluding that such a claim should be treated as *prima facie* bad: *British Airways Pension Trustees Ltd v Sir Robert McAlpine & Sons Ltd* (1994) 72 BL are 26 at page 34, per Saville J, Beldam Neill LJJ concurring. Compare Hudson's Building and Engineering Contracts (11th edn, 1995), paragraph 8-204. Nevertheless, the point of logical weakness inherent in such claims, the causal nexus between the wrongful acts or omissions of the defendant and the loss of the plaintiff, must be addressed. I put to one side and straightforward case where each aspect of the nexus is apparent from the nature of the breach and loss as alleged. In such a case the objectives of the pleading may be achieved by a short statement of the facts giving rise to the causal nexus. If it is necessary for the given case that it is to be supported by particulars, this should be done. But, in other cases, each aspect of the nexus must be fully set out in the pleading. Moreover, the court should be assiduous in pressing the plaintiff to set out this nexus with sufficient particularity to enable the defendant to know exactly what is the case it is required to meet and to enable the defendant to direct its discovery and its attention generally to the case. And it should not be overlooked that an important means of achieving the result that, once it starts, the trial should be conducted without undue prejudice, embarrassment and delay, is by ensuring that, when it begins, the issues between the parties including this nexus is defined with sufficient particularity to enable the trial judge to address the issues, to rule on relevance and generally to contain the parties to those issues…And if, in such a case, the plaintiff fails to demonstrate this causal nexus in sufficient detail because it is unable or unwilling to do so, then this may provide the occasion for the court to relieve the defendant of the unreasonable burden which the plaintiff would impose on it: *Wharf*…"

478. Another case involving pleading issues and a "global" claim was the decision in this court in 1997, **Bernhard's Rugby Landscapes Ltd v Stockley Park Consortium Ltd** 82 BLR 39. The plaintiff contractor's claim included for prolongation costs and damages. HHJ Humphrey Lloyd QC stated:

> "A global claim can take a variety of forms. Where it described a pleaded claim it has pejorative overtones as it is usually intended to describe a claim where the causal connection between the matters complained of and their consequences, whether in terms of time or money, are not fully spelt out, but, implicitly, could and should be spelled out. It is to be contrasted with the use of the term where an arbitrator has made an award of a sum which the arbitrator cannot apportion between the various events. This may be permissible but as Lord Oliver made clear in *Wharf*…there is a clear distinction between that situation and the pleading of claim…
> In other words a global claim in the sense used in argument is the antithesis of the claim where the causal nexus between the wrongful act or omission of the

> defendant and the loss of the plaintiff has been clearly and intelligently pleaded. However that nexus need not always be expressed since it may be inferred…" (pages 73-4)

479. Lord Macfadyen in the Scottish case, **John Doyle Construction Ltd v Laing Management (Scotland) Ltd** [20012] BLR 393 also considered global claims from a pleading perspective. He first identified what he was not dealing with at Paragraph 33:

> "This case is not concerned with whether a global claim for loss and expense may relevantly be advanced by a contractor under a construction contract. The debate proceeded on the basis that it was common ground that such a claim could in principle relevantly be made (*London Borough of Merton* v *Stanley Hugh Leach Ltd*; *Wharf Properties Ltd* v *Eric Cumine Associates* (1991) 52 BLR 8; *Holland* v *Kvaerner*). Nor is it in issue in this case at this stage whether the circumstances are such as to permit a claim to be made in that form. The pursuers aver (at page 32 of the Closed Record):
>
> > "Despite the Pursuers' best efforts, it is not possible to identify causal links between each such cause of delay and disruption, and the cost consequences thereof".
>
> That averment having been made, the defenders accept that the pursuers are in principle entitled to advance a global claim. I prefer to reserve my opinion on whether such an averment is essential to the relevancy of a global claim, on what the pursuers need do to establish that averment, and on what the consequences would be if they failed to do so."

480. He went on:

> "35. Ordinarily, in order to make a relevant claim for contractual loss and expense under a construction contract (or a common law claim for damages) the pursuer must aver (1) the occurrence of an event for which the defender bears legal responsibility, (2) that he has suffered loss or incurred expense, and (3) that the loss or expense was caused by the event. In some circumstances, relatively commonly in the context of construction contracts, a whole series of events occur which individually would form the basis of a claim for loss and expense. These events may inter-react with each other in very complex ways, so that it becomes very difficult, if not impossible, to identify what loss and expense each event has caused. The emergence of such a difficulty does not, however, absolve the pursuer from the need to aver and prove the causal connections between the events and the loss and expense. However, if all the events are events for which the defender is legally responsible, it is unnecessary to insist on proof of which loss has been caused by each event. In such circumstances, it will suffice for the pursuer to aver and prove that he has suffered a global loss to the causation of which each of the events for which the defenders is responsible has contributed. Thus far, provided the pursuer is able to give adequate specification of the events, of the basis of the defender's responsibility for each of them, of the fact of the defender's involvement in causing his global loss, and of the method of computation of that loss, there is no difficulty in principle in permitting a claim to be advanced in that way.

36. The logic of a global claim demands, however, that all the events which contribute to causing the global loss be events for which the defender is liable. If the causal events include events for which the defender bears no liability, the effect of upholding the global claim is to impose on the defender a liability which, in part, is not legally his. That is unjustified. A global claim, as such, must therefore fail if any material contribution to the causation of the global loss is made by a factor or factors for which the defender bears no legal liability. That point has been noted in *Keating* at paragraph 17-18, in *Hudson* at paragraph 8-210, more clearly in *Emden* at paragraph [231], in the American cases, and most clearly by Byrne J in *Holland* v *Kvaerner* at 85H and 86D (see paragraph [25] above). The point has on occasions been expressed in terms of a requirement that the pursuer should not himself have been responsible for any factor contributing materially to the global loss, but it is in my view clearly more accurate to say that there must be no material causative factor for which the defender is not liable.

37. Advancing a claim for loss and expense in global form is therefore a risky enterprise. Failure to prove that a particular event for which the defender was liable played a part in causing the global loss will not have any adverse effect on the claim, provided the remaining events for which the defender was liable are proved to have caused the global loss. On the other hand, proof that an event played a material part in causing the global loss, combined with failure to prove that that event was one for which the defender was responsible, will undermine the logic of the global claim. Moreover, the defender may set out to prove that, in addition to the factors for which he is liable founded on by the pursuer, a material contribution to the causation of the global loss has been made by another factor or other factors for which he has no liability. If he succeeds in proving that, again the global claim will be undermined.

38. The rigour of that analysis is in my view mitigated by two considerations. The first of these is that while, in the circumstances outlined, the global claim as such will fail, it does not follow that no claim will succeed. The fact that a pursuer has been driven (or chosen) to advance a global claim because of the difficulty of relating each causative event to an individual sum of loss or expense does not mean that after evidence has been led it will remain impossible to attribute individual sums of loss or expense to individual causative events. The point is illustrated in certain of the American cases. The global claim may fail, but there may be in the evidence a sufficient basis to find causal connections between individual losses and individual events, or to make a rational apportionment of part of the global loss to the causative events for which the defender has been held responsible.

40. The second factor mitigating the rigour of the logic of global claims is that causation must be treated as a common sense matter (*Holland* v *Kvaerner*, *per* Byrne J at 84I). That is particularly important, in my view, where averments are made attributing, for example, the same period of delay to more than one cause.

481. The Court of Appeal in **Petromec Inc v. Petroleo Brasilerio SA Petrobras** [2007] EWCA Civ 1371 dealt with an appeal involving upgrading works on an oil production platform which contained these clauses:

> "12.2 In the case of any further alterations or changes instructed by Brasoil pursuant to Clause 10 hereof, Brasoil agrees:
>
> (i) to pay to Petromec the reasonable costs (if any) incurred by Petromec and its contractors in progressing the engineering in accordance with such Specification as was agreed before the alteration or change;
>
> (ii) to pay to Petromec an amount equal to the reasonable extra costs (if any) to Petromec of Upgrading the Vessel in accordance with the Specification as altered or amended; and
>
> (iii) to extend the date by which Petromec must complete the Upgrade.
>
> 12.3 The additional costs referred to in Clauses 12.1 and 12.2 above will become due and payable on the production by Petromec of evidence of expenditure satisfactory to Brasoil and Brasoil being satisfied that such costs were reasonable and properly incurred…"

482. Petromec argued that these clauses entitled them to payment of the difference in cost between that which they might reasonably have incurred in upgrading the vessel in accordance with the original and a later amended specification as further amended from time to time, that is the costs of upgrading works which they in fact carried out. May LJ said:

> "27. In summary, therefore, the judge held in paragraph 48 of his judgment, that, on the proper construction of the Supervision Agreement, the sum due to Petromec under clauses 12.1 and 12.2 cannot be ascertained by calculating the difference in the manner which Petromec proposed. Petromec must specify the instructions, the work required to comply with those instructions (or with the Amended Specification under clause 11), and the cost attributable to that work. The changes and causal nexus must be pleaded. Petromec can contend that the work done and the cost is reasonable. By one means or another, it must plead with sufficient particularity the work done and its cost by reference to the Amended Specification or the instructions given. The judge, however, said, in paragraph 49 of his judgment, that it was not necessary to ascertain separately sums due under clauses 12.1 and 12.2. All that was necessary was to establish the total of the additional costs referred to in clauses 12.1 and 12.2. What mattered was the total reasonable extra cost payable in consequence of complying with Petrobras' instructions under clause 10, as reflected in clauses 11.1 and 12.1 or 12.2…
>
> 36. Clause 12.2 concerns further alterations or changes instructed by Petrobras, that is changes to the Clause 11 Roncador Specification. Clause 12.2(ii) entitles Petromec to the reasonable extra cost resulting from these changes, that is in concept the cost caused by the changes. That in theory might require a comparison between the work content and cost of the Clause

> 11 Roncador Specification (or part of it) and the work content of the instructed changes. Conventional particulars of this would require Petromec to identify the change order instructions, and to give sufficient particulars of the work content and reasonable cost of each. The judge in effect so decided in paragraph 48 of his judgment. As a matter of the abstract construction of clause 12.2 alone coupled with an orthodox approach to pleading and case management, I think he was correct. But there are two further considerations. First, Petromec are entitled to assert as their case that the Clause 11 Roncador Specification was not a document which defined work content and that the design only emerged and became buildable as it went along. Second, Petromec's entitlement to "reasonable extra cost" of upgrading in clause 12.1 is the same measure of cost as the "reasonable extra costs" of upgrading in clause 12.2(ii). This means – and Mr Hancock was inclined to accept – that the sum of the reasonable extra costs under clauses 12.1 and 12.2(ii) taken separately ought to be the same as Petromec's reasonable extra costs of upgrading the vessel in accordance with the Roncador Specification as eventually instructed, including the further alterations and changes to be paid for under clause 12.2. For these reasons, I do not consider that the court would strike out a formulation of Petromec's claim which sought to deduct the costs that Petromec might reasonably have incurred in achieving the Original South Marlim Specification (properly particularised) from the reasonable costs (properly particularised) of achieving the eventually instructed Roncador Specification. This is no doubt what the judge had in mind when he held in paragraph 49 of his judgment that it was not necessary for there to be a separate ascertainment of the sums due under clause 12.1 and 12.2. There does not therefore have to be a pointless separate costing of the works notionally required to achieve the Clause 11 Roncador Specification, which was never executed in that form, even if that were possible. That does not, however, let Petromec off the hook of having to give proper particulars.

483. The **Petromec** case is heavily relied upon by DMW's Counsel. However, it assists little as none of the global cost cases feature, let alone are mentioned, in the judgements and it seems to have involved specific contract interpretation issues.

484. One needs to be careful in using the expressions "global" or "total" cost claims. These are not terms of art or statutorily defined terms. Some of the cases, such as **Wharf**, were concerned with linking actual delay and the alleged causes of delay. Simply because a contractor claims all the costs on a construction project which it has not yet been paid does not necessarily mean that the claim is a global or total cost claim, although it may be. What is commonly referred to as a global claim is a contractor's claim which identifies numerous potential or actual causes of delay and/or disruption, a total cost on the job, a net payment from the employer and a claim for the balance between costs and payment which is attributed without more and by inference to the causes of delay and disruption relied on.

485. Although I will return to this later, I remain wholly unconvinced that on any proper analysis WLC's loss and expense claim falls readily into a categorisation of being a global or total cost claim. There has, properly, been no or no maintained complaint that WLC's final pleadings did not sufficiently identify a comprehensible case in relation to delay. WLC's case for extended preliminaries and profit and overhead is

related solely to the periods of delay for which it asserted that it was entitled to extensions of time. Thus, it asserted that it was delayed by X weeks for factors (variations and late instructions/information) for which it was entitled not only to an extension of time under Clause 25 but also to loss and/or expense under Clause 26. Those preliminaries costs are set out in the pleadings, and, mostly, comprise the cost to it of engaging staff over all or part of that extended period. As a matter of evidence, it adduces evidence of actual cost in relation to each and every member of staff so deployed during that extended period. In relation to the "thickening" of resources, it adduces evidence which seeks to explain what resources it provided, why it was additional to what had originally been priced by it and why it was related to the events relied upon as entitling it to loss or expense and it adduces evidence of what the additional cost of those resources was. The case on extended overheads and profit is simply based on there being due extensions also on Clause 26 grounds and on evidence to the effect that the preliminary resources could have been applied profitably on other projects during the period of extension. The sub-contractor claims are largely based on the extension delay and to the sums actually paid or, if not yet paid, due to the relevant sub-contractor.

486. Drawing together all the relevant threads together, it can properly be concluded as follows in relation to "global" or "total" cost claims:

(a) Ultimately, claims by contractors for delay or disruption related loss and expense must be proved as a matter of fact. Thus, the Contractor has to demonstrate on a balance of probabilities that, first, events occurred which entitle it to loss and expense, secondly, that those events caused delay and/or disruption and thirdly that such delay or disruption caused it to incur loss and/or expense (or loss and damage as the case may be). I do not accept that, as a matter of principle, it has to be shown by a claimant contractor that it is <u>impossible</u> to plead and prove cause and effect in the normal way or that such impossibility is not the fault of the party seeking to advance the global claim. One needs to see of course what the contractual clause relied upon says to see if there are contractual restrictions on global cost or loss claims. Absent and subject to such restrictions, the claimant contractor simply has to prove its case on a balance of probabilities.

(b) Clause 26 in this case lays down conditions precedent which, if not complied with, will bar to that extent claims under that clause. If and to the extent that those conditions are satisfied, there is nothing in Clause 26 which states that the direct loss and/or expense cannot be ascertained by appropriate assessments.

(c) It is open to contractors to prove these three elements with whatever evidence will satisfy the tribunal and the requisite standard of proof. There is no set way for contractors to prove these three elements. For instance, such a claim may be supported or even established by admission evidence or by detailed factual evidence which precisely links reimbursable events with individual days or weeks of delay or with individual instances of disruption and which then demonstrates with precision to the nearest penny what that delay or disruption actually cost.

(d) There is nothing in principle "wrong" with a "total" or "global" cost claim. However, there are added evidential difficulties (in many but not necessarily all cases) which a claimant contractor has to overcome. It will generally have to establish (on a balance of probabilities) that the loss which it has incurred (namely the difference between what it has cost the contractor and what it has been paid) would not have been incurred in any event. Thus, it will need to demonstrate that its accepted tender was sufficiently well priced that it would have made some net return. It will need to demonstrate in effect that there are no other matters which actually occurred (other than those relied upon in its pleaded case and which it has proved are likely to have caused the loss). It is wrong, as Counsel suggested, that the burden of proof in some way transfers to the defending party. It is of course open to that defending party to raise issues or adduce evidence that suggest or even show that the accepted tender was so low that the loss would have always occurred irrespective of the events relied upon by the claimant contractor or that other events (which are not relied upon by the claimant as causing or contributing to the loss or which are the "fault" or "risk" of the claimant contractor) occurred may have caused or did cause all or part of the loss.

(e) The fact that one or a series of events or factors (unpleaded or which are the risk or fault of the claimant contractor) caused or contributed (or cannot be proved not to have caused or contributed) to the total or global loss does not necessarily mean that the claimant contractor can recover nothing. It depends on what the impact of those events or factors is. An example would be where, say, a contractor's global loss is £1 million and it can prove that but for one overlooked and unpriced £50,000 item in its accepted tender it would probably have made a net return; the global loss claim does not fail simply because the tender was underpriced by £50,000; the consequence would simply be that the global loss is reduced by £50,000 because the claimant contractor has not been able to prove that £50,000 of the global loss would not have been incurred in any event. Similarly, taking the same example but there being events during the course of the contract which are the fault or risk of the claimant contractor which caused or cannot be demonstrated not to cause some loss, the overall claim will not be rejected save to the extent that those events caused some loss. An example might be (as in this case) time spent by WLC's management in dealing with some of the lift problems (in particular the over-cladding); assuming that this time can be quantified either precisely or at least by way of assessment, that amount would be deducted from the global loss. This is not inconsistent with the judge's reasoning in the **Merton** case that "a rolled up award can only be made in the case where the loss or expense attributable to each head of claim cannot in reality be separated", because, where the tribunal can take out of the "rolled up award" or "total" or "global" loss elements for which the contractor cannot recover loss in the proceedings, it will generally be left with the loss attributable to the events which the contractor is entitled to recover loss.

(f) Obviously, there is no need for the Court to go down the global or total cost route if the actual cost attributable to individual loss causing events can be readily or practicably determined. I do not consider that Vinelott J was saying in the **Merton** case (at page 102 last paragraph) that a contractor should be

debarred from pursuing what he called a "rolled up award" if it could otherwise seek to prove its loss in another way. It may be that the tribunal will be more sceptical about the global cost claim if the direct linkage approach is readily available but is not deployed. That does not mean that the global cost claim should be rejected out of hand.

(g) DMW's Counsel's argument that a global award should not be allowed where the contractor has himself created the impossibility of disentanglement (relying on **Merton** per Vinelott J at 102, penultimate paragraph and **John Holland** per Byrne J at page 85) is not on analysis supported by those authorities and is wrong. Vinelott J was referring to unreasonable delay by the contractor in making its loss and/or expense claim; that delay would have led to their being non-compliance with the condition precedent but all that he was saying otherwise was that, if such delay created difficulty, the claim may not be allowed. He certainly was not saying that a global cost claim would be barred necessarily or at all if there was such delay. Byrne J relied on Vinelott J's observations and he was not saying that a global cost claim would be barred but simply that such a claim "has been held to be permissible in the case where it is impractical to disentangle that part of the loss which is attributable to each head of claim, and this situation has not been brought about by delay or other conduct of the claimant". In principle, unless the contract dictates that a global cost claim is not permissible if certain hurdles are not overcome, such a claim may be permissible on the facts and subject to proof.

487. Even if a global cost claim cannot be allowed unless it was impracticable or very difficult for the Contractor to relate every penny of loss to each established and pleaded event which entitled it to loss and/expense, I am satisfied that it was impracticable or very difficult for WLC in this case. This project was, essentially, a complete mess from the administrative side on the part of DMW and its professional team. The job started with remarkably little design, there were hundreds of variations, there was throughout the project hopelessly late provision of information and instructions to WLC, there was a substantial level of discord between, principally, Mr Mackay and most of his professional team most of the time and there was a strategy evolved by Mr Mackay which involved aggressively supervising the professional team and omitting a substantial amount of work whilst leaving WLC with the work which he thought WLC would have difficulty in dealing with in time. By early 2007 until the end of the project, it was virtually impossible sensibly to programme all the works because it was not known what work and with what detail it would be ordered; this period was also confused by unsubstantiated hints that Mr Mackay might omit yet further work.

488. It is suggested by DMW and Mr Pontin that much better cost records and allocations could have been maintained by WLC. An adequate cost record system was operated by WLC which was called the COINS system which recorded all the costs incurred on Units A, B and C. Against these costs which materially identified all the preliminary type costs incurred by WLC amongst other costs, WLC has sought to allocate those preliminary items which were expended or used on Unit C. It is said that, instead of an after the event allocation, WLC could and should have done a contemporary and detailed allocation. An exchange in the oral evidence of Mr Hunter (Day 13 pages

165-7) confirmed that the type of contemporaneous allocation suggested by DMW's Counsel was unrealistic and one which he had never come across. It becomes immensely artificial where many of the same preliminary costs items being deployed on two or three projects at once (as here) for someone to sit down at the end of each day and say that a precise time for each item had been incurred, particularly where, as here, many of the same sub-contractors were being deployed on more than one Unit at any one time and where many of the same sort of problems were being raised. It is of course not what WLC, BLDA or G&T actually did either.

489. The Voluntary Particulars provided by WLC by way of pleading address the seven items of preliminaries and preliminaries "thickening" costs by way of "Overview" sheets and more detailed analysis in relation to each item. As a matter of pleading, this is important because the only delay or disruption causing events which could be relied upon were those listed in the Overview sheets as opposed to the more detailed analysis attached; this was ordered by the Court on 24 May 2011 on WLC's application to re-amend its Particulars of Claim and arose because there were some discrepancies between the Overview sheets and the back-up analysis.

490. Essentially what WLC did in the Voluntary Particulars was that, for each item of claim, it listed the relevant events relied upon and then sought in the back-up documentation, in prose form, to spell out what additional or extended resources were deployed and to seek to link them to the causes of delay or disruption relied upon. All these additional or extended resources were then costed in a document called the Detailed Analysis of Loss & Expense. This comprises about 80 mostly A3 sheets of detailed analysis which pick up on allocations of time for staff and resources at particular times and applies to such allocations costs obtained from WLC's "COINS" computerised record keeping system. This was all supported by reliable evidence from WLC's witnesses, particularly Mr McMorrow, much of which was not challenged.

491. What WLC has produced is not on analysis any global or total cost claim. It has sought to identify the specific additional or extended resources and to link them to the events upon which they rely as having caused or given rise to their need for additional or extended resources. It has made allocations in respect of such resources to Unit C. DMW suggests that those allocations might be wrong; however, the Court can determine with relative ease from the evidence whether such allocations are reliable or not. In terms of the extended preliminaries, once the overall delay has been established as having been caused by factors which entitle WLC to loss and expense, then it is obvious generally and specifically from the evidence that WLC had to service the Unit C project with staff, labour and other resources during that delay period; that must have cost something. The cost is determinable from the COINS system to the extent that it is established that it was a reasonably accurate and effective system (which it was). One can take an example, say a site supervisor on Unit C who is on site for an additional 45 weeks by reason of Clause 26 factors; if he spent 100% or 50% of his time on Unit C during this period, the loss or expense incurred by WLC is his salary cost for that additional 45 weeks (in full or half of it as the case may be). Even if one considers the "thickening" preliminary costs, this is not "total" or "global". All that WLC's case and evidence goes to show is that during certain periods as a result of alleged events it had to or did apply a greater level of resource than originally allowed for; again, if the linkage between the relevant event

and the need to provide a greater resource is established, the costing of it is established by showing how many man weeks were consequently necessary and how much the salary cost was for those man weeks.

492. Even if I am wrong about the issue as to whether or not these are global claims and about the law, I am wholly satisfied on the evidence that it still remains appropriate to proceed on such a basis. I am satisfied that WLC has comfortably established that its original prices (essentially for the preliminaries) were realistic, sensible and at a level at which, if the events complained of had not happened, no net loss would have arisen. Its tender was reviewed by nationally known Quantity Surveyors, G&T; it is clear that the feeling was that if anything the tendered preliminary costs were higher than anticipated by G&T. It is also clear that, if the preliminaries had been significantly underpriced, G&T would have picked that up at the tender selection stage (and it did not do so). I accept Mr McMorrow's evidence as to the adequacy of the allowances made for resources in the tender. There was evidence that the allocation of resources was consistent with other projects and possibly somewhat higher in some respects. I also accept the thrust of Mr Hunter's evidence that the tender allowances were robust enough to manage the scope of work that could be envisaged at tender stage.

493. That said, there was an extensive debate about how many procurement packages could have been envisaged at the date of the Contract. Essentially, WLC says that what was reasonably foreseeable were some 23 (or 38) packages, this being set out in its tender procurement programme. However, there was no restriction within the Contract documentation as to how many packages of work there could be. There might conceivably have been one joinery package, but it is equally possible that there might have been five or six packages for joinery items (cupboards, doors, windows, kitchen woodwork, skirtings and the like). Whilst I do not consider that it was at all unreasonable for WLC to assume that there might only be 23 (or 38) packages (and thus 23 or 38 sub-contractors to deal with), it took the risk that there might be more. Indeed, there were substantially more packages and doubtless (and indeed as its evidence shows) WLC had to deploy additional resources to deal with the greater than anticipated number of packages. It follows that the cost of such additional resources is not as such recoverable and it will be the Court's job to identify as best as possible the resources and a sum by way of deduction which adequately reflects this cost.

494. It is suggested by Mr Pontin and DMW that the conversion of the one contract relating to all three Units into three contracts dealing with just one Unit each must or may have led to there being too little in the tendered amounts for preliminary costs to cover the costs. Mr Pontin however had carried out no real analysis of this. I am satisfied that the point is wrong. There was always going to be an economy of scale and much of the more senior site management was able productively to combine its time on more than one unit; thus, for instance, the same sub-contractors (in many instances) were used on all three units and management could deal with collectively; each Unit was only a few seconds away from the others. There was contemporaneously no hint or suggestion from anyone that the level of tendered preliminaries on Unit C was inadequate.

495. Throughout the Project all parties, WLC, and DMW's entire team including G&T who initiated or certainly endorsed such an approach, proceeded on the basis that the appropriate methodology for recording preliminary costs in relation to Units A, B and

C was that WLC should record accurately the costs which it spent on all three Plots and those costs should then be apportioned between all three Units to enable that apportioned cost to be paid for under each of the three contracts for those Plots. Thus, (save for two weeks only between 2 and 16 February 2007), DMW's team allocated the preliminary costs one third each as between Units A, B and C when they were all being worked on together; however when Unit A was completed DMW's team allocated the ongoing preliminary costs 50/50 between the remaining Units B and C. That agreed method of working has been carried through into WLC's claim. WLC has sought to demonstrate the preliminary costs which it has incurred, and then claim for the sum spent in relation to Plot C on the same apportioned basis.

496. DMW and Mr Pontin have responded by raising issues as to whether or not the overall preliminary costs recorded by WLC are accurate and by seeking to undermine or discredit the allocation to Plot C and arguing that therefore WLC cannot recover anything in respect of those costs. Alternatively, they argue that an apportionment of a third throughout is appropriate.

497. WLC relies upon the cost data recorded contemporaneously on its COINS system. However, Mr Pontin raised issues as to the recording of those costs, by comparing (1) the contemporaneous filled in and cross-checked allocation sheets with the site "signing in book" and (2) the allocation sheets and the data on the COINS system and then pointing out discrepancies between them. Mr McMorrow and Mr Corless dealt with this,effectively, in their statements. Their evidence was that the Preliminary Costs for Units A, B and C as a whole were allocated using staff allocation sheets each month. They were completed by Mr McMorrow up to December 2007 and thereafter by Mr Spiers. They said that the updated data from the allocation sheets would then be inputted by the financial controller onto the system by reference to a specific job number and in so doing he cross-checked the allocation sheets and ensured that any queries arising therefrom were raised and sorted out with Mr McMorrow or Mr Corless: where they resulted in adjustments those adjustments were made directly onto the COINS system.

498. No positive case was pleaded or put by DMW/Mr Mackay to the effect that the costs recorded in the COINS system against the Bolton's Place Project were incorrect, and no notification was made by them that they considered either the contemporaneous allocation sheets or COINS data to be forged or dishonestly recorded. Notwithstanding this, Mr Pontin's evidence concerns not only remained but he took the view that the best figures to use were those set out on the allocation sheets, with the result that some £110,000 or more should be deducted from the claim. That was unfortunate because it became clear in the course of cross examination that the reason why Mr Pontin had adopted that stance was because he, or perhaps one of his team, had or may have misunderstood WLC's solicitors' letter of 7 November 2011 which had been broadly corroborated by WLC's evidence: whilst he had misunderstood that letter as saying that the correct figures to use were those set out in the allocation sheets. It is clear (and he appeared, finally, to accept) that the letter said exactly the opposite in that it pointed out, and was directly consistent with exactly the same point made by the evidence of Walter Lilly's witnesses, that those figures had been adjusted contemporaneously by reference to the site staff and the COINS figures were therefore the most accurate. He did effectively accept that if I accepted WLC's

evidence his deduction was wrong. In the result, I accept the evidence of Mr McMorrow and Mr Corless on this matter as eminently believable.

499. I am satisfied that the COINS system provided reasonably and sufficiently accurate figures for the preliminary resources utilised and that the allocation set out in it was appropriate. It was a reasonably sophisticated, contemporaneously maintained system (which remained available for inspection during the proceedings), supported by disclosed contemporaneous allocation sheets and contemporaneously cross-checked by a financial controller with people on site. WLC also offered contemporaneously for G&T to come and inspect whatever records they saw fit at WLC's offices (particularly in relation to sensitive financial information such as staff salaries). However this offer was never taken up by G&T nor was it ever in reality suggested prior to Valuation 47 that the approach being adopted by WLC was incorrect.

500. Mr Pontin suggested that the allocation sheets and therefore the COINS system were undermined by discrepancies between them and the site signing in books. However, such signing in books are well known as likely to be discrepant because in real life people do not always do as they are told and sign the signing in book and also, as importantly, the site signing in book does not (unsurprisingly) register time spent by people on the project when they are not physically on the site. This was supported by credible evidence from Mr McMorrow and Mr Hunter. Even Mr Pontin accepted eventually in cross-examination that the COINS system was likely to be more "correct" than the signing in books. Notwithstanding this, Mr Pontin relied upon discrepancies between the signing in books and the eventual COINS allocations as his first "step" in reducing the prolongation quantum. This was unjustified in my judgement.

501. The next challenge from Mr Pontin was with the allocation, initially one third to each Unit and then adjusted upwards for Unit C to reflect the earlier completions of Units A and B. From the time when the Contract was split into three contracts, one each for Units A, B and C, with very limited exceptions G&T with BLDA's approval adopted an approach of apportioning the overall preliminary costs being incurred by WLC on the Project between Units A, B and C on a percentage basis, based on which of them had been completed. They never allocated less than 33.3% to Plot C when considering loss and expense. Whilst at times, WLC argued that more resources should be apportioned to B and C than A, DMW's team allocated 33.3% of Preliminary Costs to Unit C from the start of the Project to November 2006. They allocated at least 33% (and often a higher percentage) of Preliminary Costs to Unit C from December 2006 to February 2007. However, because no further extension of time was granted, they did not allocate any Preliminary Costs to any Plot from the end of February 2007.

502. WLC has in its claim in these proceedings reverted to apportioning the preliminary resources equally for the period up to 2 February 2007 whilst all three projects were "live" with 33.3% for Unit C, for the period 2 February 2007, when Practical Completion was achieved on Unit A until 28 September 2007, when Practical Completion was certified on Unit B, with 50% for Unit C (and 50% for Unit B), and after 28 September 2007, when Unit C was the only incomplete project during this period 100% for Unit C. That approach was supported by Mr Hunter who said pragmatically in evidence: "...by definition any apportionment is going to be a process that has swings and roundabouts. To adjust those one way or the other upsets – as far as I believe – the balance of the original arrangement in terms of apportionment".

503. This approach is challenged however by Mr Pontin and DMW who challenge the whole approach of apportionment. They argue that as WLC has continued that approach and has not sought to demonstrate which particular aspect of its costs was incurred specifically in relation to Unit C, it cannot recover any of them. In my judgement, there is nothing wrong with an attempt to apportion continuing site or project related costs on a project such as this when three related projects are being done for the same client, at the same site, with the same Design Team and with overlapping resources. There could have been no criticism from DMW if a contemporaneous minute by minute allocation or apportionment had been done at the time. What has happened instead is that that allocation or apportionment was done on a relatively broad brush basis at the time, with the consent and approval of all concerned, and that approach, albeit slightly adjusted, continues to be adopted. The issue should be, not whether apportionment is appropriate (because it clearly is) but, what the right apportionment is.

504. It is naive if not disingenuous to suggest that little or nothing should be allowed in circumstances in which it is patently obvious that substantial preliminary resources were deployed on and for the benefit of Unit C during the periods of delay for which WLC was entitled to extension of time. For instance, Mr Joyce and Mr Howie spent on any account a substantial proportion of their time during the periods of delay on seeking to administer, manage and control this project at Unit C. Some of their time may well have also been spent on Units B or A on matters for which WLC had no entitlement to financial reimbursement. It comes down therefore to assessing how much of their time was spent in helping to service the project during the periods of delay. The parties can of course argue as to whether it should be one third, one half or 100% but that WLC is entitled to substantial reimbursement is absolutely clear. Even Mr Pontin accepts, albeit in the alternative, that WLC should have one third of the relevant continuing resources; even that approach however is somewhat niggardly because again it must be obvious that once Units A and B were completed WLC's resources on the completed Units would and did go down substantially and, subject to any arguments about excessive costs or resources being deployed or allocated to Unit C, the proportion of preliminary resources deployed in relation to Unit C was probably and would be expected to be greater after each of the other Units was completed.

505. Subject to making appropriate allowances for the factors or matters either for which WLC was responsible or which have not been pleaded, I am satisfied that that the apportionments made in these proceedings by WLC in relation to the preliminaries were reasonable, realistic and justifiable.

506. Finally, in this context, DMW sought to argue that in effect WLC had recovered all or most of its preliminary costs through payments made by DMW in relation to all three Units; this was set out in Paragraphs 230A to C of the Re-Re-Re-Amended Defence and Counterclaim and was endorsed by Mr Pontin. The exercise involved identifying the total cost as shown on the COINS system for all three Units, deducting various redacted costs, then adding various accrued liabilities to sub-contractors and the like together with some VAT and then finally deducting payments requested in relation to Units A, B and C. It was a flawed exercise as the actual payments received in respect of the three Units was £2.27 million less than the amounts said to have been applied for. It therefore did not show that the preliminary costs had in fact all been recovered;

it actually showed, if anything, that they had not been recovered from DMW. There were other differences between the parties on this set of calculations and I preferred those put forward by WLC and its quantum expert.

507. I now turn to consider the seven individual heads of prolongation loss or expense which is claimed.

508. I should emphasise that where I make allowances or adjustments from the sums claimed I have if anything erred on the side of caution and in favour of DMW and the Mackays. I will refer to realistic or reasonable minimums or other allowances in terms of percentages of resource or cost to be allowed where appropriate, where these represent the best that I can do on all the available evidence.

Item 1: Thickening costs up to March 2006

509. A gross sum of £118,528 is claimed for extra preliminary type resources said to have been applied by WLC in the period up to March 2006, by when the contract works should originally have been completed. £26,100 was allowed by G&T and certified by BLDA. The Voluntary Particulars (Pages A657 to A696 in the pleading bundle) were not seriously challenged by DMW's Counsel (there being little or no cross-examination of the WLC witnesses) about this period but they were supported by witness evidence from WLC. They refer (amply supported by a contemporaneous documents) to a large number of delay and disruption causing events relating to piling, the frames, the pre-cast concrete, the brickwork, the mechanical and electrical works, the stone works, joinery, the main staircase, the kitchen, the Courtyard screens, the lighting, the late procurement of numerous other packages as well as an increase in the number of packages over what had actually been envisaged by WLC.

510. Although numbers alone do not always tell the whole story, there was during this period a massive number of revised drawings, specifications and schedules issued (1508), 146 formal Architect's Instructions, 121 confirmations of verbal (variation) instructions and some 249 Questions and Answers sought and provided by the Design Team. The project was hopelessly under-designed and it matters not whether the fault or responsibility was that of Mr and Mrs Mackay or one or more members of their Design Team. This meant that during what should have been the original contract period the Design Team was always on "the back foot" and there were substantial efforts made to re-design to seek to bring costings closer to the budgets which had been set. It is clear from the extensions of time which were granted that BLDA accepted that the substantial delays which occurred during this period not only justified extension of time but also reimbursement of the related loss and expense. Indeed, DMW and Mr Mackay do not seek to challenge or even undermine the extensions of time granted up to February 2007.

511. I will not reiterate all the information set out in the Voluntary Particulars but it is abundantly clear that a substantial amount of additional resource was required, over and above what had reasonably been allowed within WLC's accepted tender rates. I broadly accept the contents of the Voluntary Particulars in so far as they set out the Events' impact on resources and the need to utilise additional staff resources.

512. It is necessary to ascertain as best as one can how much of the established costs relate to the increase in the number of the procurement packages (which in my view was a

risk retained by WLC) or by other factors which are either not pleaded or are otherwise the risk or responsibility of WLC. In the interests of proportionality (and to prevent this judgement stretching to hundreds more pages), I propose simply to list with brief comments as to what I find is due.

513. The Detailed Analysis of Loss and Expense lists various heads which I will address:

ITEM	COMMENTS	AMOUNT ALLOWED £
Professional fees	£2,661 is claimed for bringing in a Mr Brattle. However part of his time was spent in dealing with piling groundwork and frames sub-contractors which was part of WLC's responsibility. However, he also had to deal with variations to the piling which were substantial and significant. Half of this cost is a reasonable minimum allowance	1,330
Temporary accommodation	A total of £994 is claimed. I am satisfied that an additional container was required to accommodate additional staff. This claim is established as additional staff were required.	994
Telephone, fax, Computer equipment	£177 is claimed but there seems to be little or no evidence about this; this claim is rejected.	Nil
Scaffolding	£19,810 is claimed of which £19,229 relates to sub-contractor scaffolding. Part of this had to do with the need for adaptations to site compound scaffolding needed to accommodate additional cabins for additional staff. An appropriate minimum allowance equates to about 2/3 to reflect not only the delays and the need to maintain scaffolding longer than might otherwise have been the case but also to accommodate variations and the site compound scaffolding.	12,819
Plant/pumping	£318 is claimed. There is little or no reliable evidence about this.	Nil
Temporary plumbing/ electrics	£7,649 is claimed for this which relates to variations, late instructions and additional site establishment facilities. This has been proved in full.	7,649
Signboards	£65 is claimed. It has not been proved.	Nil
Drawings/manuals/ photos	£1,687 is claimed and is primarily relates to the increase in number of work packages and is therefore not allowable	Nil

Sundries	£100 is claimed. It has not been proved	Nil
Travel/subsistence	These costs (£1564) are related to additional staff required. It is a legitimate head of claim and an allowance of one third is a reasonable minimum assessment	520
Entertaining	£52 is claimed. It has not been proved.	Nil
Other Expenses	£35 is claimed. It has not been proved.	
Additional Staff time	£64,061 is claimed. The minimum additional time attributable to the matters and events established is one half of the extra time and cost claimed for Messrs Joyce, McMorrow, Lambarth, Whatling, Wakeman, Hamilton, and Hill and Ms Chamberlain (£21,666). Nothing is allowed for Ms Hazelton or for Mr Givings as most of their time appears to have been addressing the increased level of procurement. Two thirds of Mr Zanali's time should be allowed (£5,990).	27,656
Site Staff salaries and cars re-charge	This is related to the additional staff time and a reasonable minimum allowance is one third of the £6495 claimed.	2,165
Additional site labour	£12,860 is claimed for additional site labour which was primarily concerned with variations, late information and delays during this period. A reasonable minimum allowance is three quarters of this sum.	9,645
TOTAL ALLOWED		62,778

Preliminaries costs up to 16 February 2007

514. WLC claims £304,695 for extended preliminary costs attributable to the extension of time granted by BLDA for the delays. £295,759 was certified and allowed for this by G&T and BLDA. The Voluntary Particulars address this claim at pages A697 to A707. It is, conceptually, a simpler claim than the "thickening" cost claim as it simply identifies the resources (and related costs) which were on or attached to the site for the period of time for which extension was actually granted. There was little or no factual challenge to the contents of the Voluntary Particulars, again which were supported by WLC's evidence. What is claimed for is the preliminary resources at the level originally contracted for. Thus, 40% of Mr Joyce's time was originally allowed for and 40% of his time, at least, was applied during this period. To the extent that any additional time or resource was deployed, that is covered by the "thickening" claim (for which see below).

515. There was at that time and in the proceedings there has been little or no complaint about the performance of WLC during this period. There were a few minor complaints this against WLC but nothing exceptional. It should be remembered that

almost all the work was being sub-contracted and the actual cost of putting right defects or deficiencies would fall to the offending sub-contractor. I am satisfied that no additional management time or preliminary resource was applied to deal with any such minor matters. The period between March 2006 and mid-February 2007 was one in which the administrative confusion continued apace with late instructions and numerous variations and there was no delay causing factor which was the fault, risk or responsibility of WLC.

516. I am satisfied that this claim for this period has been proved in its entirety and that there are no good reasons for reducing it at all. The full amount should be allowed.

Item 3 – Thickening up to 16 February 2007

517. This claim relates to additional resources applied in the period between the original completion date (13 March 2006) and 16 February 2007, over and above the basic level of preliminaries (addressed in Item 2 above). A gross sum of £243,183 is claimed and £85,868 was allowed for by G&T. Again, the Voluntary Particulars address this claim in detail at pages A 707-1 to A741 and that evidence is supported by witness evidence, particularly Mr McMorrow, whose evidence I found to be eminently credible.

518. The extensions as awarded by BLDA were, after the deferred possession (about which there is no issue), 28 plus 21 days for substructure delays (15 November 2005 and 9 February 2006), 10 days for additional drainage works (9 February 2006) 11 days for structural and frame with variations (9 February 2006), 4 days for additional concrete frame works (9 February 2006), 21 days for additional work in relation to wind posts (9 February 2006), 26 days for bespoke damp proof courses by way of variation (9 February 2006, and 19 days for late electrical information (9 February 2006), 21 days for late information and varied work relating to the frame and joinery procurement (28 July 2006), 28 days for variations to the substation (28 July 2006), 58 days for late instructions and variations relating to the substation (15 September 2006), 26 days or variations relating to the gas supply (14 November 2006) 42 days for further gas supply related delays (7 December 2006), 11 days of further gas supply issues (19 January 2007 and 14 days or further gas supply problems (2 February 2007). In addition it is clear that WLC was concurrently delayed and disrupted by other issues such as the Light Wall, the late instructions for the Barrisol ceilings, variations to the main entrance door, late instructions and variations relating to joinery (particularly relating to Adams Joinery), variations and late instructions relating to the stone package, the hardwood flooring, the main staircase, structural glass, windows, the steel work, external decoration, external works, louvre grills, mechanical and electrical services, internal balustrades, Sika rendering and the edge drainage to the swimming pool, plastering, dry lining and ceilings as well as other variations.

519. This period covered the time when relations between BLDA and Mr Mackay in particular deteriorated sharply and Mr Mackay embarked upon his strategy of having Knowles oversee his professional team and of pressurising WLC. The project was in serious delay, through no fault on the part of WLC and work was to a significant extent being done on a piecemeal basis and in a highly disruptive fashion. It is therefore wholly understandable that WLC had to deploy substantial additional resources to run and service the Unit C project. The overwhelming picture which emerges is that the project was in crisis and the fault for that lay between the Design

Team and Mr Mackay. There was a lack of direction and co-ordination from the Design Team and this became confused still further when Mr Mackay decided to bring in Knowles.

520. As the Voluntary Particulars make clear, the extra resources were required essentially for three reasons, late information, variations and an extended procurement process attributable to a greater than foreseen number of packages as well as the packages being of greater scope and complexity than envisaged. For reasons indicated elsewhere the latter category was WLC's risk and it should not be entitled to additional resources as a result. The other two categories should attract an entitlement to reimbursement.

521. The sums claimed by WLC are predicated upon the basis of an apportionment of one third to Unit C (and one third each to Units B and C), save that for the last two weeks from 2 to 16 February 2007 50% is allocated to Unit C because Unit A had been completed. I consider however that for that two week period a one third apportionment should continue to apply because it is probable that the resources continued to be applied to Unit A or, at the very least I am not satisfied that they were not.

522. Taking into account what attracts reimbursement and what does not (including what is not pleaded), I consider, having taken all the evidence into account, that the following ascertainment can be made in relation to this claim. The Detailed Analysis of Loss and Expense lists various heads which I will address:

ITEM	COMMENTS	AMOUNT ALLOWED £
Professional fees	£2,459 is claimed for the continuing use of Mr Brattle in relation to design co-ordination for additional and extended piling work as well as in relation to external works and bringing Mr Parnham to assist in the commercial management and extension of time applications. I have formed the view that a reasonable minimum attributable to factors which do attracts reimbursement is half.	1,229
Temporary accommodation	A total of £1,269 is claimed. I am satisfied that an additional container was required to accommodate additional staff. This claim is established as additional staff were required.	1,269
Telephone, fax Computer equipment	£1,902 is claimed and there is evidence that due to the increase in staff and labour resources there is likely to have been an increase in the use of these facilities. I agree. A	951

	reasonable minimum allowance is half	
Scaffolding	£32,444 is claimed of which £31,365 relates to sub-contractor scaffolding. I am not satisfied that the evidence establishes any linkage between the need for scaffolding provided by WLC and the matters complained of. Part of the sub-contractor scaffolding had to do with the need for adaptations to site compound scaffolding needed to accommodate additional cabins for additional staff. An appropriate minimum allowance equates to ½ of what is claimed for the sub-contractor scaffolding to reflect not only the delays and the need to maintain scaffolding longer than might otherwise have been the case but also to accommodate variations and the site compound scaffolding.	15,682
Cranes/Hoist	£2,852 is claimed because following the removal of the tower crane in October 2006 Mobile Cranes had to be deployed to remove temporary accommodation by reason of the amount of staff on site and work still remaining to be completed. This is directly attributable to the overall delay and is recoverable in full	2,852
Clean and clear	£8,497 is claimed relating to the provision of additional domestic and work packages waste removal attributable to the increase in the number of work packages and the extent and timing of variations which increased the number of subcontractors on site. Due to the construction of the new substation at the front of Plot C method of waste removal had to be changed from skips to wheelie bins and refuse collection lorries, this method of removal being more expensive than skips. Disallowing the maximum attributable to the increase in the number of work	5,664

	packages, a reasonable minimum allowance is two thirds.	
Temporary plumbing/ electrics	£11,840 is claimed for this which relates to variations, late instructions and additional site establishment facilities. This has been proved in full.	11,840
Drawings/manuals/ photos	£4,669 primarily relates to the increase in the number of work packages. Nothing is allowed.	Nil
Travel/subsistence	These costs (£4,441) are related to additional staff required for the staff required to service the variations and late information and instructions. It is a legitimate head of claim and a minimum allowance of one third is a reasonable assessment	1,480
Entertaining	£1,479 is claimed. It has not been proved.	Nil
Other Expenses	£335 is claimed. It has not been proved.	Nil
Additional Staff time	£64,061 is claimed. The minimum additional time attributable to the matters and events established is one half of the extra time and cost claimed for Messrs Joyce, McMorrow, Wakeman, Hamilton, Zanali and Hill and Ms Chamberlain and Ms Chapman (£33,140). One quarter of Mr Giddings time is allowed as dealing with variations (£1,886).Nothing is allowed for Ms Hazelton, Mr Battley, Mr Scott or for Mr O'Brien as most of their time appears to have been addressing the increased level of procurement and non-claim related matters otherwise not proved.	35,026
Staff salaries and cars recharge	This is related to the additional staff time and a reasonable minimum allowance is one half of the £16,512 claimed.	8,256
Additional site labour	£46,353 is claimed for additional site labour which was primarily concerned with variations, late information and delays during this period. A reasonable minimum allowance is half of this sum.	23,176

	Less allowance for only 1/3 allocation for last two weeks	[2,800]
TOTAL ALLOWED		104,625

Item 4 – Prolongation up to 6 February 2008

523. This claim relates to the basic preliminaries extended over the period 16 February 2007 to 6 February 2008 which is the date upon which WLC primarily pleaded that it had achieved Practical Completion. Although I have found that Practical Completion occurred later, for convenience I will retain this end date of 6 February 2008 for this item. It has been found in this judgement that WLC is entitled to an extension of time until the later Practical Completion date. The delays were caused in fact by issues relating to the Light Wall, the Leather in the Library, the Stingray doors and the Barrisol ceilings and related lighting. There were also delays relating to the lighting to two rooms, WC2 and WC3, caused by variations, albeit that they did not cause overall delay. £297,046 is claimed for these extended preliminaries. I am satisfied that all the staff identified (Messrs Joyce, McMorrow, Rough, Spiers, Yems, Fairweather, Pacey, Gad and Zanali) were deployed extensively on Unit C during this period and that this would have been unnecessary but for the factors which cause the overall delay. In addition, a gateman, Mr Shields, was required for part of the period (until April 2007). I am satisfied that all the other heads of claim (local authority charges, temporary accommodation, safety and site specific administration and sundries, cranes and hoist, plant, pumping and drying out, clean and clear operations, the maintenance of hoardings and travel, subsistence, entertaining and other related expenses) were expended .

524. For this period of 51 weeks, 50% of the overall resources are allocated by WLC to Unit C up to 28 September 2007 (when Unit B was certified as practically complete) and thereafter 100%. I am satisfied that this allocation is overgenerous to WLC. It is clear from the documentation and other evidence that there continued to be a not insignificant deployment of the resources on Unit A until September 2007 and on Unit B (and to a much lesser extent Unit A) thereafter until early February 2008. For instance, there were meetings in relation to Units A and B to discuss financial matters and to resolve defects, involving staff who have also been allocated to Unit C In my judgement, having considered all the evidence, I consider that overall no more than 10% of the resources were being applied to Unit A in this first period and that a fair and realistic allocation until 28 September 2007 in relation to Unit C is 45%. Thereafter, for the second period up to 6 February 2008, a fair and realistic allocation to Unit C is 80%.

525. Also, in the period 16 February 2007 to 6 February 2008, there were two events which, whilst they did not cause overall delay, were the risk and responsibility of WLC, namely the heated discussion about plastering defects in the February to April 2007 period and the even more heated discussions and resolution of the lift problems in the March to November 2007 period. These were for instance addressed by Mr Joyce, Spiers and Fairweather whose extended time has been allocated to this period. The fact that (as was the case) DMW substantially exaggerated the extent and scope of the defects and that extra time had to be deployed to deal with what turned out to be difficult clients whose relationship with their professional team was deteriorating

does not detract from the need to make an appropriate allowance off any cost or loss incurred by WLC in relation to these matters. In addition, there were adjudications during this period, in relation to which each party would be expected to pay its own costs and it is clear that not insignificant time was deployed by several of the staff whose time is claimed for under this head; there can be no recovery in respect of that. In my judgment, a maximum deduction of £30,000 can and should be made for these matters.

526. I see no reason to make any other adjustments from the costs which are otherwise established in relation to the extended ordinary level of resources, save in relation to the sum of £6,778 in relation to "sundries" which has not been adequately proved. In relation to defects, such as plastering and lift matters for which WLC had the risk and have no claim, they will be taken into account at in the "thickening" claim in respect of this period. Therefore a total of £36,778 falls to be deducted from the overall claim.

527. The total which is left is £260,268 which then needs to be adjusted to reflect the percentage allocations referred to above. Doing the best that I can, and relating the 45% period to 226 days and the 80% to the balance of 131 days, an additional 5% should be deducted from 226/357 times £260,268 (£8,238) and 20% should be deducted from 131/357 times £260,268 (£19,101), leaving a balance of expense incurred in relation to this claim of £232,929.

Item 5 – Thickening up to 6 February 2008

528. A sum of £297,910 is claimed for additional resources applied during this period. The same events referred to above for this period applied but there were also substantial additional works relating to the external works, joinery and doors, new plastering work, and additional work emanating from the deployment of DMW's direct contractors as set out in the Voluntary Particulars. This latter problem essentially involved substantial additional attendance on about 50 directly employed contractors and included work such as opening up completed works, installing and lifting up protection, clearing rubbish and waste materials away, supervision on health and safety matters and the provision of CDM obligation related services There were a substantial number of revised drawings issued in this period (23), architects instructions (134) and 94 confirmations of verbal instructions. There were particular time consuming problems during this period, not least of which were the Light Wall issues, the Adams Joinery matters particularly relating to the Leather in the Library and the almost never-ending problems associated with the lighting above the Barrisol ceilings. The ordinary and the underlying level of preliminary resources would never have been sufficient to accommodate all the problems relating to these issues.

529. Also, in the period 16 February 2007 to 6 February 2008, there were the two events referred to above, plastering defects in the February to April 2007 period and the lift problems in the March to November 2007 period. In addition to the deduction within Item 4 above, a further deduction for these matters can be no more than £20,000 in relation to the thickening resources.

530. I accept WLC's evidence both of factual witnesses and Mr Hunter that the level of cost put forward is established. However, the total sum of £297,910 falls to be reduced to reflect not only the different percentage allocations applied in this judgement (see above) but also at this latter factor. In relation to the first of these two

reductions, I apply the same exercise as in relation to Item 4 above. From the sub-total below (£132,785), an additional 5% should be deducted from 226/357 times £132,785 (£4,203) and 20% should be deducted from 131/357 times £132,785 (£9,745), the total being £13,948.

531. Taking into account what attracts reimbursement and what does not (including what is not pleaded), I consider, having taken all the evidence into account, that the following ascertainment can be made in relation to this claim. The Detailed Analysis of Loss and Expense lists various heads which I will address:

ITEM	COMMENTS	AMOUNT ALLOWED £
Professional fees	£10,609 is claimed for the continuing use of Mr Brattle albeit in this period in relation to complaints about plastering, pool screens and the glass lift shaft. Given what I have said above, the minimum allowable is 20% of this (£2,121). No less than £46,448 is claimed for the continued use of Mr Parnham to assist in the commercial management and extension of time applications. This has not been fully or adequately explained but it is clear that he was deployed and some time and resources were applied by him in preparing extension of time claims in respect of matters upon which as a matter of liability WLC has succeeded. A minimum of £10,000 has been established, as a matter of best assessment. The total allowable therefore is £12,121.	12,121
Temporary accommodation	A total of £2,777 is claimed. I am satisfied that an additional container was required to accommodate additional staff. This claim is established as additional staff were required.	2,777
Telephone, fax Computer equipment	£1,043 is claimed and there is evidence that due to the increase in staff and labour resources there is likely to have been an increase in the use of these facilities. I agree. A reasonable minimum allowance is half	521
Scaffolding	£678 is claimed but little or no evidence has been provided which	Nil

	supports this and nothing is allowed	
Cranes/Hoist	£2,305 is claimed because following the removal of the tower crane in October 2006 Mobile Cranes had to be deployed to remove temporary accommodation by reason of the amount of staff on site and work still remaining to be completed. This is directly attributable to the overall delay and is recoverable in full	2,305
Clean and clear	£5,619 is claimed relating to the provision of additional domestic and works package waste and rubbish clearance attributable to the extent and timing of variations. A reasonable minimum allowance is half of this.	2,809
Temporary plumbing/ electrics	£5,039 is claimed for this which relates to variations, late instructions and additional site establishment facilities. This has been proved in full.	5,039
Watching and lighting	£2,956 is claimed for this which is not referred to in the Voluntary Particulars at all. Nothing is allowed	Nil
Drawings/manuals/ photos	£1,671 is claimed and primarily relates to printing and photocopying costs attributable to the increase in the number of procurement packages albeit that some relates to documentation requested by BLDA in relation to extension of time applications. 10% of this is the minimum which can have been incurred and which is recoverable.	167
Travel/subsistence	These costs (£5,099) are related to additional staff required for the staff required to service the variations and late information and instructions. It is a legitimate head of claim and a minimum allowance of one third is a reasonable assessment	1,700
Entertaining	£1,479 is claimed. It has not been proved.	Nil
Other Expenses	£285 is claimed. It has not been proved.	Nil

Additional Staff time	£115,758 is claimed. The minimum additional time attributable to the matters and events established is one half of the extra time and cost claimed for Messrs McMorrow, Hamilton, Holford and Wells is and Ms Hazelton and Ms Chapman (£57,203). Nothing is allowed for Mr Scott or for Mr Hicks as this has otherwise not been proved.	57,203
Staff salaries and cars recharge	This is related to the additional staff time and a reasonable minimum allowance is one half of the £2,535 claimed.	1,267
Additional site labour	£93,752 is claimed for additional site labour which was primarily concerned with variations, late information and delays during this period. A reasonable minimum allowance is half of this sum.	46,876
Sub-total		132,785
	Less allowance for 40% allocation until 28 September 2007 and 80% allocation thereafter And less allowance for factors which were the risk and responsibility of WLC	[13,948] [20,000]
TOTAL ALLOWED		98,837

Item 6- Preliminary Costs incurred after 6 February 2008

532. This head of claim covers the periods between 6 February and 14 August 2008 (when Practical Completion was certified) and thereafter up to August 2009. The first of these two periods represents a comprehensible and pleaded head of claim and covers the extended use of resources in managing the site, dealing with sub-contractors and attending all artists and tradesmen engaged by DMW during this period. The second period involves, not as such, delay and disruption and the potential claim under Clause 26 but what WLC considered was unjustified investigations into a variety of defects which all or mostly turned out not to be the responsibility of WLC.

533. Mr Joyce gave largely unchallenged evidence about this in his main witness statement at Paragraphs 16.1 to 16.49. I accept that evidence. Essentially, on a misguided and wrong (both factually and legally) basis, DMW kept WLC on the site for most of this period (up to August 2008) to address problems which were not of its making; these problems were the Light Wall, the ABW and the Courtyard Sliding doors and the putting right of hundreds of snags, damage or defects which were the full and responsibility of the artists and tradesmen engaged by DMW directly. But for these matters, Practical Completion could, should and would have been secured and certified very much earlier.

534. It followed that WLC was put in the position in which it had to maintain preliminary type resources in terms of staff as well as facilities on and for the site. This is compounded by the fact that there was a mutual understanding and agreement between the parties that WLC would provide the CDM supervision role not only for itself but also for the artists and tradesmen engaged by DMW during this period.

535. In terms of the allocation of costs from the COINS system, in my judgement a reasonable minimum allowance is and would be 90% up to August 2008. Unit A had been completed for over a year and Unit B for about six months. I can see no good reason factually for discounting the overall preliminary type costs by more than 10% to reflect the application of the resources to anything other than Unit C.

536. I draw a distinction however between the need to service the site until the certified date of Practical Completion (14 August 2008) and what happened thereafter. After 14 August 2008, undoubtedly costs were incurred and resources deployed. However, there would always to have been a deployment of some such resources following Practical Completion, whenever it occurred. This is because there was a Defects Liability Period and during such period there would always likely to have been the application of resources to deal with defects or alleged defects and final accounting and, these would not usually attract any additional payment, and only very unusually pursuant to Clause 26. I am therefore disinclined to find on a balance of probabilities that any liability for costs incurred after 14 August 2008 attracts any entitlement to be paid.

537. I will set out below my assessment of what is properly due and was as a realistic minimum the loss and expense incurred:

ITEM	COMMENTS	AMOUNT ALLOWED £
Professional fees	£2,204 is claimed for the continuing use of Mr Brattle albeit in this period in relation to complaints about the Light Wall, the Courtyard Sliding doors, the ABW, lift shaft, roof works, swimming pool watertightness, chimneys/flues and alleged water penetration elsewhere. It is clear from Mr Joyce's evidence that much of his time related to the first three items; the other matters do not obviously give rise to any entitlement. A realistic minimum cost is half of this figure (£1,102). A sum of £33,680 relates to other charges incurred from professional organisations in relation into investigations into the Light Wall, the lift enclosure and the Courtyard Sliding Doors as well as the	1,102

	chimneys and flues. In my judgement these are not caused by the matters complained of as giving rise to delay and disruption but more to WLC wholly understandably wishing to protect itself against what were mostly unjustified complaints. Therefore nothing is allowed in this context.	
Temporary accommodation	A total of £ 4,060 is claimed. I am satisfied that a temporary accommodation and related costs were incurred during the period up to the end of August 2008. I discount this figure however by 10% to reflect the few items of additional cost which extended beyond August into October and November 2008 This claim is established as additional staff were required.	3,654
Telephone, fax Computer equipment	£376 is claimed and there is likely to have been an extended use of these facilities. I agree. A reasonable minimum allowance is 90%	338
Scaffolding	£591 is claimed but little or no evidence has been provided which supports this and nothing is allowed	Nil
Cranes/Hoist/ Pumping	£1,026 is claimed; by reason of the delay an additional pallet truck had to be brought in to handle deliveries. Part of the cost relates to the provision of a small battery operated drill. A realistic minimum attributable to the delay until mid-August 2000 and there is half of this figure	513
Clean and clear	£495 is claimed relating to the provision of additional domestic and works package waste and rubbish clearance attributable to the extent and timing of variations. A reasonable minimum allowance is half of this.	247
Drying out	£646 is claimed. There is little or no evidence to support this.	Nil
Hoardings	£2,295 was incurred to secure all the front and neighbouring boundaries. This is directly related	2,295

	to the delay and was maintained until the end of July 2008. It is recoverable in full.	
Setting out and fire precautions.	£455 is claimed for these items which are not referred to in the Voluntary Particulars at all and Mr Joyce does not address them. Nothing is allowed	Nil
Drawings/manuals/ photos	£7,498 is claimed and primarily relates to printing and photocopying costs attributable to the need to update Operating and Maintenance Manual information by reason of variations as well as dealing with the increase in the number of work packages. Some photocopying was done to issue numerous documents to the new Architect, Navigant; this is not attributable to delay or disruption. 25% of this is the minimum which can have been incurred and which is recoverable.	1,874
Electricity/gas/ water	£382 is claimed and it is inevitable that by reason of the delay up to mid-August 2008 some further cost was incurred. Half of this is a realistic minimum.	191
Travel/subsistence	These costs (£5,417) are related to the extended staff requirements It is a legitimate head of claim and a minimum allowance of one third is a reasonable assessment	1,805
Entertaining	£640 is claimed. It has not been proved.	Nil
Other Expenses	£1,104 is claimed. It has not been proved.	Nil
Additional Staff time	£84,016 is claimed. I am satisfied that half of Messrs Joyce's and Spiers time is recoverable as attributable to the delay until mid-August 2008 3/4 of the time of Mr Gad and Mr Fairweather (£45,576). I allow nothing for the time spent by Messrs Scott, Hicks, Davies, Groves, Kerrigan, Dennis, Rose, De Souza or Boyssen. These of either simply not been proved or they relate to investigation into a variety of defects in 2009 which	35,026

	irrespective of the matter is complained of is causing delay and disruption in these proceedings would have been incurred in any event	
Additional site labour	£17,743 is claimed for additional site labour which was primarily concerned with continuing distribution resources around the site. This involves one ganger between February and August 2008 and one general labourer in March, April, June and July. This is directly concerned with the delay and the continuing need to service the site. A realistic minimum is 75%	13,307
	Less allowance of 10% on additional staff time	[3,502]
TOTAL ALLOWED		56,850

Item 7- Cleaning

538. This head of claim is a somewhat anomalous one in that it does not on analysis relate to delay or disruption. It does relate however to abortive builders cleaning work apparently done in 2007 when it was thought that Practical Completion might have been achieved. Mr Joyce gives little or no comprehensible evidence about this and in my judgement it is not recoverable because it is not obviously related to any of the matters which are the subject matter of complaint in these proceedings. I have no doubt that the costs were incurred but they are not directly attributable to variations, the delay as such or indeed any particular instruction from the Architect.

Summary of Recoverable Preliminaries Costs

539. From the allowances made above, a total of £860,714 is allowable and due to WLC in relation to preliminaries costs by reason of the delays and disruption suffered as the result of the matters found in this judgement, made up as follows:

Item 1: 62,778
Item 2: 304,695
Item 3: 104,625
Item 4: 232,929
Item 5: 98,837
Item 6: 56,850
Item 7: Nil

Total: £860,714

Head Office Overhead and Profit

540. £276,171.98 is claimed for delay related loss of overhead and profit. This represents a well established basis of claim whereby a contractor, which has suffered delay on compensable grounds seeks the losses which it has suffered as a result of not being able to take on other projects as a result of that delay and disruption (here to Unit C), that loss being the loss of its opportunity to defray its head office overheads over those other projects and the loss of profit from those lost jobs. This has been discussed and approved in cases such as **Norwest Holst Construction Ltd v CWS** [1997] APP.L.R. 12/02, **Whittal Builders Co Ltd -v. Chester-le-Street District Council**(1985) 12 Const LJ 256, (2) **J Finnegan Ltd v. Sheffield City Council** (1988) 43 BLR 130 (3) **Beechwood Development Company(Scotland) Ltd v. Stuart Mitchell** (2001) CILL 1727.

541. In this case, WLC use a formula, the Emden formula, to assess the loss of overheads and profit. In **Alfred McAlpine Homes North Ltd v Property and Land Contractors Ltd** (1995) 76 BLR, HHJ Humphrey Lloyd QC, considering an appeal from an arbitrator, addressed the issue of the various formulae in relation to such claims at pages 70-71:

> "…the Emden formula…is one of a number of methods conventionally applied in an attempt to arrive at an approximation of the damages supposedly incurred by a contractor where there has been delay to the progress of the works whereby completion is similarly delayed. The theory is that because the period of delay is uncertain and as the contractor can take no steps to reduce its head office expenditure and other overhead costs and cannot obtain additional work there are no means whereby the contractor can avoid incurring the continuing head office expenditure, notwithstanding the reduction in turnover as a result of the suspension of delay to the progress of the work. The reduced activity no longer therefore pays its share towards the overhead costs. This type of loss (sometimes called a claim for "unabsorbed overheads") is however to be contrasted with the loss that may occur if there is a prolongation of the contract period which results in the contractor allocating more overhead expenditure to the project than was to have been contemplated at the date of the contract. The latter might perhaps be best described as "additional overheads" and will, of course, be subject to prove that additional expenditure was in fact incurred.
>
> Furthermore the *Emden* formula, in common with the *Hudson* formula…and with its American counterpart the *Eichleay* formula, is dependent on various assumptions which are not always present and which, if not present, will not justify the use of a formula. For example the *Hudson* formula makes it clear that an element of constraint is required…ie in relation to profit, that there was profit capable of being earned elsewhere and there was no change in the market thereafter affecting profitability of the work. It must also be established that the contractor was unable to deploy resources elsewhere and had no possibility of recovering costs of the overheads from other sources, e.g. from an increased volume of the work. Thus such formulae are likely only to be of value if the event is causing delay is (or has the characteristics of) a breach of contract…"

542. HHJ LLoyd QC went on to say in relation to Clause 26 in relation to the exercise of ascertainment that ""to ascertain" means "to find out for certain" and it does not therefore connote as much use of judgment or the formation of an opinion had "assess" or "evaluate" being used".

543. Considering these various authorities, the following conclusions can be drawn:

> (a) A contractor can recover head office overheads and profit lost as a result of delay on a construction project caused by factors which entitle it to loss and expense.
>
> (b) It is necessary for the contractor to prove on a balance of probabilities that if the delay had not occurred it would have secured work or projects which would have produced a return (over and above costs) representing a profit and/or a contribution to head office overheads.
>
> (c) The use of a formula, such as Emden or Hudson, is a legitimate and indeed helpful way of ascertaining, on a balance of probabilities, what that return can be calculated to be.
>
> (d) The "ascertainment" process under Clause 26 does not mean that the Architect/Quantity Surveyor or indeed the ultimate dispute resolution tribunal must be certain (that is sure beyond reasonable doubt) that the overheads and profit have been lost. HHJ Lloyd QC was not saying that assessment could not be part of the ascertainment process. What one has to do is to be able to be confident that the loss or expense being allowed had actually been incurred as a result of the Clause 26 delay or disruption causing factors.

544. It is therefore necessary to review the evidence of fact in this case, which primarily came from Mr Corless, who I found to be a honest, reasonable and satisfactory witness whose evidence I accept. Mr Corless has given detailed evidence that WLC's "business model" and mode of operation is and was to use only direct employed (that is not agency) staff in lead roles when carrying out contracts. Its Business Development Department was tasked to identify suitable contracts to tender which would commence on site at a time when the appropriate staff become available, that is following the completion of their current projects or when their expertise is no longer required on a particular project. WLC's directors assisted in this process by carrying out a review of future tendering opportunities and staff availability on a weekly basis every Monday morning. Thus the strategy was constantly under review and allowed the relevant director to accept or reject tender opportunities depending upon resource availability ahead of their receipt in the office. Between January 2006 and September 2008 WLC's tender success rate was in the order of 1 in 4 (explained in evidence to be based on tenders submitted). During that period WLC had to and did decline a number of tendering opportunities: that was not said vaguely, or in a vacuum of support: the opportunities received and declined were precisely detailed on a comprehensive schedule attached to Mr Corless' statement.

545. Mr Corless stated that one of the primary reasons for declining opportunities was that WLC had a number of employees that were still engaged on Unit C project and until they were released from their duties there they could not be considered available for other contracts. The levels of time commitment required of management resource for

Unit C were clear from the statements of Messrs Joyce, Howie and McMorrow. It was inevitable, he said, that but for the involvement of management staff in Unit C over a prolonged period other opportunities could have been pursued. It was clear from the schedule (attached to the statement) that the number of opportunities in the relevant period was significant and the market for the type of projects constructed by Walter Lilly was relatively buoyant in the 2006 to 2008 period. He went on to say: "As a consequence of not being permitted to do so the management team, comprising of those individuals listed above, were on site for additional durations and could not be made available for other projects. As a result the business was prevented from acquiring more profitable contracts". He was firm in evidence that he was absolutely confident that, if WLC had had the management team from Unit C available, more tenders would have been submitted and one in four tendered projects would have been secured.I accept that evidence.

546. A number of points are made by DMW, its Counsel and Mr Pontin, only some of which were put to Mr Corless. It is said first that there was no disruption attributable to Unit C after June 2008. That does not take the discussion anywhere because the delays in this case and the extension and thickening of resources that started within a few weeks of the commencement of the project in 2004. It is wrong and indeed illogical to consider the loss of profit and overhead as being initiated solely in the period from the original date for completion in March 2006 to 14 August 2008. If the project had gone to plan and without delay and disruption, the management team would have been capable of being released in part during the original contract period; put another way, not all the management team needed to be on site or allocated to the project for the whole of the original contract period. The loss of profit and overhead is legitimately calculated by reference to the delay period because profit and overhead from other projects would have been generated in that period. This is a bad point in any event because loss of overhead and profit is not claimed beyond 4 February 2008.

547. Secondly (and Mr Corless was not asked about this), it is suggested that there was no disruption to WLC's tendering opportunities in 2007 because Mr Howie said that in that year WLC had been able to recruit additional management staff to fulfil tender opportunities, that being supported by reference to an increase in construction personnel in 2007. That however misses the point because, if the management team from Unit C was available in 2007 to be deployed elsewhere yet more tendering projects could have been embarked upon.

548. Thirdly (and again Mr Corless was not asked about this), it is suggested that because WLC's construction staff went down slightly (by five) between 2005 and 2006 some of its loss of overhead and profit must have been due "to its own internal staffing issues". I attach no or little weight to this point not only because it was not put to him but also because in logic a small change in the number of construction staff could be attributable to any number of factors. The point is in any event a bad one because the management team from Unit C who were employed by WLC would still have been available to be deployed on other projects.

549. Fourthly, there was some cross-examination of Mr Corless about the schedule attached to his statement to the effect that for some of the tenders in 2006 WLC declined to tender for reasons which were not connected with Unit C. Mr Corless accepted a number of these points. However the general point is not a good one because the claim is in truth more analogous to a loss of opportunity claim, namely

that because WLC could not deploy its Unit C team elsewhere and thus it lost the opportunity to tender for any number of projects on the basis of deploying that management team with the probability being that it would have secured sufficient profitable work for that team to produce returns during the period of delay; it has thus lost profit and overhead recovery which it would otherwise probably have secured if the delay had not happened.

550. Fifthly, Mr Pontin deployed what DMW's Counsel has called a "sense check" which involved references to the WLC company accounts which identified overall a 9.6% overhead office overheads and profit recovery in 2006 and comparable returns in 2007 in 2008. He suggests that there were fluctuations and lower percentages in two previous years, a high level of repeat orders, increased turnover and profit in 2007 in 2008 and an increase in employee numbers in 2006 to 2008 which he suggests demonstrates that the current claim is inconsistent with what actually happened. I disagree, noting that none of this was put to WLC witnesses. It was only in 2008 that the banking crisis began to emerge and the economy and in particular the house-building sector (in London and particularly in the high value residential sector in which WLC operated with some success) had been vibrant between 2006 and 2008. There is no real reason to believe other than that, if WLC's competent and experienced management team deployed on Unit C had been available much earlier than they were, further work would have been secured and the profit and overhead returns would therefore have been greater in the years 2005/2006, 2006/2007 and 2007/2008.

551. Sixthly, it is argued that WLC always thought that the project could last 80 to 90 weeks. It is true that at tender stage, in the absence of any significant amount of design information, WLC did say that the programme period could be in the region of 80 to 90 weeks. However it committed itself contractually to a 78 week contract period and there is no good reason to believe other than that it would have completed the works within that period but for the facts which this judgement has determined delayed it.

552. The final point (not put to any WLC witness) was that Mr Fairweather, the Unit C site agent, only had one third of his time allocated to Unit C between January 2006 and January 2007 and 50% between February and September 2007. I do not really understand the relevance of this point because it is well known in the construction industry that experienced site management might be deployed partly on one project and partly on another. Mr Fairweather could therefore have been deployed elsewhere in respect of the part of his time which was deployed on Unit C. In any event, Mr Fairweather was allocated 100% to Unit C as he was the specific manager for Unit C.

553. There is little difference between the Quantity Surveying experts as to how to calculate this particular claim. Where there are slight differences I prefer the calculation of WLC as endorsed by Mr Hunter. Head Office overheads and profit are only claimed up to 4 February 2008 and the weekly loss is identified as £4,588.71 (compared with Mr Pontin's figure of £4,544.94). This multiplied by 99 weeks for the delay up to 4 February 2008 with credit being given, wholly properly, for the overhead and profit recovered by WLC on the difference between the amount of profit and overheads earned on the works (by way of the 4½% addition to overheads and profit) and the tendered overhead and profit allowance. This produces a net sum of £274,965.12 (as calculated by Mr Hunter, which is, if anything, generous to DMW

as the amount of overheads and profit encompassed by the 4½% is less than the pleaded amount.

554. This claim is therefore established in full.

Sub-Contractor Loss and Expense

555. WLC seeks £678,251.98 in relation to the claims for delay and disruption which were submitted by its sub-contractors. DMW's pleaded case is that nothing is due. However, the parties have moved somewhat closer following Mr Pontin's concession in the Quantum Expert's Joint Statement that he had been instructed that sums totalling £91,377.99 in respect of payments for loss and expense included in the QS's valuation No. 47 but excluded from the Re-Re-Re-Re-Amended Defence and Counterclaim for three of these subcontractors, namely Bansal (£37,443.66), Sterling Services (£18,333.33) and Wallis (£35,601.00) are now accepted by DMW.

556. That leaves three sub-contractor claims in dispute, Adams Joinery (£165,313.32), Andrews (£29,100.67) and Norstead (which has already been settled in the sum of £392,460). I will deal with each claim in reverse order.

Norstead

557. Norstead was the mechanical and electrical engineering sub-contractor engaged to carry out all such works in the three Units. The sub-contract between WLC and Norstead was evidenced by or contained in WLC's Sub-Contract Order dated 31 March 2005. Most of the sub-contract works were the subject matter of provisional sums. The anticipated commencement date was 20 June 2005 and the duration was specified as 42 weeks. From its later claim in October 2008, Norstead accepted that commencement was deferred from June 2005 to 5 September 2005; thus, the completion date was to be 42 weeks later, namely 26 June 2006. In the result, Norstead did not substantially complete their works until 6 February 2008, there thus being overall delay beyond the projected completion date of some 99 weeks. It is true to say that the mechanical and electrical work was, apparently, nearing completion in February 2007 but there remained commissioning works and, more importantly in the context of the delays, a persistent flow of variations over the following 11 to 12 months.

558. Throughout the evidence, documentary and otherwise, there was little or no criticism of Norstead in relation to delays by it. It is beyond doubt that it was severely delayed and disrupted, not only by the delays which impacted upon WLC (for which WLC was and is entitled to compensation and extension), but also by factors which impacted particularly upon Norstead. In this latter category fall a vast number of seriously delayed information and instructions. Its claim describes a hand to mouth release of information and instruction to them. A good example of significantly disruptive factors (described earlier in this judgement) are the repeated re-working of the electrics above the Barrisol ceilings in the Pool and the Cinema and the numerous alterations and adjustments to the LED lighting within the Light Wall. The numerous complaints made by it in its claim are reflected, if not entirely, largely in the documentary evidence that supplied to the Court (in the E bundles principally).

559. Norstead's October 2008 claim was put on two grounds, the first effectively being by way of adjustment of the provisional sums and the second a more by reference to measured and varied work plus loss and expense. The claim was financially the same on either basis:

Measured Works	£522,038.00
Variations	£869,060.00
Additional Preliminaries/plant	£433,247.88
Additional labour costs (reduced productivity)	£489,649.36
Less allowance for preliminaries recovered	[£5000.00]
Under recovery of overheads	£56,460.09
Funding cost on above	£11,719.54
Additional funding cost due to under-valuations	£155,934.20
Cost escalation	£70,144.27
Total	£2,603,253.33

G&T included the sum of £113,912.75 in Valuation and 47 in relation to Norstead's loss and expense.

560. Mr Howie gave largely unchallenged evidence which I accept (in his Third Statement) of the events which led up to the settlement between WLC and Norstead. In summary, he described how from March 2007 onwards attempts were made to agree measured and varied works with Norstead and how in September 2007 representatives from Norstead's parent company were expressing frustration about the lack of attention to the other claims which they were making in their interim accounts; adjudication was threatened. That was then followed by the period in which G&T were told not to issue any further valuation recommendations. Thereafter, the appointment by G&T's of a new M&E surveyor slowed the process down and he was unable to devote sufficient time in any event to the account. A new partner was involved by G&T who took a very hard line with Norstead's account, the unavoidable inference being that he was under pressure from DMW to do so. Meanwhile, by the end of summer in 2008 there was near agreement on the measured and variation sections of Norstead's account for all three Units. The claim was presented in its final form by Norstead in October 2008. There followed an exchange of comments.

561. Internally and at a high level, WLC did an analysis in relation to Unit C as to what the various Norstead claims were worth. This resulted in exercise which assessed the minimum and maximum values for the different heads of claim:

Measured Works/Variations	£1,357,540.00
Additional Preliminaries/plant	£231,298/256,530
Additional labour costs (reduced productivity)	£122,412/163,216
Less allowance for preliminaries recovered	[£5000.00]
Under recovery of overheads	Nil/£56,460.09
Funding cost on above	Nil/£11,719.54
Additional funding cost due to under-valuationsNil/£55,543	
Cost escalation	£17,536/35,072

Total	£1,723,786/£1,931,081

562. On 13 January 2009, WLC reached a full and final settlement with Norstead in the overall sum of £1,750,000, this being some £26,000 above the minimum value which it had put on the overall entitlement. In these proceedings, given the level of agreement relating to the measured works and variations, WLC with some logic attributes the balance to loss and expense attributable to delay and disruption.

563. The first issue to consider is whether or not the settlement was a reasonable one, having regard to cases such as **Biggin –v- Permanite** [1951] 2 KB 314 and, more recently, **Axa Insurance Uk Plc –v- Cunningham Lindsey United Kingdom** [2007] EWHC 2023 **Siemens Building Technologies FE Limited –v- Supershield Limited** [2010] BLR 145. In the latter case, Mr Justice Ramsey reviewed many of the relevant authorities and concluded that Paragraph 80:

> "In my judgment the following principles can, in summary, be derived from the authorities:
>
> (1) For C to be liable to A in respect of A's liability to B which was the subject of a settlement it is not necessary for A to prove on the balance of probabilities that A was or would have been liable to B or that A was or would have been liable for the amount of the settlement.
>
> (2) For C to be liable to A in respect of the settlement, A must show that the specified eventuality (in the case of an indemnity given by C to A) or the breach of contract (in the case of a breach of contract between C and A) has caused the loss incurred in satisfying the settlement in the manner set out in the indemnity or as required for causation of damages and that the loss was within the loss covered by the indemnity or the damages were not too remote.
>
> (3) Unless the claim is of sufficient strength reasonably to justify a settlement and the amount paid in settlement is reasonable having regard to the strength of the claim, it cannot be shown that the loss has been caused by the relevant eventuality or breach of contract. In assessing the strength of the claim, unless the claim is so weak that no reasonable party would take it sufficiently seriously to negotiate any settlement involving payment, it cannot be said that the loss attributable to a reasonable settlement was not caused by the eventuality or the breach.
>
> (4) In general if, when a party is in breach of contract, a claim by a third party is in the reasonable contemplation of the parties as a probable result of the breach, then it will generally also be in the reasonable contemplation of the parties that there might be a reasonable settlement of any such claim by the other party.
>
> (5) The test of whether the amount paid in settlement was reasonable is whether the settlement was, in all the circumstances, within the range of settlements which reasonable people in the position of the settling party might have made. Such circumstances will generally include:
>
> (a) The strength of the claim;

(b) Whether the settlement was the result of legal advice;

(c) The uncertainties and expenses of litigation;

(d) The benefits of settling the case rather than disputing it.

(6) The question of whether a settlement was reasonable is to be assessed at the date of the settlement when necessarily the issues between A and B remained unresolved."

564. Although this summary is in the context of breach of contract claims, there is nothing to distinguish it in practice from a Clause 26 claim for cost incurred as the result of a settlement. It is of course necessary for WLC in this case to demonstrate that the regular progress of the Works or of any part thereof had been materially affected by any one or more of the matters referred to in clause 26.2 and that in consequence Norstead had been delayed and disrupted. As a result of that, it needs to demonstrate that it was put in a position in which it faced a substantial and broadly meritorious claim which it was reasonable to settle. Put another way if the need to settle with those parties was caused by delay and disruption caused by DMW and the settlement fell within the "reasonable range of settlement" (see Ramsey J above), WLC can recover.

565. In the **Axa** case the Court stated at Paragraph 273:

"I draw from that case and the cases quoted with approval in it that:

(a) if there is no effective causal link between the breaches of duty of the defendant and the need for the claimant to enter into the settlement with a third party or the payment of the sums pursuant to the settlement agreement, there will be no liability to pay the settlement sums irrespective of whether the settlement was reasonable.

(b) The onus of proof in establishing the reasonableness of the settlement is upon the claimant. Thus, there must be some reliable evidence for the court to conclude that it was a reasonable settlement.

(c) The mere fact that the claimant is not liable to the third party either at all or for all the sums payable pursuant to the settlement is not necessarily a bar to recovery or to the establishment of the reasonableness of the settlement. However, the fact that the claimant was not liable to the third party either at all or for anything approaching the sums payable may be a factor in determining that the settlement was unreasonable.

(d) Where a settlement is not established as reasonable, it is still open to the claimant to recover from the culpable defendant elements of the sums paid pursuant to the settlement to the third party to the extent that it can be proved that there is an effective causal link between the payment of those sums and the established breaches of duty. In those circumstances, it is legitimate for the court to consider and establish what was likely to have been payable as a matter

> of fact and law to the third party as the foreseeable result of the defendant's breaches."

It is open to the Court in appropriate circumstances to make an apportionment of the settlement sum if and to the extent that it can be confident that the sum allowed represents a realistic and reasonable allowance which can safely be attributed to the matters for which the defending party is liable.

566. Mr Hunter did review Norstead's claim from the standpoint of the extent to which it was reasonable. His exercise is contained in Appendix S to his first report and it seeks to analyse critically the quantum put forward so that downward adjustments are made to the Norstead delay and disruption related losses as claimed. This reduces the total from £1.6 million down to some £885,000. He concludes therefore that from a quantum perspective the settlement at about 44% of his downwardly adjusted figure is reasonable.

567. Mr Pontin's and DMW's primary position is that nothing is due because the claim can not be supported but that if one is to proceed by way of the best assessment some £164,000 is due which includes nothing for the disruption or loss of productivity. In my judgement the primary position is simply unrealistic. It is beyond doubt that Norstead was and must have been very substantially delayed and disrupted not only by the simple fact that it was on the site working for 99 weeks longer than it had anticipated (a 236% increase on the agreed sub-contract period) but also by the unavoidably disrupted nature of its own and all the other work. Mr Pontin has analysed diary records and the files provided by Norstead in support of its claim and has formed the view that they do not demonstrate or prove in an absolute sense all the claims put forward. His analysis of the loss of productivity or labour disruption claim ignores the overwhelming inference (if nothing else) that there must have been very substantial disruption and loss of productivity for which Norstead is unlikely to have been reimbursed under the measured or variation part of the evaluation.

568. In my judgement, the settlement achieved with Norstead was a reasonable one in all the circumstances. WLC was faced with a frustrated and increasingly aggressive sub-contractor which, by and large, had right on its side. It had been seriously delayed for reasons which entitled it to a full extension of time and it was and must have been obvious to WLC that there was a probability that Norstead would recover not only the extended preliminary costs for such delay but also some compensation for disruption and escalation in costs. It is likely that this was the best settlement available and in reaching that view I take into account the fact that this settlement was achieved before there had been any recognition by DMW or its advisers that any further extension beyond February 2007 was due; it was in WLC's interests to keep the settlement as low as it could achieve given that pending the likely future litigation it would have to pay the unpaid element of the settlement to Norstead with no certainty that it would be recovered from DMW. WLC was put in a position in which it faced a substantial and broadly meritorious claim which it was reasonable to settle. The need to settle with those parties was caused by delay and disruption caused by DMW and the settlement fell well within the "reasonable range of settlement".

569. Whilst it is reasonable to take as the starting point the settlement effectively achieved in relation to the delay and disruption cost and loss to Norstead, there is or may be a

residual uncertainty as to whether there was an exact or 100% correlation in terms of all the factors attributable to DMW which delayed and disrupted WLC and Norstead and other factors which delayed and disrupted Norstead; for instance, there may be factors which have not been pleaded which disrupted Norstead. In my judgement, it would be safer to allow some amount off the full amount of the settlement and, in seeking to allow an amount which the Court can be confident directly relates to no less than Norstead was entitled in relation to the factors attributable to DMW and for which WLC is entitled to compensation, I fix that sum at £300,000.

Andrews

570. Andrews was appointed by WLC by a sub-contract order dated 20 November 2005 to carry out plastering to walls and ceilings in Unit C for £115,045. The original contract period involve commencement on 3 January 2006 with completion within 12 weeks. Work actually commenced on 16 January 2006 but was not completed until 15 April 2007, albeit that Andrews was required to return to site from time to time thereafter. The overall contract period was therefore extended by some 65 weeks. At a fairly early stage, Andrews was required by way of variation to carry out extensive additional drywall ceiling and partition work (by Site Instruction 215A on 30 March 2006). That led to a substantial increase in the cost of the basic plastering works over and above what had been the subject matter of the original order.

571. Andrews submitted a claim relating to all three Units on 15 November 2007 with the total claim being £118,731. Delays were attributed to a substantial number of variations, out of sequence working, conflicts between drawings requiring substantial revisions, late Mechanical and Electrical design, late release of Architect's drawings, incorrect alignment of external windows and delays particularly in relation to joinery works. Essentially, the claim is made up in relation to the delays by what are called "additional overheads" for 64 weeks (at a rate of £2,517 per week) and for a supervisor's time for 20 weeks thereafter at one day a week (at a rate of £216 per week). The overheads are essentially preliminary type costs such as a contracts and project manager.

572. This claim has not been settled but WLC personnel (unnamed) have produced a commentary on the claim in relation to Unit C. It notes (and in this it is supported by contemporaneous documentation) that in fact Andrews continued working on the site after 15 April 2007, albeit that no additional allowance for that is claimed other than for the extended supervision thereafter. The commentary refers to the fact that of the 287 site instructions referred to in the claim as giving rise to variations only 63 were specific to Unit C with a further 28 relating to Unit C in part only. The commentary says that all the delays suffered by Andrews were caused by matters for which DMW is liable. Oddly, when turning to the quantum, WLC allowed a higher rate for the overheads (£2,657 per week) but only applies this rate to the first 44 weeks of delay and thereafter for the remaining 20 weeks it only allows £600 a week for a contracts manager to visit and supervise the project. It allows the post-completion supervisor claim in full as reasonable and an additional underplaying demand of £750. This produces a net recoverable sum for all three Units of £87,302. That is then divided by three to reflect the fact that the total sum relates to all three Units, producing a net figure of £29,100.

573. There are clearly some difficulties with this approach in that it can not be reasonable (or commercially sensible) to increase rates over and above that which a sub-contractor claims or to add an additional allowance which is not claimed. However that only adds just under £7,000 to the overall amount or some £2,300 to the sum allocated to Unit C. Mr Hunter picked up these points and several others. Mr Pontin has done a very detailed analysis of this claim and produces a figure valuing the Andrews claim between £8,986.56 (if no further extension of time is allowed and £12,447.60 if further time is awarded). Mr Hunter following his reports suggests the figure of £8,508 for Unit C.

574. There can be no doubt that Andrews was seriously delayed by events which entitled it but also WLC to loss and expense under Clause 26. The exercise must now be to determine what the appropriate amount is. Given that the two experts are now close to each other, I am satisfied that the figure between the two at £8,700 is a reasonable and sensible allowance.

Adams Joinery

575. Adams Joinery features in significant parts of this judgement in particular in relation to extensive joinery in numerous rooms throughout the house, the Leather in the Library and the ABW. The sub-contract with Andrews was contained in WLC's order dated 13 January 2006 albeit that the legal relationship was not entered into before March 2006. The sub-contract price was £747,573; the anticipated commencement date was 20 March 2006 and the agreed duration was 20 weeks. There is no issue that Adams was on site for 93 weeks until 25 January 2008. There were very substantial and extensive variations over the whole period in relation to Adams. Although there were interim notifications of claims, Adams put in a compendium claim in January 2010.

576. That claim was for the total sum of £297,407.19 and a full extension of time was sought. The legal basis of the claim was in effect pursuant to Clause 26, alternatively as part of the evaluation of variations or alternatively as damages for breach of contract. Essentially, the claim fell into three categories, time related preliminary costs (such as site supervision, visiting management, extended travel, extended protection and cleaning), additional time related head office overheads (calculated on a formula basis), and financing costs; there was a claim for additional expert quantity surveying services as well for assistance in relation to the claim.

577. WLC prepared a commentary on this claim which assesses the overall value at £165,313.32. Again, as in the Andrews matter, it accepted that all the delays arose for reasons for which DMW was liable. WL C accepted five of the heads of claim in full (supervision/travelling costs at £48,468.21, visiting management at £48,328, drawing office staff and management at £16,412.87, transport costs/expenses at £22,092.43 and travel costs/expenses of labour in the sum of £17,751.81). As regards the financing costs, largely because of the drop in the value of the assessment compared with the claim overall only £12,260 was allowed against a sum of £50,932.92 claimed by Adams Joinery.

578. Mr Hunter has analysed this claim and found various remaining inconsistencies which would reduce the amount to be due to Adams Joinery to £153,542.41. These inconsistencies were the hours not signed in and related travel costs, hours duplicated

in day works and an abatement for the supervision allowance in dayworks. Mr Pontin has carried out another very detailed analysis which runs to 37 pages of his first report which incorporates a substantial appendix. His view is that Adams claim is worth no more than £6,962.32.

579. There is little or no hint of criticism of Adams in relation to progress in any of the contemporaneous documentation or evidence, other than in relation to the Leather in the Library for which, as I have found, it was not liable. It is clear and I find on the evidence is overwhelmingly likely that that it was delayed for the whole period of delay by variations and late instructions principally and by other factors for which DMW was at risk and responsible under the Contract.

580. Unless and to the extent that Adams Joinery has been paid for its extended preliminaries through payments already received by it, it obviously did incur a seriously extended level of such preliminary resources. There was a very large amount of additional involvement of management, supervision and design teams of Adams, and the documentation certainly supports this, to deal with numerous changes as well as the simple need for it to be on site for over 70 weeks more than it was contracted for. Mr Pontin has done some "reverse engineering" to try to demonstrate in effect that there was a more than sufficient allowance in the first two sets of accepted quotations from Adams Joinery to cover supervision for all or most of the 93 weeks. He was obviously very uncomfortable in the witness box when seeking to defend this. What he had done was to take the sum of £40,027 to be found in various quotations as covering supervision (£32,522 covered by the original sub contract order and £7,505 included in seven later variation instructions). In one of the quotations (AI 258C) he found a rate of £575 per week for supervision. He then said that if one divides £40,027 by £575 there are nearly 70 weeks worth of supervision. That, with respect to him, is at best naive and at worst scraping the barrel. If £32,522 for supervision was incorporated into the quotations covered by the original order, that was simply to cover the supervision for the works covered by the original order; in simple arithmetical terms, supervision was to be charged as a lump sum but if one translates it into a weekly cost spread over the original sub contract period of 20 weeks that becomes £1,626. The only point which can be made is that credit should be given for specific supervision covered by variations, namely £7,505.

581. He also seeks to deduct 8 weeks of supervision time in respect of time spent with snagging and remedial works. That again is a bad point. It is an inevitable consequence of modern contracting that time is always allowed in the programme for consequential snagging which inevitably require some supervision. I am not surprised that up to 8 weeks was spent on the process given all the problems at the site and the presence of numerous directly employed contractors. In any event, the overall delay remains at 73 weeks and additional supervision would have to have been involved in any event.

582. Mr Pontin also seeks to deduct 16 weeks worth of supervision time in relation to there being no supervisor recorded on site. Mr Hunter in his analysis has reduced the allowable amounts by over 6 weeks of supervision time for a variety of factors including the supervisors not being shown in the signing-in log. I had no reason to doubt and I accept that Mr Hunter has made an appropriate reduction for there being no supervisors on site.

583. Next, Mr Pontin seeks to suggest that visiting management did not in fact visit the site, by reference to "two randomly selected periods". He suggests that from that exercise there is likely to have been an exaggeration of the number of additional visits. He also suggests that all or much of the additional visits were covered by quotations. Mr Hunter challenges that this analysis is correct and points out that much of the management time would not necessarily be spent in actually visiting the site above would be working from head office. That is amply borne out by the evidence, for instance particularly in relation to Mr Hawks of Adams Joinery who if anything was spending a large part of his time in handling the variations, the late information and a very substantial amount of liaison with BLDA in relation thereto. I accept Mr Hunter's approach in this regard.

584. Mr Pontin seeks to undermine the allowances sought to be made in relation to drawing office staff largely on the basis that where there were accepted quotations (for variations) the prices would have covered for the production of fabrication drawings and "rods". I agree that there is something in this point but it does not take into account a substantial amount of what must have been abortive drawing office time. Mr Pontin allows £5,171 and that is a figure I can and do safely adopt as an appropriate allowance.

585. Mr Pontin argues that transport costs for materials are largely not justified because they were or may have been allowed for within the various quotations. He also points to various anomalies, for instance the fact that 92 lorry trips were made after February 2007 when he says that the manufactured joinery was effectively completed. However, he ignores the fact that because the overall sub-contract period was substantially extended the joinery site staff still needed to have materials delivered on a regular basis. Although he allows £1,260 against this sub-claim, in my judgement that this is much too low and a realistic minimum of £10,000 must represent the additional transport costs in question.

586. Next, Mr Pontin considers the allowance for Adams Joinery labour transport costs. He considers that there is nothing in this claim because Adams Joinery will have recovered through its rates for measured work or through dayworks for the value of the daily travel allowance for Adams Joinery workmen. He does highlight a mathematical error whereby Adams Joinery claims nominally for £17,751.81 actually adds up to £15,617.64. That seems to be a good point which Mr Hunter cannot and does not try to explain. Again Mr Pontin's main point does not reflect the fact that the workforce had to be on site for 93 weeks instead of 20 weeks. Whilst he makes a fair point that the quoted additional work and daywork will allow for labour cost including travel allowances, this does not cover the full extended period on site. A realistic minimum of £5,000 should be sufficient to recompense Adams Joinery for travel allowances which are not covered by the accepted prices.

587. Mr Pontin accepts the principle of a finance charges claim but only allows pro rata in relation to the sum which he considers is likely to be due to Adams Joinery. In those circumstances, I will pro rata the financing charge allowance.

588. In summary, I find that WLC is liable to Adams for loss and expense in relation to the delays which it suffered and that this is properly attributable on the facts to factors for which DMW is liable to WLC. In summary, the amounts which I award in this context are:

Supervision/travelling costs (£48,468.21- £7,505)	£40,963.21
Visiting management	£48,328.00
Drawing office staff and management	£5,171.00
Transport costs/expenses	£10,000.00
Travel costs/expenses of labour	£5,000.00
Subtotal	£109,462.21
Less Mr Hunter's allowances	£11,770.91
Sub-total	£97,691.30
Add pro rata financing charges (59% x £12,260) £7,233.40	
Total	£104,924.70

589. The total to be allowed is £104,924.70 (Adams Joinery), £8,700 (Andrews), £300,000 (Norstead) and £91,377.99 (now admitted). This totals £505,002.69.

Claim Preparation Costs

590. This claim is for some £43,000 for Mr Parnham's time in preparing claims from time to time albeit that Mr Hunter only supports some £40,000 of this. Whilst in principle I do consider that this could be a valid head of a loss and expense claim under Clause 26, it is very difficult to unravel precisely what Mr Parnham actually did. I have made some allowances for Mr Parnham's time in the preliminaries claims (see above) as it is clear that he was in effect an additional preliminary resource needed to help manage the delay which was occurring and the administrative hiatus which emanated for the Design Team. However, part of his time was spent in putting together extension claims which were not as such pursued in these proceedings and part to address the doubtless aggravating involvement of Knowles; it was unwise and aggressive on the part of Mr Mackay to bring in Knowles but it was not something which as such gives rise to an entitlement to loss and expense.

591. I am not satisfied that any additional sum has been proved over and above the (albeit conservative) allowance which I have already made in relation to Mr Parnham.

Other Defects

592. Before considering the defects it is necessary to consider the impact of the settlement achieved between DMW and Mr and Mrs Mackay on the one hand and BLDA, CBP, JSI and Equation. The settlement agreement was dated 15 July 2011. Whilst of course it was sensible for Mr and Mrs Mackay and DMW to settle, it is in some respects a curious document in that the professionals agreed to pay £1.8 million, of which £875,213.50 related to costs, but it contains no breakdown of which professionals paid what. Appendix 1 is more curious because, whilst all the parties agreed the split between liability and costs and that 67.5% related to defects and 32.5% to loss and expense, there then follows DMW's own breakdown, prefaced by the following words:

> "DMW wish to record their view as to how the Settlement should be further broken down (its inclusion does not reflect an agreement by the third parties in that regard) which is as follows".

There then follows a breakdown of the mechanical and electrical and architectural defects totalling £624,786.50. Almost none of them overlap with the defects pleaded against WLC.

593. Many of the defects for which it continued to assert liability against WLC were defects which were previousl (prior to receiving £1.8 million in settlement) alleged against one or more members of the professional team: for example:

(a) ABW, where £289,961.79 and £214.62 is claimed, was prior to settlement, claimed from BLDA and JSI;
(b) External Joinery where £46,659.21 is claimed, £46,659.21 was, prior to settlement, claimed from BLDA;
(c) Light Wall, where £269,278.02 is claimed, £46,659.21 was, prior to settlement, claimed from BLDA;
(d) Courtyard Sliding Doors, where £95,276.80 is claimed and was, prior to settlement, claimed from BLDA; and
(e) Stingray Doors, where £18,068.12 was, prior to settlement, claimed from BLDA and JSI;

594. Credit must therefore be given for any sums received by DMW or Mr Mackay from the professional team in relation to those and other more minor defects which were jointly alleged. So far as the law is concerned, the starting point is as set out in paragraph 6-55 of **Foskett on Compromise** (7th edition) namely that:

> "…in a case where a claimant has concurrent claims against more than one defendant, the whole amount recovered under a settlement with one must be brought into account in any claim against another".

Further, even if it is thought appropriate in any case to seek to apportion an amount received in settlement between the various claims advanced by a claimant, as **Foskett** states at paragraph 6-57:

> "…the onus is on the claimant to put forward material in support of the apportionment for which he contends. See Townsend v Stone Toms & Partners (1984) 27 BLR 26 CA".

595. Essentially, this approach can be justified on the basis that it is for the party which has settled with one defendant, securing financial compensation, to prove that it has suffered loss in pursuing claims against another defendant in respect of claims which at least overlapped with those pursued against the defendant with whom the claiming party has settled. If the claiming party has received financial compensation from the party with which it has settled, it must discharge its burden of proof to show that in effect it has not received compensation for the self same claims which it pursues against the remaining defendant. There may on occasions have to be apportionments made by the Court which "may not be altogether straightforward, albeit that it had to be attempted on the material available (see judgement of Lord Justice Oliver at page 41 in the **Townsend** case). Oliver LJ went on to say at pages 41-2:

> "Where that party provides no material to show how apportionment should be made the judge has to do the best he can with the material that he has. What he has to do is ascertain what the plaintiff had lost, to what extent that loss had

been mitigated was satisfied by what had been received."

596. The defects set out above form the heart of the issues in dispute. They plainly would have formed a key part of the thought process of both the Design Team and DMW and Mr Mackay in settling the case. One would therefore expect that parts of the sum received should or would be allocated to those defects. It is therefore revealing that DMW and Mr Mackay have provided literally no evidence at all in this regard to demonstrate that that expectation is incorrect. This was notwithstanding that the point was flagged up by the Claimant's Counsel in opening. Counsel for DMW and Mr Mackay did address this in closing as to the principles but provided no assistance as to how the Court should go about the exercise in practice, apart from (politely but diffidently) saying that "it is a difficult job, and as Lord Justice Oliver made plain, it's a job that unfortunately it seems the judge does have to shoulder". Counsel for the Claimant said in closing that the Schedule to the settlement agreement was "self-serving to an amusing extent" in seeking, "to allocate the sums received away from the major defects alleged against both WLC and the professional team and towards lesser defects claimed against the professional team alone."

597. Insofar as DMW and Mr Mackay do seek to rely simply upon that Schedule, such reliance is misplaced:

(a) That schedule is somewhat hard to believe, given the central importance of the defects alleged against all the parties including WLC, and the Court would clearly need to have clear and compelling evidence to begin to believe that that was truly the basis of the settlement.

(b) However, without any evidence as to the motivation for and accuracy of that Schedule, particularly without any evidence that it was intended to reflect any of DMW or Mr Mackay's genuine or considered views of how the sums should be allocated, it is literally useless. There is no supporting evidence that the defects claims against which the allocations were nominally made had any prospect of success. Put another way, Mr Mackay was not prepared to proffer any evidence under oath that it represented his or anyone else's genuine views about apportionment.

(c) The relevant question is not: how would the Defendant like to allocate the Settlement monies? The right question is: what on a balance of probabilities in fact is a proper allocation of the sums paid over? DMW and Mr Mackay could seek to demonstrate this by giving disclosure about, and explanation of, the negotiations and advice which led to the Settlement Agreement. They have chosen not to. On a balance of probabilities the most likely "driver" of the settlement sums paid were the "core" alleged defects which form the heart of the case (about which the Court has heard extensive evidence), and therefore one must allocate the settlement monies to those defects accordingly.

598. There is no suggestion that overall the settlement was other than sensible and made in good faith but the Court has no evidence that the apportionment was made in good faith; it could be said legitimately that there is no evidence that it was made in bad faith. However, apart from the general allocations to costs and delay, I can attach little or no weight to the remainder of the allocation partly because I have formed such an unfavourable impression of Mr Mackay. It is clear that his pursuit of WLC has

become intensely personal; for instance, I have some regard for his e-mails to Mr Howie (see above) and remarks like:

> "My middle name is relentless. I have the money and anger at this point to push on and make sure that you have to deliver or get punished for not delivering".

599. I have no difficulty in accepting that the allocation of £875,213.50 to costs was sensible and reasonable because the costs to DMW and Mr Mackay of bringing in four parties and the massive amount of work which must have been done in relation to those third-party proceedings would justify such an allocation, particularly in circumstances in which I have evidence from Mr Mackay that he has expended over £6 million on the costs of this case. I can accept also an allocation of £300,000 to delay related loss and expense was a reasonable allocation because there was and is clear evidence that some of the delays were attributable to (at least) properly arguable matters of complaint against, particularly, BLDA, JSI and Equation.

600. That however leaves £624,786.50 out of the whole settlement sum attributable to defects about which Mr Mackay and DMW have simply attributed no evidence from which one can infer that it is all attributable, coincidentally, to other defects. For instance, the Settlement Agreement attributes £206,000 to some 10 electrical defects but I have no evidence for instance that Equation or CBP or anyone else were responsible, arguably or at all, for any of these defects. It can be seen that these defects were pursued against one or more of the third parties but one can see no hint or suggestion that any of the third parties accepted that they were or even that might be liable for them. What the Court actually has is a substantial amount of evidence relating to the defects pursued as against WLC. For instance, in relation to ABW, the Court can form a view that there was an arguable case against BLDA or JSI that they should have advised DMW or Mr and Mrs Mackay that the wood which they had selected had a very real propensity to fade and change colour when exposed to light and therefore that the settlement would have made some allowance (albeit without admission of liability) for the potential liability. The consequence, consistent with the law as set out in **Foskett on Compromise** (7th edition) set out above, is that:

(a) The Court must apply the whole of the settlement sum against any and all claims which DMW had, prior to the Settlement, made concurrently against any of the professional team and WLC

(b) As a result, insofar as the Court takes the view that WLC would otherwise be liable or is liable to DMW and Mr Mackay in respect of the following elements of the claim, it can recover damages from WLC only insofar as those damages exceed the £624,786.50 received from the professional team, namely ABW, External Joinery, the Light Wall, the Courtyard Sliding doors and the Stingray Doors..

Mechanical and Electrical Defects

601. On Day 12 of the trial whilst the mechanical and expert witnesses were engaged in giving evidence simultaneously, the parties settled the mechanical and electrical defects counterclaim for £35,000 to be paid or allowed by WLC, without admission of liability. This was sensible and reflected a very substantial drop in this part of the

counterclaim. There has been no suggestion that this partial settlement was to be subject to any argument relating to the settlement between DMW and the third parties.

602. Apart from the ABW, Light Wall and Courtyard Sliding Doors (for which see above), the only other defects left in issue are External Joinery, Party Wall Waterproofing, Ground Floor Entrance Hall, Stingray Doors bronze cladding, Bathroom grout, Lacquer Finish Quality and Failed Roof Membrane. Counsel produced on the last day of the trial an agreed document listing these defects. I will deal with each of these in turn.

Party Wall Waterproofing

603. This alleged defect relates to some historical past water damage found in the staff bedroom in the basement. Neither expert found any continuing dampness and neither expert has identified any particular fault other than there is some rippling of the surface finishes over about 1 m². The wall in question is a party wall between Units C and B. In the absence of any clear evidence that WLC failed to do what it should have done or did something which it should not have done, I am not satisfied that, on the balance of probabilities, DMW has proved its case on this. The allegation is not put forward on a *res ipsa loquitur* basis. Such damage as there is is not inconsistent with there being some water spillage or discharge on the Unit B side or their being some design deficiency on the Unit B side which permitted the inflow of some damp; neither of these would be the responsibility of WLC.

Entrance Hall Roof (Water Penetration)

604. The Architectural experts have agreed in their joint statement that there is water staining of the plaster in the ground floor entrance hall occurring at the junction between the outer wall and roof construction, such staining having increased over time. They agree following an inspection of the roof over the stained area "that the cause may be related to a fault in the roof covering around a rain water outlet located immediately above the area where the staining first occurred; wetness exists under the roofing membrane for a distance away from the outlet" but there was no "immediately obvious water penetration point". They observed "that numerous diagonal cuts to the surface of the membrane had been made where it dresses up onto the roof light skirtings and perimeter up stands", going on to say that it was unknown whether any of these cuts penetrated the roof membrane but stating "that these cuts should not have been made". They noted that the single layer polymeric roof finish was not fully bonded to its substrate but could not ascertain the cause. Mr Howie suggested that the cuts could have been made by a contractor directly employed by DMW or Mr Mackay to install ultraviolet light film on the windows and the roof lights in the area after Practical Completion (and before the leak was noticed in 2009). There is some evidence that the roof was completed and signed off by BLDA in December 2006 and there is no evidence of leaking prior to Practical Completion (none being noted in the snagging lists issued before). Over £5,000 is claimed whilst relevant remedial works are costed at just under £2,000 by WLC's experts.

605. The Architectural experts are both uncertain about the cause of the leak and primarily due to cost have not opened up the roof. It is slightly surprising that after three years Mr and Mrs Mackay have not had the defect repaired; if they had done, the area would have been opened up and the cause of leaking could have been ascertained. Mr

Josey suggests that because he has seen no design for it and because the failure is confined to a single location the probability is that the roof covering had not been constructed properly in the localised area.

606. In the light of the Architectural experts' joint statement, I am not satisfied on a balance of probabilities that the cause of the leakage has been bad workmanship. Whilst I accept that it is a plausible explanation, an equally plausible explanation is damage caused by directly employed contractors, this latter explanation being supported by the timing of the first leakage. The probabilities being even, DMW has not proved its case. If I had decided that there was bad workmanship, I would have fixed damages at the level put forward by WLC's experts, namely in the region of £1,800.

Third Floor Landing (Water Penetration)

607. The Architectural experts' joint statement identifies that there is water staining to the dry lining below the roof lights and that two points of water ingress had been observed by Mr Josey. However, the source of the water penetration is unknown as "neither expert has had access to the roof" but consider "the matter to be the result of a local aberration in the upstand flashing assembly around the base of the roof light." Mr Josey in his first report suggests that for similar reasons to those advanced in relation to the Entrance Hall roof "it would appear that the leaks are related to localised faults in workmanship". Again, no remedial work has been done. Mr Howie gave unchallenged evidence that the roofing works were signed off in 2006 and it appears that the leakage, such as it is, has occurred well after Practical Completion.

608. In the absence of evidence that points on balance in favour of there being causative bad workmanship and in the absence of any effective inspection, I am not satisfied that this complaint has been proved on a balance of probabilities. If I had decided that there was liability I would have fixed damages at around £2000 to reflect the lesser remedial works, involving resealing, promulgated by WLC's experts.

External Joinery

609. The defects alleged relate to the locking mechanisms to the tall French windows and doors to the Drawing Room and the Kitchen/Family Room on the ground floor. In the Drawing Room doors and frames were linked around a curved bay incorporating a series of pairs of inward opening French windows, with the frame being partially curved or facetted. In the other room there were five pairs of doors set between masonry piers with four opening onto balconies and one providing access to a glass bridge leading to the garden. The problem, simply stated, as the experts agree, is that the "locking mechanisms to the French windows do not easily engage"; these mechanisms were effectively concealed within the vertical timber stiles. The experts agree that this "is a consequence of the height of the doors". They go on to say in their joint statement that the "windows flex more than windows of a more conventional height would do and this is likely to adversely affect the locking mechanism and also the effectiveness of their draught seals" and to "remedy this, the windows would need to be of a different design, size, appearance and/or operation".

610. These French windows and doors were provided by Wallis Joinery as a sub-contractor of WLC. The issues in relation to this defect revolve around whether or not (and if so

to what extent) WLC had any responsibility for the design. From various drawings produced by Wallis Joinery it is clear that these doors were very tall (about 3.5 m in height) and the wooden stiles into which the locking mechanism was to sit well narrow being just over 3 inches wide.

611. The external joinery to the property fell within the work package WP-140 – 'Windows'. The sub-contract order for the external joinery to the property was placed by WLC with Wallis Joinery. The G&T Buying & Procurement Report for Sub-Contractors, dated 16 September 2005 identified, out of a list of potential sub-contractors for the package, Wallis as the chosen sub-contractor. In the table, listed under 'CDP Status' is "Design development and development of fixings". On 22 December 2004, BLDA issued AI029 for WP-140 for WLC to enter into a contract with Wallis to "supply and fit" external timber windows in the sum of £341,979.91. Mr McMorrow's letter to G&T of 13 May 2005 contained the following:

> "We confirm that it is our requirement that Design Co-Ordination and Professional Indemnity Insurance be instructed in addition to and specifically due to the instructions already received to appoint the following sub-contractors:
>
> …AI 029 - Wallis Joinery [Windows]…
>
> We are currently evaluating the cost of the necessary Design Co-ordination function both in respect of the above packages and future requirements indicated in the procurement report…"

612. WLC's sub-contract order for the external joinery was placed with Wallis on 26 January 2005. The Sub-Contract Order makes clear that the Sub-Contract Pre-Order Agreement and the terms and conditions listed therein were incorporated within the sub-contract order. The Sub-Contract Pre-Order Agreement includes at Item 29:

> "DESIGN
>
> Design Element - Development of design"

The sub-contract was dated 26 January 2005.

613. Later, NBS Specification Z10 for Purpose Made Joinery was issued for tender on 12 May 2005 but this related to the joinery which was to be provided by Adams under a different package. It included the following paragraphs relating to "Completing the design/detailing and provide complete fabrication/installation drawings, full-sized rods/shop drawings as appropriate for approval by the Architect" and "Fully detailed and co-ordinated drawings for every aspect of the works within an area in which he is providing joinery and not just the joinery itself…" Further, BLDA's NBS Specification L10 (Windows) Rev A dated 25 May 2005 contained provisions for the supplier "Completing the Design and Detailing of the Works and [providing] complete fabrication/installation drawings, full size rod/shop drawings as appropriate for approval by the Architect…". This also provided that the sub-contractor should "incorporate…Locking method (French doors/doors): Approved recessed espagnolette type with minimum 3 point locking facility in solid brass…" However, these specifications post-date the instruction to and relating to Wallis Joinery and were not apparently either incorporated or required to be incorporated.

614. There is absolutely no evidence that DMW or BLDA on its behalf ever required or instructed WLC to assume the CDP responsibility. There is no estoppel pleaded whereby WLC is to be treated as if it had accepted contractually design responsibility. For comparable reasons to those expressed above relating to the Light Wall, ABW and the Courtyard Sliding Doors, WLC had no design responsibility for the external joinery including these French windows and doors.

615. The problem with these windows and doors is and was clearly a design problem. Essentially that problem was the fact the construction is so tall yet so slender that it is (at best) highly unlikely that the locking mechanisms housed within the stiles will engage easily and effectively because the construction will tend to flex. This propensity to flex has also reduced the effectiveness of the draught seals and partly opened them up, as I was shown on my visit to the site. As WLC is not responsible for design, which includes inherent unsuitability, WLC is not liable.

616. In so far as remedial works are concerned, I prefer the evidence of Mr Zombory-Moldovan, contrary to the case advanced by DMW, to the effect that the external joinery is not so defective that it requires replacement. Easing and adjusting, applying new draught stripping and fitting alternative espagnolettes, preferably surface mounted would be a proportionate and sensible solution, the costs which would have been just over £3,000, particularly since the Mackays have lived with the French doors and windows for nearly 4 years now. If damages were due, I would assess them at £3,000.

617. There would be no damages in any event because the settlement between DMW and the third parties has effectively compensated it for this defect. In any event, the apportionment attached to the settlement agreement allows the full sum claimed for the defective external joinery; it therefore follows that even if I was wrong on my application of the relevant principles, DMW itself apportioned the full amount within the settlement for this defect.

Wall Grout Crumbling in Bathrooms

618. The Experts describe this as a "very minor matter requiring local raking out of grout and re-grouting to remedy". The claim is that some £771. The main issue seems to be whether the grouting was actually done by WLC or its sub-contractor. Mr Howie gave unchallenged evidence that the grouting problem occurred in an area in which they directly employed contractor, Qube, was responsible. DMW has, simply, not proved its case that the defective grouting was in work actually done by WLC.

Lacquer Paint Finish

619. This alleged defect relates to doors in the Ground Floor Cloak Room said to be poorly finished "being shiny in some places and matt-like in others" (as Mr Josey) has put it. This is another small claim for about £771. All that Mr Zombory-Moldovan was able to find was that there was no defect in the lacquer application but that there were some matted areas where some aggressive cleaning appears to have been done. I accept his evidence and am of the view that DMW has again, simply, failed to prove its case on the balance of probability that there was any defect for which WLC was responsible. There is no evidence for instance that WLC did the aggressive cleaning.

Failed Roof Membrane

620. The Architectural experts agree that the "roof membrane at the base of the mansard roof at level 3 is defective in that it has an open unsealed seam observed by" Mr Josey. Just over £1,000 is claimed. Three possibilities are raised as to why this is the case, planned or careless incompleteness or sabotage. I can rule out sabotage as being unlikely. On balance, I consider that this complaint is made out on the balance of probabilities and I find that this minor piece of incomplete work was left carelessly by the roofing sub-contractor and not initially picked up by anyone. The experts agree on the appropriate level of remedial work and I will allow the full amount claimed, £1,050, as this figure is more than supported by the quantum experts.

Conclusion on Other Defects

621. DMW is entitled to £1,050 in respect of the immediately preceding matter and £35,000 for the Mechanical and Electrical defects, totalling £36,050. There was also a claim for DMW defects investigation costs; in the light of my findings, the fact that the £35,000 figure was an all inclusive figure and the £1,050 figure was both minimal and attracted no material investigation (save as part of DMW's legal costs), this claim fails.

Other Quantum

622. It is necessary only to deal with those matters which remain in issue: Static Security, the Doppler Lift deposit, the Joinery Item in the Fit Out Works, "Uninstructed" Work and Percentage Adjustments. I will deal with each of these in turn.

Static Security

623. This item relates in effect to security guards being provided at the site from 16 February 2007 to 14 August 2008. The issues go to two points, the first being the duration of any extension of time beyond 16 February 2007 which this Court decides was due and the second relating to the apportionment of the charge for Static Security as between Units A, B and C. There is no issue as to the weekly rates to be applied.

624. By this judgement, it has been found that WLC is entitled to an extension of time up to 7 July 2008. It is also clear that WLC was required by the Architect from time to time to secure and maintain the site using static security arrangements up until at least the certified date for Practical Completion.

625. WLC has apportioned its static security costs at a rate of 33% per Plot until 26 August 2007, 50% each to Plots B and C from 27 August 2007 to 30 September 2007 and 100% to Plot C from 1 October 2007 to mid-August 2008. Plot A was certified as practically complete on 2 February 2007 and Plot B on 28 September 2007.

626. DMW points out that in August 2007, the first two floors of Unit A were gutted by fire, and the owners of that Unit A did not take possession until the same day as the Mackays moved into Unit C. Further it asserts that the owners of Unit B did not move in until after 22 October 2007 and that external works at all material times continued to all three plots. So it suggests that, in these circumstances, all 3 plots benefitted from WLC's static security until the end of the project or that, at the very

least, all Units took the benefit thereof until the end of October 2007 and at all material times thereafter, the owner of Unit A shared in the benefit of that security. Its Counsel argues that an appropriate apportionment is one third to each Unit.

627. In my judgement, WLC was required to provide Static Security to and for benefit of Unit C from well before 16 February 2007 until just after the certified date of Practical Completion. There really can be no criticism of the apportionment of one third each up until 26 August 2007; indeed, there would have been a good arguable case for it being apportioned on a 50/50 basis given that Plot A had been certified as practically complete in early February 2007. An apportionment of 50/50 between Units B and C up to 30 September 2007 is wholly reasonable and sensible and an allocation of 100% to Unit C thereafter reflects the fact that it was the only Unit which was not practically complete. The logic was and is that the Contractor is responsible for security up until practical completion and, thereafter the owner or owners are left with that responsibility. The fact that coincidentally the owners of Units A and B may have had the advantage of the presence at one end of the overall site (actually on the Unit C part of the site) is neither here nor there. It may be that potential intruders to Units A or B might have been put off by the presence of security guards on Unit C. It needs also to be borne in mind that DMW was the employer in respect of the other two Units. It is argued that after 7 July 2008, the date when the Works to Unit C were practically complete (as I have found), the Static Security should be apportioned equally as between the three Units. I disagree because the reason that the Static Security was maintained was because DMW's new Architect, Navigant, wrongly withheld the Practical Completion Certificate until 14 August 2008; put another way, it was being maintained only because Unit C was not certified as practically completed and if Practical Completion had been certified on 7 July 2008, the Static Security requirement would have been needed.

628. The whole claim is supported by paid invoices from Sovereign Guards. It is wholly allowable to WLC. The claim, as agreed, also includes within the total sum of £6,482.50 which is admitted to be due in relation to static security provided up to 18 February 2007.

The Doppler Lift Deposit

629. The amount in the issue here is £79,412.33 and there is no issue that this relates to the deposit which WLC had to and did pay following a specific Architect's Instruction (AI032) directing it to enter into a sub contract with Doppler Lifts. The deposit having been paid, but before Doppler Lifts got into financial troubles, eventually going into liquidation, and before it did any or much work on the project, let alone delivering anything to the site, this work was omitted by Architect's Instruction and the lift works were placed with a new contract are directly employed by DMW.

630. DMW's Counsel without any amplification simply adopt what Mr Pontin says in his first report in which he simply refers to a "side agreement" and hints that by reason of this the unrecovered deposit may remain irrecoverable. That side agreement was recorded in a letter dated 6 June 2006 from DMW's then solicitor, Manches, and signed by WLC's then solicitor. The letter itself refers to issues having arisen between DMW and WLC, with DMW believing that WLC and Doppler "are in repudiatory breach of their contracts" and WLC considering that "Doppler is willing and able to

perform its sub-contract but has been prevented by a lack of instructions from the Architect". Two relevant clauses were agreed:-

> "4. Without prejudice to the issues between the parties as to whether or not Doppler was performing its subcontract, it has been agreed:-
>
> (1) that Walter Lilly will accept an instruction from the Architect to omit the lift package from its Work;
>
> (2) that the Employer will engage another lift contractor, Odyssey Glass Ltd and Creative Lifts Ltd as contractors directly employed by the Employer;
>
> (3) Water Lilly will cooperate with Odyssey Glass Ltd and Creative Ltd in the installation is of the lift on the site…
>
> 6. Pending resolution of the issues between the parties, the parties agree that each will assist in mitigating any additional costs claimed by Doppler and/or in recovering any overpayments to Doppler"

631. Mr Pontin argues, although this may not be a matter for a quantity surveyor expert, that the "issues have not been resolved and the deposit has not been recovered by the Claimant from Doppler. Manches' letter however does not record what was to occur in such circumstances".

632. There can be no doubt that under the underlying Contract between the parties WLC was entitled to be paid by DMW for sums properly paid by it to Doppler. The instruction from BLDA required WLC to place an order with Doppler on the basis of the tender recommendation. There is no suggestion by DMW or Mr Pontin that the deposit paid to Doppler was paid anything other than pursuant to this instruction. Under the Clause 13.4 provisions for payment for the expenditure of provisional sums (and the instruction did call for the expenditure of a provisional sum item), the sum paid by way of deposit by WLC to Doppler was payable and should have been certified for payment.

633. The Manches' agreement did not finally or ultimately exclude WLC's entitlement to payment. This was a working solution which enabled DMW through its Architect with impunity to omit the Doppler work and enable this DMW to employ other lift contractors directly. The "issues" referred to in Clause 6 were those referred to in Clause 4, as to whether or not Doppler had performed its sub-contract. The wording of Clause 6 is not expressed in terms of exclusion or limitation of entitlement and should not be construed as such. No evidence let alone argument has been proffered by DMW that Doppler did not perform its sub-contract or that WLC did not assist "in mitigating any additional costs claimed by Doppler and/or in recovering any over-payments to Doppler"; it has not even been suggested that the payment of the deposit by WLC was an over-payment. In any event, in these proceedings any issues between WLC and DMW have been resolved because it would be for DMW to prove either that WLC had not assisted in "mitigating" or "recovering" or that there was some loss flowing to DMW as a result of any failure to assist all that there was some failure on the part of Doppler to perform its sub-contract. None of these things has been proved or established.

634. The reality is, that so far as the Court can assess, it is common ground that the particular Doppler company eventually went into liquidation and the prospect of WLC ever recovering the deposit paid by it is negligible.

635. It therefore follows that WLC is entitled to full payment in respect of this deposit.

Fit-Out Works

636. There had been numerous items in issue in relation to alleged overpayments on these works but the quantum experts sensibly reduced the matter in issue initially to £38,000 and by the end of the trial only one item remains in issue, all others having been conceded; this whether and if so to what extent there should be a reduction of £17,995 in relation to the package for doors and frames. There is no issue that G&T valued this item at £262,286 and, now, DMW and Mr Pontin suggest that it should be reduced by £17,995. The experts put an agreed comment into their first joint statement which was: "G&T to explain reduction v45 and v47". This is reflected what had actually happened which was that G&T valued the doors and frames at the higher figure in Valuation 45 but then reduced it by £17,995 in their Valuation 47.

637. This reduction between the two valuations clearly arose because Knowles, for reasons known only to itself, instructed G&T in October 2007 to take out from their previous valuation the sum representing Adams Joinery's preliminaries in the post-16 February 2007 period. For no good reason and without an obvious, reasoned or justified departure from normal and independent quantity surveying practice and, contrary to their own inclination, G&T did reduce their valuation accordingly. It was in any event simply wrong as a matter of contract for this reduction to have been made because it is inevitable that sub-contractors instructed pursuant to provisional sum items will have their own preliminary costs, irrespective of whether the main contractor is in delay; those preliminary costs are payable to the main contractor (for onward transmission to the sub-contractor) simply because the preliminary costs of the sub-contractor are part of its price for carrying out the sub-contract works in question. The provisional sum payment provisions in this case effectively require DMW to pay and the Architect to certify sums properly due to the sub-contractor in question.

638. It was conceded, at least by Mr Pontin that, if extensions of time were due to cover the period during which Adams Joinery was on site as a sub-contractor to WLC, the sum should be reinstated. As I have found that extensions are due well into 2008 and because Adams Joinery had concluded their work before then, there is no conceivable justification for a reduction in the value of the fit-out works. The correct figure for fit out works is therefore £4,594,969.85, as accepted by Mr Hunter..

"Uninstructed Work"

639. Initially, DMW sought to reduce the account by nearly £250,000 in relation to some 277 items of work on the basis that, although the work in question had been done, there was said to be no evidence that it had been instructed. The quantum experts have been able to reduce the amount in issue to some £79,000 relating only to 31 items. One starts from the fact that the total sum in issue was included in valuations carried out by G&T, who seemed to be one of the few professionals retained by DMW who have not been sued by it; indeed Mr Whidbourne and Mr Cane of that firm were called as witnesses by DMW.

640. There are four categories of allegedly uninstructed work remaining in issue. The first is in the sum of £17,380.99 where explanations have been provided by Mr McMorrow for WLC. It is accepted that, if and to the extent that Mr McMorrow's evidence is accepted by the Court, this proposed reduction in the account should be rejected. Mr McMorrow's evidence in relation to the 16 items in question in this category was not seriously or effectively challenged in cross-examination. All that Counsel for DMW says in closing is that his recollection "of detail of events that occurred between six and eight years ago… should be treated with caution". Counsel also properly accepted in closing that Mr McMorrow "gave his evidence in a careful and measured way". I also formed a favourable impression of him. Consequently, I accept his evidence in full and there should be no reduction.

641. Category 2 relates to 12 items totalling £10,875.50 which involved work which was contained in sub-contractor accounts which were agreed by G&T; indeed the items were noted by it as agreed. It is very difficult after many years when issues like this are raised belatedly by a defendant for a contractor to provide detailed evidence to show each and every item was approved and instructed. In any case like this, there is ample general evidence that BLDA, Equation and Janine Stone had a substantial amount of direct contact with sub-contractors and were telling them to do various things, which the subcontractors then did; a good example is the Light Wall. I am satisfied on a balance of probabilities that these items of work were instructed, albeit probably informally; there would have been no good reason for G&T honestly to agree them unless they had been satisfied that the work had been instructed and attracted an appropriate level of payment; I bear in mind in this context that G&T was and allowed itself to be put under substantial pressure by Knowles to withhold or limit valuations and it is almost inconceivable that they would have agreed matters as due for payment unless it was clear that they were.

642. Category 3 contains four items totalling £51,417.05 and essentially relates to external windows, plastering and the staining of the veneered ABW. The experts accept in effect that these items were instructed but liability for them is not accepted. All items were agreed by G&T and certified for payment. In relation to the staining, I have already found that this work was instructed by Mr Mackay and that it was essentially extra work because it was seeking to put right a problem (the fading of the veneered wood) which was not the responsibility of WLC; it follows that DMW is liable for this and there is no issue on the quantum. As for the plastering which involved dubbing out, return visits and some making good. Mr McMorrow has given detailed explanations which were not substantially challenged; G&T agreed these items as legitimate variations. In so far as the burden of proof is on WLC, it has established that this work was not only instructed but that it was a variation. The final item relates to external windows and involved a change of specification to allow for extra coats of filler primer and it is evidenced by a letter from WLC to BLDA dated 20 October 2005; as this was clearly agreed to be something for which WLC was entitled to payment, there can be little or no doubt that this was instructed and that it was not necessary as a result of any default on the part of WLC. The Category three reductions are not justified.

643. The final category, which comes to £28,911.75, relates to items where it is agreed that insufficient information has been provided to explain works or to identify an instruction to the works, albeit the work has actually been carried out on site. WLC

does not through its Counsel in closing take any real issue with this sum being taken out of the account. Accordingly, I find that this reduction has been established. In addition, a further £4,209.33 was agreed by the Quantum experts to be deductable for items not instructed. Therefore a total of £33,121,08 falls to be deducted.

Percentage Adjustments

644. WLC claims that there should be percentage adjustments to the value of all work done in relation to 3 items originally priced within the preliminaries, namely insurance (0.81%), "Group safety recharge" (0.25%) and water consumption (0.17%). WLC claims £44,247.36 in relation to this, which is calculated by Mr Hunter by reference to a gross figure said to be due of £79,339.38 less what has been included:

Insurances	53,001.71
Group Safety Recharge	16,452.92
Water	6,591.04
Gross addition	76,045.67
Less allowed in QS's Valuation No. 47	-37,904.26
Increase claimed	38,141.41

I will proceed on the basis that these adjusted figures are correct.

645. It is necessary to look at these three potential adjustments separately. In relation to insurance, the parties agreed that in relation to insurances: "The value related rate of 0.81% would remain should the value of the project increase beyond £15,477,000"; a reduction of £17,500 was negotiated in relation to original tender price for such insurance of £125,363.70 (that is, £107,863.70). This was contained in WLC's fax message dated 23 April 2004 to G&T, expressly incorporated into the Memorandum of Agreements dated 28 May 2004 between the parties. This was at the stage when all three Units were to be dealt with as one overall contract. The Deed of Variation dated 23 December 2004 effectively incorporated this again but by reference to the recalculated Contract Sum (£5,281,974) is for Unit C. There is no suggestion that the substantive meaning, whatever it is, was materially changed by the Deed of Variation; in effect, one would read in the quotation set out above the recalculated Contract Sum for Unit C.

646. One therefore needs to consider how insurances should be valued. It is common ground that these insurances would necessarily cover contractors all risks and works, amongst others. In my judgement the meaning of the expression is clear: provided that the value of the Contract did not exceed the Contract Sum, a fixed sum would be payable in respect of the insurance, that sum being calculable by reference to the original Contract Sum as adjusted to reflect the fact that the Deed of Variation allocated a much lower Contract Sum to Unit C. However, if the "value" increased beyond this adjusted Contract Sum for Unit C, then WLC was entitled to be paid for

the provision of these insurances at the rate of 0.81% of that "value". The word "value" is used as opposed to a word like "cost" or "expenditure. The "value of the project" must be the value due to WLC; these words have emanated from WLC and must be taken to mean the adjusted Contract Sum. The adjusted Contract Sum will include not only the value of the works carried out by sub-contractors pursuant to provisional sum instructions and basic preliminaries but also other adjustments to the Contract Sum such as additional sums due for loss and expense under Clause 26 and other contractual "claim" entitlements. The original Contract Sum for unit C has been substantially exceeded.

647. Moving on to Group Safety, the accepted tender included within the breakdown of the preliminaries an item for "Group Safety 0.25% of £15,477,000", the sum of which was incorporated in the overall Preliminaries; again, this provision was still applicable following the Deed of Variation, albeit scaled down to relate to the Contract Sum specifically for Unit C. The parties therefore accepted the validity of and need for a charge for "Group Safety", it being obvious (and indeed not uncommon) that the holding company will make a charge to its subsidiaries for the provision of appropriate safety measures. It therefore becomes a matter simply of valuation if and when the value of the Works increases to apply this percentage because the Group will make the charge (as here) against the overall value. The percentage charge is against the overall value and, again, as the value includes claim or delay related loss and expense it should be applied to that.

648. The water charge falls into a somewhat different category. There is an item "Temporary Water (Consumption Only)" against which there was a sum of £26,310.90 and it is this sum against which the percentage of 0.17% is extrapolated. It is therefore difficult to see how a value related allocation can be made in effect only on a valuation basis. One can see that there might be a basis of claiming additional cost for the provision of water over an extended period, for instance as part of a loss and expense claim, or even where the variations needed some particular water provision which could be brought into the valuation; however, this approach is eschewed by WLC. Whereas insurance and safety relate to everything which is carried out on site, the provision of water may not be. Additionally, there is no evidence about the cost of additional water to WLC, although I have allowed a very small amount in one of the preliminary allowances. I therefore consider that this part of the claim is not justified.

649. In conclusion, WLC is entitled to 0.81% and 0.25% for insurances and for Group Safety on the total value of the Works including any contractual loss and expense entitlement. Overhead and profit are to be applied to the figure in question. The calculation should be as follows to take into account what has already been allowed elsewhere for insurances and Group Safety:

Insurances	
Group Safety Recharge	
Gross addition	
Less allowed in QS's Valuation No. 47	- £32,015.34*
Increase due	**

*£37,904.26 less £5,888.92 allowed for previously by the QS

** Does not include overheads and profit (added later)

Interest Claims

650. There are essentially two types of interest claim, the first being a claim under the Late Payment of Commercial Debts (Interest) Act 1998 (as amended), the claim being £782,755.55 and contractual interest for late payment of particular certificates (£14,848.23).

651. Dealing with the larger claim first, the basic provisions of the statute are as follows:

> "1 (1) It is an implied term in a contract to which this Act applies that any qualifying debt created by the contract carries simple interest subject to and in accordance with this Part.
>
> (2) Interest carried under that implied term (in this Act referred to as "statutory interest") shall be treated, for the purposes of any rule of law or enactment (other than this Act) relating to interest on debts, in the same way as interest carried under an express contract term.
>
> 2 (1) This Act applies to a contract for the supply of goods or services where the purchaser and the supplier are each acting in the course of a business, other than an excepted contract…
>
> 4 (1) Statutory interest runs in relation to a qualifying debt in accordance with this section (unless section 5 applies).
>
> (2) Statutory interest starts to run on the day after the relevant day for the debt, at the rate prevailing under section 6 at the end of the relevant day.
>
> (3) Where the supplier and the purchaser agree a date for payment of the debt (that is, the day on which the debt is to be created by the contract), that is the relevant day unless the debt relates to an obligation to make an advance payment.
>
> A date so agreed may be a fixed one or may depend on the happening of an event or the failure of an event to happen…
>
> (5)In any other case, the relevant day is the last day of the period of 30 days beginning with—
>
> (a) the day on which the obligation of the supplier to which the debt relates is performed; or
>
> (b) the day on which the purchaser has notice of the amount of the debt or (where that amount is unascertained) the sum which the supplier claims is the amount of the debt,
>
> whichever is the later…
>
> (7) Statutory interest ceases to run when the interest would cease to run if it were carried under an express contract term.
>
> 5 (1) This section applies where, by reason of any conduct of the supplier, the interests of justice require that statutory interest should be remitted in whole or part in respect of a period for which it would otherwise run in relation to a qualifying debt.

(2) If the interests of justice require that the supplier should receive no statutory interest for a period, statutory interest shall not run for that period.

(3) If the interests of justice require that the supplier should receive statutory interest at a reduced rate for a period, statutory interest shall run at such rate as meets the justice of the case for that period.

(4) Remission of statutory interest under this section may be required—

(a) by reason of conduct at any time (whether before or after the time at which the debt is created); and

(b) for the whole period for which statutory interest would otherwise run or for one or more parts of that period.

7 (1)This Part deals with the extent to which the parties to a contract to which this Act applies may by reference to contract terms oust or vary the right to statutory interest that would otherwise apply when a qualifying debt created by the contract (in this Part referred to as "the debt") is not paid.

(2)This Part applies to contract terms agreed before the debt is created; after that time the parties are free to agree terms dealing with the debt.

8 (1) Any contract terms are void to the extent that they purport to exclude the right to statutory interest in relation to the debt, unless there is a substantial contractual remedy for late payment of the debt.

(2) Where the parties agree a contractual remedy for late payment of the debt that is a substantial remedy, statutory interest is not carried by the debt (unless they agree otherwise).

(3) The parties may not agree to vary the right to statutory interest in relation to the debt unless either the right to statutory interest as varied or the overall remedy for late payment of the debt is a substantial remedy.

(4)Any contract terms are void to the extent that they purport to—

(a) confer a contractual right to interest that is not a substantial remedy for late payment of the debt, or

(b) vary the right to statutory interest so as to provide for a right to statutory interest that is not a substantial remedy for late payment of the debt, unless the overall remedy for late payment of the debt is a substantial remedy.

(5) Subject to this section, the parties are free to agree contract terms which deal with the consequences of late payment of the debt."

652. It is clear that part of the policy of the statute is to encourage prompt payment of commercial debts which is doubtless desirable for cash flow reasons in any number of businesses, industries and other commercial organisations. There is no issue in this case that the statute is applicable, subject to arguments about Sections 8 and 5. I do not have the benefit of any authorities which have been cited to me and I have not of my own initiative been able to find any which are of direct relevance. I therefore approach the issues in this context by reference to the wording of the statute.

653. Clause 31.1.1.1 of the Contract Conditions states as follows:

> "If the Employer fails properly to pay the amount, or any part thereof, due to the Contractor under the Conditions by the final date for its payment, the Employer shall pay to the Contractor in addition to the amount is not properly paid simple interest thereon for the period until such payment is made. Payment of such simple interest shall be treated as a debt due to the Contractor by the Employer. The rate of interest payable shall be 5 per cent over the Base Rate of the Bank of England which is current at the date the payment by the Employer becomes overdue"

Thus, late payment of sums due attract a significant rate of interest which in practice for most contractors (at least) will more than compensate them for the late payment.

654. This contract rate is to be compared with the statutory rate under the statute which is Base Rate plus 8%; so the statutory rate is 3% better than the contract rate. I have no doubt that the contract rate provides a "substantial remedy" within the meaning of Section 8 of the statute. Any "substantial remedy" must be one which at least judged at the date of the contract would provide adequate compensation for late payment. Section 8 is obviously considering at least the possibility that the "substantial remedy" will be less than the statutory interest remedy. Whilst the statutory "remedy" is Base Rate plus 8% and that is a "better" remedy for the Contractor than the contractual remedy for late payment, that does not mean that the contractual remedy is not "substantial". The commercial reality is that commercial lending is, depending on the creditworthiness of and security offered by the Contractor, likely to be in the area of Base Rate plus 1 to 3%. Therefore, on that basis not only is the Contractor likely to be compensated for late payment but also there is an incentive provided on the Employer to pay on time.

655. This claim is essentially in two halves. The first relates to wrongful deductions totalling £854,596 from between February 2007 onwards. These deductions were for liquidated damages for delay (for which WLC was, as I have held, not liable) and for defective works such as the lift, plastering, ABW and the like (a very large part of which WLC was not liable for). WLC and Mr Hunter have put forward doubtless what they consider is a simplified calculation which is all based on Base Rate plus 8%. They have taken a mid point between the start of the deductions (late February 2007) and late August 2008 when the full deduction was being maintained. Although I will hear the parties if they can not agree, the calculation can be on a mid-point basis, depending on what was deducted and when, but the interest should be Base Rate plus 5%. There should also be some allowance (in favour of DMW) to allow for the fact that some of the deductions for defective work were from time to time justifiable, although, unless persuaded otherwise, I can not see that this would exceed £60,000 for any period in 2007.

656. The second half of the claim is more complex and relates to the various delay and disruption claims; thus for the preliminary thickening claim between March 2006 and February 2007, the net claimed figures are taken from a midpoint and, as they all gradually accumulate in time, they are taken from June 2005 through to March 2010. In relation to sub-contractor claims, nothing is claimed for Adams Joinery and Andrews whose claims have not yet been paid and interest is claimed on what was paid to Norstead in January 2009. Interest is claimed on additional overheads and profit recovery from a midpoint (16 March 2007 to March 2010). Other claims

including additional static security guarding costs and disputed valuation are also claimed. I have to say that I have not been assisted by the evidence or the argument how this half of the claim should be addressed. DMW's Counsel make the general point that there can be no entitlement to interest unless the debt has accrued and the debt can not accrue until either it is claimed or in the case of loss and expense adequate particulars and supporting information had been provided. Whilst I am satisfied that the conditions precedent in Clause 26 have been complied with, what I can not yet ascertain on the available evidence and argument is whether and when each and every one of these specific and claims and sub-claims in the final form in which they were presented in these proceedings (a) was first intimated and (b) was first adequately particularised. I am confident however that substantial further sums would, should and could have been certified over and above those which were certified or included in valuations; a good example of this is the loss and expense attributable to the delays beyond the date up to which BLDA granted extensions. I am also confident that other sums such as the static security guard costs could, should and would have been certified as 2007 and 2008 went along. I have invited the parties to seek to agree what should be allowed up until March 2010, failing which I may have to do the best that I can and may proceed to consider discretionary interest thereafter until judgement. However, although WLC's Counsel and expert have provided detailed and later amended calculations, these have not been agreed and therefore I will defer to a later judgment the fixing of what contractual and discretionary interest should be allowed or awarded.

657. In relation to the final claim for interest, which Mr Hunter and values at £4,969.09, he has produced a detailed calculation, based on the contractual rate of interest (at Appendix A of his first report). It is supported by the evidence of Mr McMorrow. I accept this as I also accept Mr Hunter's calculation.

Financial Summary

658. The total of the sums due are set out below:

WLC ENTITLEMENT	AMOUNT ALLOWED
PRELIMINARIES	597,052.57
STATIC SECURITY	101,363.75
PI COVER	2,060.78
SHELL WORKS (inc Valuations and reinstated defects and Doppler Lift)	3,585,652.68
FIT-OUT WORKS	4,594,969.85

NPO (weekend working)	25,059.57
INTERNAL SCAFFOLDING	40,804.55
LESS UNINSTRUCED WORKS	[33,121.08]
ADD PERCENTAGE ADJUSTMENTS 1.06% on the above and the loss and expense (£8,913,842.67 [total above], + £860,714 + £505,002.69 - £32,015.34)	76,947.99
SUB-TOTAL	8,990,790.57
OVERHEADS AND PROFIT ON ABOVE 4.5%, less £4,561,37 which WLC indicated that it would not charge on Static Security	400,024.21
DEFERRED START COSTS	7,290.67
WLC PROLONGATION/THICKENING	860,714
SUNDRY LOSS AND EXPENSE	Nil
ADDITIONAL HEAD OFFICE AND PROFIT	274,965.12
SUB-CONTRACTOR LOSS AND EXPENSE	505,002.69
CLAIM PREPARATION COSTS	Nil
TOTAL VALUATION	11,038,787.26
LESS OTHER [AGREED] ADJUSTMENTS]	[6,666.67]
GROSS VALUATION	11,032,120.59
FINANCE CHARGES (INTEREST)	To be the subject of further representations

	or agreement between the parties
FINANCE CHARGES (CONTRACTUAL INTEREST)	4,969.09
SUB-TOTAL	11,037,089.68
VAT	97,986.73
GROSS DUE	11,135,076.41
LESS (i) PAYMENTS MADE	8,768,360.15
(ii) LIQUIDATED DAMAGES	Nil
(iii) DEFECTS FOR WHICH WLC IS LIABLE	[36,050]
TOTAL NET SUM DUE TO WLC (exclusive of contractual interest)	£2,330,666.26

Decision

659. There will be judgement in favour of WLC for the substantial net sum as set out above. I will hear the parties at the handing down of this judgment about ancillary matters such as discretionary interest and costs. They will also need to address the remaining calculation of contractual interest (see Paragraphs 655-6 above) and I will have to produce a further judgment on that as well as on costs and discretionary interest.

660. In accordance with the usual practice, the parties and their legal teams will have received on a confidential basis this judgment in draft. That provided an opportunity to submit before the handing down any typographical, grammatical, arithmetical or other obvious errors which may have crept in to the document. This judgement is over 200 pages long and it was at least possible that I may have overlooked several issues which the parties would have liked me to deal with over and above the hundreds which I have addressed; they were invited to inform me of this before the handing down. Similarly, if the parties felt that I had provided insufficient reasoning on any given topic, they were invited to inform me appropriately beforehand. Although the parties' Counsel helpfully provided me with lists of corrections and identified a number of areas which I had not addressed fully, those matters have now been addressed.