



DESIGN RISK, DEFECTIVE BUILDINGS AND THE DAMAGES SEESAW

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Summary: The aim of this paper is to address design risk and responsibility in construction contracts, redress for defective works and the damages seesaw predicated upon the approaches of the courts to the assessment of damages.

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Building it wrong

- 1 For near time immemorial the law and the builder have had a close if not always happy union. This is illustrated by the fact that close to four millennia ago parts of the world had standards and rules that guided the circumstances in which the harshest punishment was to be administered to the bad builder or designer.
- 2 If we go back to the study of Babylonian law, King Hammurabi who ruled from 1792 to 1750 BC codified their law thus:

The judge who blunders in a law case is to be expelled from his judgeship forever, and heavily fined. The witness who testifies falsely is to be slain. If a man builds a house badly, and it falls and kills the owner, the builder is to be slain. If the owner's son was killed, then the builder's son is slain.

- 3 They were tough times of the eye for a brick variety if designer or constructor was at fault.
- 4 Nothing is really new - Shakespeare¹ summed up what can go array with the building process over 400 years ago in *Henry IV*:

Like one that draws the model of a house Beyond his power to build it; who, half through, Gives o'er and leaves his part-created cost A naked subject to the weeping clouds And waste for churlish winter's tyranny.

Design risk - the choice of contract and procurement strategy

- 5 Contracts are intended to allocate and assign the balance of risk, responsibility and reward. When drafting contracts risk is an essential consideration in choosing contract strategies such as whom carries design responsibility² and to what degree. It is all part of the wonderful freedom of contract.

¹ William Shakespeare 1564 - 1616, Part II, Henry IV

² In practice entering into a contract and commencing construction based on a design that is incomplete can significantly increase the risk of problems arising. Such problems invariably lead to delays, disruption and therefore increased costs. By far the greatest numbers of claims made by employers or subsequent building owners are defects claims. Sometimes an employer's claim in respect of building defects is entirely straightforward and there is no doubt as to the liability of the contractor and the contractor's ability to meet that liability. In many other cases, however, the contractor may be able to raise some form of defence. However those issues are not the topic of this paper.

- 6 Getting the form of contract right is an essential starting prerequisite to the success of a project and establishing clarity of obligation, particularly as to design duties, is a central part of it. This perhaps explains why the JCT, ECC, FIDIC, IChemE design and build forms lead the field for the 'comfort' they afford in their familiarity, particularly when unamended. As most of you know, they are rarely unamended.
- 7 The selection of an appropriate contract matched to the needs of the parties is therefore best understood as part of a risk strategy. On the face of it, procurement systems are chiefly concerned with issues such as, direction and control over the process, change management, design responsibility, and, of course, payment machinery. These issues however are all interrelated by their nexus with the risk allocation within a project. For example, the acceptance of "design responsibility" by a contractor affects not only the provision of design resources but presents risks and opportunities: there is a risk of design liability and an opportunity to design a structure which can be built more quickly and cheaply by use of the contractor's know how. The other side of the fence for the employer is that the more general and unspecific his design brief, the less influence he has on the finished works and the aesthetic. Yet, if you ask any contractor the risk which concerns him most in construction projects, and particularly civil engineering projects, whilst time, quality, availability of resources, weather and financial risks (funding, exchange rates, etc) are a few of the important variables, the answer will invariably be that which arises once ground is broken – unforeseen ground conditions and obstructions³. It can fast make a job into a ruinous venture⁴.
- 8 If risk is to be managed then attention should be paid to the clear unambiguous drafting of contracts so that they record exactly what the parties intend. Uncertainty as to the meanings of contract terms reduces the effectiveness of project management, as resources need to be diverted away unfruitfully into discussions about the division of responsibility within the project.
- 9 It must always be remembered that under English Law, the tribunal and therefore the parties interpreting the contract must give effect to the literal meaning of the words. The "rule" that words must be given their ordinary and natural meaning means that the law does not easily accept that people have made linguistic mistakes. On the other hand, if one would conclude from the background that something has gone wrong, the law will not attribute to the parties an intention which they plainly could not have had. The language cannot be read in a manner that "flaunts business common-sense" *Antaios Compania Naviera SA v. Salen Rederierna AB* [1985]⁵.

³ The principle is succinctly stated in Halsbury's Laws of England as follows: "It is no excuse for non-performance of a contract to build a house or to construct works on a particular site that the soil thereof has either a latent or patent defect, rendering the building or construction impossible. It is the duty of the contractor before tendering to ascertain that it is practicable to execute the work on the site..."

⁴ In *Mowlem plc (formerly John Mowlem) v Newton Street Limited* (2003) the courts underlined they will be reluctant to interfere with unequivocal risk allocation clauses under which the risk of unforeseen events is transferred to the contractor. In this case the validity of an exclusion clause was tested under an amended JCT WCD 98 contract. Judge Wilcox noted that in any contract with a significant design element at the interface of a building into the ground or on to an existing structure, there is a commercial imperative to allocate the risk of the unforeseen or to ascertain any degree of risk arising out of the ground conditions or existing structure.

⁵ AC 191

However to the disdain of some foreign clients, English Judges do not, as under certain civil law systems, strive to give effect to the intentions of the parties.

- 10 The tribunal will also attempt to give effect to the whole of the document and to try to give meaning to every word. There is naturally still scope for interpretation, but it is not generally permitted, under English canons of interpretation to find meaning when none exists or to look behind the words to find the true intentions of the parties. The basic approach is literal, not purposive. On the other hand, one is entitled to look at the factual matrix of events surrounding the formation of the contract *Prenn v. Simmonds* [1971]⁶; *Investors Compensation Scheme Ltd v. West Bromwich Building Society* [1998]⁷. Further discussion of this topic is outside this paper.
- 11 So it is a general principle in English contract law that commercial parties may make, within very broad parameters, whatever agreement they wish. They are masters of their own contractual fate⁸. They may allocate risk, as they like. However, if projects are to run more smoothly and efficiently, at optimum cost, and time, they do so in practice if risks are allocated appropriately to the circumstances.
- 12 It is worth remarking that ultimately uncertainty may lead to conflict as demonstrated in much of the heavy weight litigation of the Commercial Court and TCC. The House of Lords litigation in *Panatown v Alfred McAlpine Construction Ltd* [2000]⁹ and before it *Linden Gardens Trust Limited v. Lenesta Sludge Disposals Limited* and *St Martin's Property Corporation Limited v. Sir Robert McAlpine and Sons Limited* [1994]¹⁰ is one such example. The late Ian Duncan Wallace Q.C. cited the Linden Gardens mammoth litigation as the consequences of the "*lamentable quality and lack of precision of typical standard form draftsmanship*"¹¹.
- 13 Thus, the risk allocation function of a contract is best satisfied by writing terms which control risk situations, such who has what design responsibility, potential poor ground conditions, inclement weather and price fluctuations. Where such matters are not dealt with expressly, the law takes a view on the allocation of risk. A well known example is to be found in *Bottoms v. Mayor of York* (1892)¹². In this case, Bottoms contracted to execute sewage works for York. The soil turned out to be unsuitable and necessitated extra works which the engineer refused to authorise as a variation. Bottoms abandoned and sued for work done. The contract was silent as to whether the contractor was entitled to extra payment for difficulties due to unanticipated

⁶ 1 WLR 1381

⁷ 1 All ER 98 (HL). The general principles identified by Lord Hoffmann in *West Bromwich* were approved by Lord Bingham in *BCCI v Ali* [2002] 1 AC 251 at Para.8 ... "*To ascertain the intention of the parties the court reads the terms of the contract as a whole, giving the words used their natural and ordinary meaning in the context of the agreement, the parties' relationship and all the relevant facts surrounding the transaction so far as known to the parties. To ascertain the parties' intentions the court does not of course inquire into the parties' subjective states of mind but makes an objective judgment based on the materials already identified. The general principles summarised by Lord Hoffmann in [ICS] apply in a case such as this*".

⁸ The parties are to be regarded as masters of their contractual fate" in determining what terms are essential. Per *Pagnan v. Feed Products* [1987] 2 Lloyd's Rep. 601: "It is for the parties to decide whether they wish to be bound and, if so, by what terms, whether important or unimportant." Per *Mitsui Babcock Energy Ltd (BEL) v John Brown Engineering Ltd* (1996) 51 Con. L.R. 129.

⁹ 4 All ER 97

¹⁰ 1 A.C. 85

¹¹ (1993) L.Q.R. 82 at page 91.

¹² Hudson's B.C. (4th ed.) 208, CA, see too *Thorn v London Corporation* (1876).

ground conditions. The court decided that the occurrence of such conditions was at the contractor's risk and there should be no extra payment.

- 14 The modern tendency is to deviate from this "traditional" procurement method. Today, the contents of construction contracts varies considerably, ranging from those which include a restricted element of design to be carried out by the contractor, to those variously known as "design and build/construct", "turnkey" or "package deal" contracts.
- 15 A distinction in the varying structure of these contracts needs to be made between single point contracts and "design and construct" or "turnkey" contracts. A single point contract is one in which there is only one contract for the whole project. Where the contractor has responsibility for all the design as well as construction the contract is referred to as "design and construct" or "turnkey". Although the term "turnkey" is sometimes used to refer to projects with single point contracts, the essential feature is the allocation of responsibility for design and construction to the contractor.
- 16 Fixed price contracts are common in design and construct forms of contract. The major difficulty in the UK construction market with them has been the control of quality and performance of the contractor. This has manifested itself in the procedures for the client to monitor the design and the quality of the workmanship¹³.
- 17 Many contracts entered into in either the "traditional" or the "design and build"¹⁴ format, contain express provisions detailing the obligations of the parties. This practice is supported by the various bodies involved in the construction industry who produce a number of standard forms of contract some of which are covered in this paper.
- 18 Such contracts will frequently specify, inter alia, the level of responsibility undertaken by the contractor or design team in respect of the design. In the event, however, that there is no express imposition of design responsibility, and a dispute arises between the parties, the courts will seek to imply such an obligation. With a "traditional" procurement method, the standard of care to be employed by the professional design team will usually be implied as that imposed on any professional, namely "reasonable skill and care" and the implied obligations of the contractor would include carrying out the construction works with skill and care, using good quality materials. In a "design and build" contract, however, the case law over the years has shown that the contractor, in the absence of an express contractual rebuttal, will be under an obligation to ensure that the finished product will be (reasonably) "fit for its intended purpose".
- 19 The importance of the distinction between the use of reasonable skill and care and an obligation as to fitness for purpose is that in the former case negligence has to be

¹³ See Reading University Design & Build Forum Centre for Strategic Studies Report 1996.

¹⁴ In 2001, an RICS survey found that design & build procurement was the route of choice in 42.7% by value of contracts. That figure was up from 14.8% in 1991 and, if the trend can be extrapolated, it is probably now used in more than half. In 1984 the figure was 5.1%. Design & build insurance has risen in 20 years to a place of prominence. In cases of negligent design, primary contractual liability is now more likely than not to be borne by a building contractor. Even in cases of traditional procurement methods, there may well be specialist contractors, e.g. for cladding, who are the primary designers for particular parts of the building.

shown whereas in the latter case there is an absolute obligation¹⁵ which is independent of negligence. Negligence does not have to be proved where there is an obligation as to fitness for purpose. Warranties of fitness for purpose and strict or absolute obligations are frequently found where a consultant has been engaged by a design/build contractor. Why? Because contractors engaging designers have a habit of treating consultants as sub-contractors and seeking, as with sub-contractors, to pass all their own obligations on to the consultant, on a back-to-back basis.

- 20 The significance of the imposition of this fitness for purpose obligation upon a contractor in a design and build contract is that a higher standard will be required of a single contractor than that which is imposed cumulatively on the contractor and design team in a traditional form of contract. This paper will necessarily address the fitness for purpose obligation as it has been implied in construction contracts.
- 21 It is useful initially to examine the concept of fitness for purpose as it has been applied in relation to the sale and supply of goods and services. The law is already clear that the obligations of a contractor in a construction project (that is, a contract for work and materials) are to be assimilated as closely as possible to those of the seller under the law of sale of goods. Standard statutorily implied terms of the Sale of Goods Act 1979 and Supply of Goods and Services Act 1982 (both as amended by the Sale and Supply of Goods Act 1994)¹⁶ stand to be imputed into building contracts.

Fitness for purpose in "design and build" construction contracts

- 22 In a "design and build" contract the contractor is ordinarily responsible for both the design and the construction of the finished product. As such, it is much more directly involved in delivering to the employer a complete product which it has also designed¹⁷. A term of fitness for purpose and therefore a duty of result of the completed works will readily be implied unless excluded by the express terms of the contract or other particular circumstances.

¹⁵ An obligation come what may. cf. an obligation merely to use best endeavours or to exercise reasonable care. An issue frequently arises in construction contracts as to whether a contractual obligation is:

an absolute obligation (i.e. an unqualified obligation to achieve a result), or a qualified obligation, such as an obligation merely to use reasonable skill and care, or to use best endeavours to achieve that result.

This distinction goes not only to the likelihood of a breach being established, but to the way the breach must be pleaded and the evidence that must be adduced. Thus, where the contractual term requires the application of reasonable skill and care, expert evidence is normally necessary to support an averment that the defendant failed to apply such skill and care. Similarly, where the clause requires the use of best endeavours, evidence is likely to be necessary as to whether the defendant met that standard.

¹⁶ Wallace, I.N. Duncan, Hudson's Building and Engineering Contracts (11th edition) (Sweet & Maxwell, London, 1995), p.519.

¹⁷ Although Design and build forms have many advantages for the Employer and Contractor, there are specific problems that frequently arise. These are:

- Uncertain definition of the contract due to lengthy pre-contract discussions/negotiations.
- Ambiguity/Discrepancy between Employer's Requirements and Contractor's Submission.
- Monitoring the adequacy of the design.
- Valuation of Variations.
- Fair cashflow payments.
- Dealing with Defects.

- 23 A number of cases illustrating the circumstances in which a fitness for purpose warranty has been implied will first be discussed, before analysing in further detail the rationale employed by the courts.

Application of fitness for purpose

- 24 The existence of an absolute duty in relation to design, either a requirement of fitness for purpose, or a requirement to achieve a specified result, derives essentially from the terms of the contract. This, however, includes any implied term arising from the presumed intentions of the parties in the light of all the circumstances. This is illustrated by the case of *Viking Grain Storage Limited v. T.H. White Installations Limited*¹⁸. There, the defendant agreed with the plaintiff to design and construct a grain storage installation. The plaintiff alleged a variety of defects which rendered the installation unfit for its intended purpose both in respect of its design and the materials used in its construction. The plaintiff argued in favour of implied terms that the defendant would use materials of good quality and reasonably fit for their purpose, and that the completed works should be reasonably fit for their intended purpose. The defendant accepted that there was an obligation to use good quality materials but disputed the requirement of fitness for purpose. In relation to design the defendant argued that it was his duty to use reasonable skill and care only. It was held that there was nothing in the contract which prevented the implication of an additional term. The purposes for which the storage facility was required had been made known by the plaintiff to the defendant and they relied upon the defendant to provide a facility fit for those purposes. The court did not consider that there was any merit in breaking down the obligations of a contractor under a design and build contract and held that a term would be implied that the finished product must be reasonably fit for its intended purpose and that the defendant should be liable to the plaintiff irrespective of whether the defects were defects in materials or workmanship or design.
- 25 That said, the general principles applicable to the implication of terms in contracts can be formulated as follows:
- (1) The terms implied in a contract are based upon the presumed intention of the parties. The implication is one of law, because it is what the law presumes the intention of the parties to have been.
 - (2) A term will be implied only if it is reasonable and necessary to do so, having regard to the nature and object of the transaction.
 - (3) It will not be implied if, and insofar as the effect of so doing, would be to contradict what the parties themselves have expressly agreed.
 - (4) As good a starting point as any in the process of deciding whether or not a term should be implied in a contract, is to look at the nature of the transaction and its expressed terms, if any, because they constitute the confines of the area within which any implication needs to be contained.

¹⁸ (1985) 3 Con.L.R. 52

Within those limits, it is permissible to take into account any other circumstances which can fairly be regarded as relevant to the question whether a particular term should be implied in the contract under consideration.

- 26 It follows from the statutory provisions and cases referred to above that the nature of the design duty cannot be assumed from the general law and it is therefore appropriate to state the nature of the design duty in the contract conditions.

The practical consequences for the contractor - hard law

- 27 In *Clayton v. Woodman & Sons Ltd* [1962]¹⁹ the Court of Appeal decided (under the 1939 RIBA form) that an architect, who had refused to vary contract works which involved alterations to an existing building, was not liable to one of the contractor's workmen when a part of the building fell on him. Pearson L.J. said at p. 77:

'The architect... is engaged as the agent of the owner... his function is to make sure that... when the work has been completed, the owner will have a building properly constructed in accordance with the contract... The architect does not undertake... to advise the builders as to what safety precautions should be taken or, in particular, as to how he should carry out his building operations.'

- 28 This was followed in the case of *AMF International v. Magnet Bowling Limited* [1968]²⁰ in which it was said of *Clayton's* case:

"That case (in both courts) further establishes that an architect has no right to instruct a builder how his work is to be done, or the safety precautions to be taken²¹. It is the function and right of the builder to carry out his own building operations as he thinks fit. The architect, on the other hand, is engaged as the agent of the owner for whom the building is being erected, and his function is, inter alia, to make sure that, in the

¹⁹ 1 W.L.R. 585 at 593

²⁰ 1 WLR 1028. In this case *AMF* were to install bowling equipment in a bowling centre being built by the defendants contractors. After the contractors has said that the installation could begin, heavy rain flooded the partially constructed building and damaged the plaintiffs equipment. The contract was in the JCT 1939 Form. Clause 14 made the Contractor liable for injury to property in words substantially similar to those of clause 20.2 of the JCT 1998 Form. The Bills contained certain items expressly requiring the Contractor to protect all work and materials. Equipment stored in a partially completed part of the Works was damaged by flood. It was held that clause 10 (the then equivalent of clause 12 in the 1963 Conditions) did not prevent the court from giving full effect to these items in the Bills so that the Contractor was liable.

²¹ But see now Regulation 13(2a) of Construction (Design and Management) Regulations 1994 (CDM) states: "Every designer shall ensure that any design he prepares and which he is aware will be used for the purposes of construction work includes among the design considerations adequate regard to the need:

(i) to avoid foreseeable risks to the health and safety of any person at work or carrying out construction work or cleaning work in or on the structure at any time, or of any person who may be affected by the work of such a person at work,

(ii) to combat at source risks to the health and safety of any person at work carrying out construction work or cleaning work in or on the structure at any time, or of any person who may be affected by the work of such a person at work, and

(iii) to give priority to measures which will protect all persons at work who may carry out construction work or cleaning work at any time and all persons who may be affected by the work of such persons at work over measures which only protect each person carrying out such work."

end, when the work has been completed, the owner will have a building properly constructed in accordance with the contract."

- 29 His Honour Judge Stabb Q.C.'s judgment in *Oldschool v. Gleeson* (1976)²² is the strongest possible endorsement of both of the above authorities. In his judgment, the learned judge stated:

"The provision of temporary support and the mode of demolition and excavation are, in my judgment, matters for which the contractors and not the consulting engineers are responsible."

- 30 His Honour Judge Stabb Q.C. specifically cited the Court of Appeal judgment in *Clayton v. Woodman* and in particular, the following passage from that judgment:

"It might be suggested that the fault of the architect was in not advising the builder through his existing representative on site, the plaintiff, as to how the work required by the specification should be executed. If he had done so, the architect would have been stepping out of his own province and into that of the builder. It is not right to require anyone to do that, and it is not in the interests of the builder's work people that there should be a confusion of functions as between the builder on the one hand and the architect on the other....Thirdly, it might be suggested that the architect should have given a warning to the builder's workmen...as to how the work should be done or that there was some risk involved in doing it in a particular way. But also, it seems to me that that would have been stepping out of his own province and entering that of the builder. He was entitled to assume that the work would be properly carried out, that the builder knew his own business and would properly perform his own operations."

- 31 His Honour Judge Stabb Q.C. further stated in *Oldschool v. Gleeson*:

"It seems abundantly plain that the duty of care of an architect or of a consulting engineer in no way extends into the area of how the work is carried out."

- 32 As will be obvious at this point our general law position is an employer under a construction contract does not impliedly warrant the fitness of the site to enable the contractor to complete the work: *Appleby v Myers* (1867)²³. Nor does he warrant the feasibility of the design set out in the contract documents: *Thorn v London Corporation* (1876)²⁴.

- 33 In fact there is a long line of cases noted for their arguments made for the contractor that what they contracted to do was 'impossible' and they sought to argue frustration of contract. The most infamous is known to most of you as *Tharsis*.

²² 4 BLR 103

²³ LR 2 CP 651

²⁴ 1 App Cas 120

- 34 *Tharsis Sulphur & Copper Co v M'Elroy* (1878)²⁵ was a House of Lords decision, where the respondents were employed to erect a structure including cast iron trough girders. They attempted to cast the girders in accordance with the specified dimensions, but found that the girders were liable to warp and crack at that thickness. They therefore proposed that they would cast the girders with increased thickness to overcome the problem. The Appellants acquiesced, but did not order the change or agree to pay any increased price. On completion of the work, the Respondent contractor claimed a considerable amount in excess of the contract price for the extra weight of metal supplied. The claim was rejected. The Lord Chancellor commented, at pp 1043-44:

'On the other hand, the Respondents were in this position: they were obliged to execute the work; as I understand the contract they were obliged to execute it with the girders. If they could not cast the girders of the scantling, that is to say, of the exact thickness, mentioned in the contract, that was so much the worse for them. They ought to have known that when they undertook to execute the work in that form. Therefore they must have submitted to one of two things; either they must have refused to go on with the work, exposing themselves to the risk of being proceeded against for damages for not fulfilling their contract, or they must have increased the size, the scantling, of the girders to such an extent as would counteract the cracking to which the smaller scantlings subjected the girders.'

Lord Hatherley agreed, concluding, at p1050:

'What the company permitted the Respondents to do was only for their own convenience, and that being so, there is nothing to support the claim made by the Respondents to be paid for it as extra work.'

- 35 This is to be contrasted with the judgment of HHJ Stabb QC in *Turriff Ltd v Welsh National Water Development Authority*, which has subsequently been reported in full at [1994]²⁶.
- 36 *Turriff* concerned a contract under the fourth edition of the ICE Conditions. The contractor claimed that it was impossible to lay the precast concrete culvert units within the tolerances laid down in the specification. Counsel argued that, in the context of Clause 13, 'impossible' should be construed as 'absolutely impossible', but HHJ Stabb held that impossibility was to be interpreted in a practical or commercial sense, and that if it had to be interpreted strictly, it had to be interpreted strictly against both parties:

²⁵ 3 App Cas 1040

²⁶ Const LY 122. (Construction Law Yearbook, published by Chancery Wiley.)

'Turriff's contractual obligation was to manufacture, lay and joint the units in accordance with the drawings and the specification. I have already indicated that it was in that strict context, absolutely as well practically impossible successfully to joint them. It was not, plainly, absolutely impossible to manufacture the units to the required dimensions and tolerance, but in the ordinary competitive commercial sense, which the parties plainly intended, I am satisfied that it was quite impossible for Trocoll to achieve the degree of dimensional accuracy required.'

- 37 The case is significant in taking a pragmatic view of impossibility in favour of the contractor. (The earlier case of the *Port Isaac Harbour Commissioners* [1942] AC 154 also found frustration based on commercial impossibility, but to the benefit of the Employer.)
- 38 The judgment is also notable for the significance attached by HHJ Stabb to the extensive pre-contract studies carried out by the employer on the precast units. He explained their significance as '*part of the contractual matrix*' within which the contract was to be interpreted.
- 39 So we see 'traditionally' when an employer more commonly engaged a contractor to construct a building on the basis that the building will be constructed in accordance with an architect's (or other design professionals) design supplied by the employer, then in this situation, the contractor, whilst agreeing to carry out the works in accordance with the design documents, makes no promise that the building will fulfill its intended purpose, save in those rare instances where such can be shown objectively to have been the case. Some limited design responsibility may, however, be placed on a contractor. For example, by virtue of the design documents failing to specify all materials, a choice of materials is left to the skill and judgement of the contractor and this is a rich vein for disputes. In addition the contractor has to comply with statutory requirements and that means Building Regulations and bye laws which overreach error by the designer insofar as his design 'missed the spot'²⁷.
- 40 Thus, where the contract is silent as to some materials to be used in the construction the contractor is still obliged to choose and apply materials in order to carry out the works in accordance with his express undertaking. Such choice is aimed towards the expressly agreed result, that is, the completed building.
- 41 It will be seen the process of construction is subject to certain terms which the general law of contract recognises to be implied into a building contract of this type. There is an acknowledged threefold implication that:

²⁷ See Clause 6 of JCT 98 and JCT 05 clause 9 (save under MWD 2005), it is incumbent on the contractor to ensure that the employer's design complies with any statutory requirements (except in the case of DB 2005 where the employer's requirements state that they are so compliant).

1. the work will be carried out with reasonable care and skill;
2. that the goods used will be of satisfactory (that is merchantable in old speak) quality²⁸; and
3. that goods will be fit for their intended purpose, in circumstances where a purpose is made known to the contractor by the employer and it is reasonable for the employer to rely on the contractor

42 There is (see above) also a potential fourth implied term placing on the contractor a duty to warn the employer that the architect's (or other design professionals) design is defective.

How should design risk be allocated - good practice

43 To help clear the fog commentators have attempted to identify a "code of good practice", which provides 'appropriate solutions' to the question of how risks, particularly as to design, should be allocated if the aggregate commercial advantage of all those involved is to be maximised.

44 The principles set out below essentially summarise this consensus. In particular cases it may not be possible to satisfy all of them simultaneously, but an objective, judicious balance may be struck.

44.1.1 Risks should be identified and a conscious decision about managing each major risk should be taken. A variety of strategies are available for dealing with individual risks, including retention, transfer and sharing, pain or gain, capped liability, limitation of liability, barring consequential loss etc. When a strategy has been decided upon, it should be expressed as a term in the contract.

44.1.2 Allocation of risks should be clear, complete and unambiguous. The more significant the risk, the greater the need for clarity. Uncertainty about the meaning or ambit of a term can itself be a major source of risk.

44.1.3 The allocation of risk should be "motivational". This means that its allocation to a particular party should have the effect of motivating that party to deal with it in the most effective and efficient way. This implies that the party who accepts the risk should be able to:

- influence its magnitude; and
- control the effects of the risk once it has occurred; and should have an incentive for minimising and controlling the risk.

44.1.4 If one party can shoulder the effects of the risk once it has occurred, but the other may not be able to do so, the more capable party should bear it. This is because in a highly interactive contractual setting such as occurs for

²⁸ The position in relation to the quality of goods under a traditional form of contract is clear. As Lord Pearce put it in *Gloucestershire County Council v. Richardson* [1969] A.C. 480 at 494 "When [a contractor] engages to do certain work and supply materials, [he] impliedly warrants that the materials will be of good quality, unless the particular circumstances of the case show that the parties intended otherwise"

most construction contracts, significant risks being carried by one party also represent significant risks to the other. For instance, on a certain famous football ground in West London we have all read how some risks have jeopardised the solvency of key subcontractors and imperiled the main contractor. But if the contractor fails, the employer will be left with an abandoned job. Hence, say, risk X is, by reflection, a risk to the employer also, and it is not in the employer's interest to place such a risk outside its own control. However see further below in the context of buildability.

Design Responsibility - the how and the what of construction

- 45 At common law in contract, we have seen that unless there is an express term to the contrary a contractor will be liable if its design fails to achieve the intended purpose even though there is no negligence on his part in preparing the design. This contrasts with the lower standard of liability of a professional man, such as an architect or an engineer, who produces a design. He is only liable if the design is defective due to his negligence.
- 46 So where does the risk lie? Where are the margins? If we take an ordinary lump sum contract (not being design and build) one can usefully consider the question the contractor will often be confronted by; the choice of working methods and temporary works (that is "how" as opposed to the "what" of construction). The 'how' bit in the absence of a specification telling him how to do the works, is for the contractor to decide and the Employer will have no duty of guidance or intervention to the contractor.
- 47 The contractor takes on responsibility for the design of the temporary works²⁹. In other words, he designs those works which are not to be permanent, but which are necessary to put in place the permanent works. The architect or engineer is liable to the employer for the design of the permanent works. He must exercise professional skill and care in that design. This will be the position unless the evidence is that the architect/engineer has intermeddled in this province of the builder or vice versa.
- 48 This area of the law was the subject of a recent case called *CGA Brown Ltd v Carr & Anor* (2006), CGA Brown Ltd ("CGA") where builders carried out works for the defendants ("Carr") at their house in Rochdale in 2003. Carr was awarded an on-account balance judgment in their favour of £224.29 plus costs.
- 49 CGA agreed to do the work shown on the drawings to the roof prepared by Carr's architect for the purposes of obtaining building regulation approval. The work included an extension to add two dormer windows to the existing dormer windows set into the sloping part of the roof, and a corresponding extension to the flat roof constructed above these windows. Expert opinion was that the drawings did not provide a very detailed level of information and the annotations provided left many assumptions as to interpretation and decisions on actual intention.

²⁹ In practice most Consulting Engineers expressly exclude temporary work design from their commission and therefore expect the contractor to undertake it.

- 50 An annotation stated that the new flat roof was "to align through with the existing arrangement". The actual roof slopes were different to those shown on the drawings so following this instruction meant that the falls on the new roof were unsatisfactory. By the time CGA discovered this problem, they had completed work in accordance with the drawings, and had of their own initiative made a cold joint between the felt covering the existing roof, and the felt which they laid to cover the new roof. This joint was later condemned by the expert.
- 51 After discovery of the problem, CGA had proposed a solution which involved constructing a slightly pitched roof above the flat roof. Although Carr accepted CGA's quotation for this modification, it was not carried out. Whilst Carr was waiting for this work to be done, the roof began to leak very badly. Carr called another contractor who carried out an emergency repair and then later re-felted the whole of the flat roof.
- 52 The judge held that CGA were liable for the whole of the re-felting works as CGA should have spotted the problem with the drawings and advised Carr of it before they created a roof that was vulnerable to leakage because of the inadequacy of the joint that CGA decided to make.

The Issues argued were:

- 52.1.1 Should Carr be allowed to succeed in the claim that CGA should have spotted the problem with the drawings as this was not pleaded?
- 52.1.2 Should the costs of the re-felting should been awarded as CGA argued:
- it was double recovery; and
 - it involved giving Carr a better roof than that they had contracted.
- 53 Carr's defence carried a general allegation of failure to carry out the works with reasonable care and skill. Necessarily involved in the carrying out of the work was an appreciation of what the plans provided, and what they did not provide for, as well as the actual work of construction which was involved in following them. Therefore, an allegation of a failure to carry out the work with reasonable care and skill comprehended an allegation that CGA had failed to realise that such an instruction as was given to them in the plans was inadequate.
- 54 There was no double recovery. There had been two breaches of contract: the failure to spot the problem with the drawings and constructing an inadequate joint. The combination of these two failures left Carr with a roof which was inadequate and leaked. Carr modified the roof in accordance with the second contractor's recommendation which remedied the inadequate joint and left them with an acceptable roof, although one that still had unsatisfactory falls. Compensation was awarded to compensate Carr for the fact that they had been left with an inadequate roof and the original agreement required the builders at least to leave them with a roof that did not leak. There was no question of betterment in the work carried out by the second contractor. The builder, CGA Brown, had a duty to warn at this

domestic consumer level. He did not. He pressed on. So then he became responsible for the choice.

Principles versus practical realities - buildability

- 55 It will be readily appreciated that since the contractor undertakes to carry out and complete the works, in circumstances where he encounters difficulties in executing the permanent design, his warranty of buildability may cause him serious exposure. He is contractually obliged to complete see *Tharsis*³⁰. The architect or engineer may simply shrug his shoulders and leave it to the contractor to come up with a solution. Exculpation for the contractor is only likely to be found where it is in the employer's interests, as much as the interests of the contractor, for a problem to be resolved so that works can go on. Then, in the interests of his employer, the architect may, where the contract permits, intervene and relax the specification. In practice, it is often the case that the employer wants to have the works completed so that he can gain access to the building to use it for the purposes for which it is being built. In these circumstances, the architect may help the employer by providing a solution to the contractor's predicament of apparent non-buildability.
- 56 Yet to most purists, the principle that the design professional might be responsible for buildability is an aberration from these well established principles of English Construction Law, which state that buildability is the province of the builder.
- 57 An architect's general duty as to his design is to ensure that the design is prepared with proper skill and care. This does not amount to a warranty as to the fitness for purpose of the design.
- 58 The mere fact that a design lacks buildability would not be sufficient for liability to attach to the architect/engineer or other design professional taking such a role. It would have to be established that the architect/engineer failed to exercise due skill and care so as to ensure that his design did not lack buildability. This presents a further legal and evidential hurdle to the contractor in attempting to recover a contribution from the architect/engineer.
- 59 For this reason it can become necessary for the contractor to look at the architects/engineers detailing to see if that might be materially at fault. If the designer condescends to detailing (sadly rare for the architectural profession these days) the contractor may find it less than clear that the architect/engineer is on the liability hook.
- 60 It is of note that in so far as further drawings or a specification are necessary to develop that design intent into something that can be built, the further drawings will be henceforth part of the design. The authority is *Holland Hannen & Cubitts v W.H. T.S.O* (1981)³¹.
- 61 There may be a blurred borderline between design and workmanship. For example, *Keating* suggests a carpenter choosing a suitable nail as opposed to a screw in a sense

³⁰ *Ibid*

³¹ 18 BLR at 114.

makes a design choice, ditto a concrete lintel instead of steel. Such a choice would usually be regarded as a normal incident of good workmanship unlike say a choice of waterproof tanking system, or flat roof membrane.

Keating interestingly states at para 1 -142:

"In the normal case of traditional contracts (i.e., where the design is not the responsibility of the contractor but that of the employer's architect) then much importance can be attached to the question of whether a defect is a design defect or a defect of workmanship. It is impossible to lay down hard and fast rules as to whether any particular defect will be one or another, for the choice between a flat roof and a pitched roof will be a matter of design, but the choice between a screw and a nail may well be a matter of workmanship. As a rule of thumb, the shape, dimensions, choice of material and other matters apparent from the drawings are generally regarded as design matters and the things left over for the good sense of the contractor are generally regarded as matters of workmanship."

Also in the case of *Bellefield Computer Services v E Turner & Sons* [2002] CA it was said:

"The extent of an architect's responsibility for the detailed working out of construction details for which he has provided an underlying design again depends on the express and implied terms of his engagement and its interrelation with the responsibility of others. The scope of any such responsibility depends on the facts of each case. There is a blurred borderline between architectural design and the construction details needed to put it into effect. Borderlines of responsibility cannot be defined in the abstract. A carpenter's choice of a particular nail or screw is in a sense a design choice, yet very often the choice is left to the carpenter and the responsibility for making it merges with the carpenter's workmanship obligations. In many circumstances, the scope of an architect's responsibility extends to providing drawings or specifications, which give full construction details. But responsibility for some such details may rest with other consultants, e.g. structural engineers, or with specialist contractors or sub-contractors, depending on the terms of their respective contracts and their interrelationship. As with the carpenter choosing an appropriate nail, specialist details may be left to specialist subcontractors who sometimes make detailed "design" decisions without expecting or needing drawings or specifications telling them what to do. In appropriate circumstances, this would not amount to delegation by the architect of part of his own responsibility. Rather that element of composite design responsibility did not rest with him in the first place"

The practical consequences of the above principles are succinctly stated in Hudson's Building and Engineering Contracts as follows:

"Unless the contract expressly stipulates to the contrary, the contractor is entitled to choose his own methods of working or temporary works; the corollary of this is that the contractor is not entitled, when faced with difficulties, to demand or require instructions as to how to overcome them. The architect's duty is normally confined to stipulating the final permanent result required, and if this has already been done, he is under no further duty to assist, and if inclined or requested to do so, should normally be careful to adopt a permissive attitude rather than giving mandatory instructions."

- 62 However, intransigence by architect/engineer or other such design professional is not always wise. The late Ian Duncan Wallace, Q.C. posited that there are four circumstances in which the client's interests may require the architect to intervene in the contractor's methods of working, or temporary works, if he has the power to do so under the contract. These are:
- 62.1.1 If the method used is in breach of specification. There will then be a clear breach of the building contract with which the architect must deal;
 - 62.1.2 If the method imperils the permanent work, which will be a breach of the contractual term of good workmanship;
 - 62.1.3 If the method is unsafe (see comment earlier on CDM Regulation 13) and an accident would prejudice the interests of the employer by, for example, delaying the work or putting neighboring property at risk; and
 - 62.1.4 Where it is in the employer's interests to have speedy completion and a relaxation of the specification, necessary for the contractor, allows this to happen. There will then be no additional payment to the contractor due to the variation.
- 63 These scenarios relate to the architect's on-going duty to the employer to ensure that the project is satisfactorily completed. They should not be confused with the architect's duties as to his initial design. The contractor has already warranted to the employer that he can realise the architect's design. If it transpires that the contractor is unable to comply with this warranty and the architect, acting in the employer's best interests so as to mitigate the employer's losses, intervenes to overcome the impasse, the contractor can hardly rely on this as excusing his breach of warranty. Still less does the contractor have a cause of action against the architect for any failure to intervene.
- 64 The obligation of the contractor to carry out and complete the works must always be borne in mind where the contractor seeks to argue that the contract has been frustrated due, for example, to site conditions, or the condition of existing structures of which he was unaware when the contract was made. In the absence of express terms or statements to the contrary, the contractor warrants that he can carry out and complete the works whatever difficult conditions he may encounter on site. In design and build contracts that generally includes any existing structures adopted, modified or incorporated in the works unless the contractor effectually qualifies his tender.

- 65 Analysing these principles it is strongly arguable that the architect/engineer who produces a design at the employer's request must, by reasonable implication, warrant that his design is sufficiently practicable that it will not frustrate the tender process by deterring contractors from tendering in numbers sufficient to meet the requirements of any competitive tendering process.
- 66 However, it must be recognised that the invitation to tender carries with it a challenge to those tendering which may be both a technological and a commercial challenge and all too often the putative contractor will not have devoted sufficient resources to the task. Where the challenge is accepted, tenders are received and a successful tenderer is awarded the contract. The architect is entitled to assume that the work necessary to achieve his design will be competently carried out by a contractor knowing his own business who warrants that he will be able to properly perform his own construction operations.
- 67 Once the contractor has determined that he can carry out the works and has warranted that he will do so by a method which is his responsibility, there is no room for the proposition that the architect/engineer warrants the buildability of the design by the successful contractor, or indeed any other tenderer who holds himself out as able to perform the building contract. He should of course, out of prudence, warn his client that a novel method of construction may carry greater risks than traditional methods, or that he has reservations concerning a particular method. Indeed a contractor faced with such risk himself should qualify his bid, but too often this is not done with the clarity the law requires particularly as to risk of existing structures³².
- 68 Thus a novel or one off design, like adopting a refinement on a new proprietary building system, still places the design professionals on no higher duty than the ordinary standards of care (unless they espouse a higher duty) even though they have embarked on a novel design using untried and untested technology and expected the contractor to achieve it³³. The "state of the art" might be such that a design fault would be undetected by other competent designers which would relieve the designer of responsibility. An illustration of "state of the art"³⁴ in a construction context is the problems associated with what is commonly known as "concrete cancer". In *IBA v EMI and BICC* a code of practice enabled subcontractors of BICC to design a 1,250-foot aerial mast to withstand pressures caused by 80mph winds. The code applied to lattice masts where high winds were assumed to blow off accumulations of ice. However with the cylindrical mast proposed by BICC, there was a possibility that it might begin to oscillate dangerously even at low wind speeds at a time when any ice would not have fallen off. One of BICCs masts in Yorkshire duly collapsed for this

³² See Mr J Jackson in *Taylor Woodrow Holdings Limited v Barnes & Elliott Limited* [2006] EWHC 1693

³³ The professional designer does not therefore usually assume the higher obligation of ensuring that his designs produce something which is fit for its purpose. For a useful illustration of the point see *Hawkins v Chrysler (UK) Limited and Burne Associates* (1986) 38 BLR 36. A well known exception to this principle arose in the case of *Greaves (Contractors) Limited v Baynham Meikle and Partners* (1975). In that case, the engineer was found liable because his design did not result in a warehouse floor which was fit for its purpose (namely which could withstand vibrating loads of forklift trucks). However, that is an unusual case which turns upon its own facts.

³⁴ In practice, however, "state of the art" arguments are very rare and if a building or structure is not fit for its purpose due to a design defect, it is unlikely that a designer would avoid liability because, in such circumstances, he is also highly likely to have been negligent.

reason. Lord Edmund Davies held that the very fact that BICC's design was a "venture into the unknown" created a clear duty to identify and think through potential problems. They had not reached the ordinary standard of care.

- 69 Novel design also arose as an issue in *Department of National Heritage v. Steensen Varming Mulcahy and Others* (1998), otherwise known as the British Library case. One of the complaints of the employer in *DNH v SVM* was that the use of lid down trunking for electrical cables was experimental. This prompted HHJ Bowsher QC to remark that if a designer adopts an experimental or unusual approach the duty on him to keep his design under review "is particularly high". So it might be said novel design requires added caution on the part of the designer and it is constructed by a brave contractor!

So should the designer warn the client that the design is novel?

- 70 In a decision of HHJ Newey QC called *Equitable Debenture Assets Corporation Limited v. Moss* (1983) about innovative cladding, the Court said the warning should be given to get the client's approval. Does warning make any difference to the Architect's liability unless the employer approval is meant in some way to diminish the burden on the Architect? If the novel design fails in a wholly unexpected way it is not in itself capable of imposing liability on the design professional, yet lack of warning might still help the employer in its suit against its designer. Thus in *DNH v SVM* HHJ Bowsher QC referred to the "warning point" but did not adopt it as a guide in that case. In *London Underground v. Kenchington Ford* (1998), LUL the employer of works had sufficient expertise to intervene in the design process of a station concourse slab for the Jubilee Line extension. However, that did not "in any way relieve" the Defendant design professionals of their contractual design obligations, or modify their duties of care. So the contractor can rely on such design failings.

What of the designers design duty to his client?

- 71 As to his client, an architect/engineer has a duty in contract towards his client for whom he has designed a building to remedy defects in his design even when his duties do not extend to the administration of the construction contract if defects come to his attention before the completion of the works: *Tesco Stores Limited v. The Norman Hitchcox Partnership Limited* (1997)³⁵.

What happens where the design professional carries out design plus contract administration?

- 72 In such cases, the architect/engineer (or other design professional) is usually under a continuing duty to check that his design will work in practice and to correct any errors which may emerge: *Brickfield Properties v. Newton* [1971]³⁶. As to the duration of the duty, it was held in *Equitable Debenture Assets Corporation Limited v. Moss* to last until the building reaches practical completion. However, in

³⁵ 56 Con. LR at p.170

³⁶ 1 WLR 862

University of Glasgow v. Whitfield (1989) 42 BLR at p. 78 His Honour Judge Bowsher QC saw no reason why the duty should be so limited in time despite the fact that the architect's right to require work to be done alters at the point of practical completion. When commenting on this decision in his judgment in *DNH v SVM*, HHJ Bowsher QC said the duty extends beyond practical completion "in some circumstances". The persuasive circumstance identified in *University of Glasgow* seems to have been that there the architect "knew or ought to have known that his design was bad from the start". As noted above the duty to review is heightened in the case of unusual or experimental design.

- 73 In *Eckersley v Binnie* (1988)³⁷ an accumulation of methane gas found its way from a tunnel into a pumping house on a link between the Rivers Lune and Wyre causing an explosion and the death of sixteen people. Their Personal Representatives claimed damages in negligence against inter alia the Consulting Engineers responsible for the design of the link. The Consulting Engineers argued that their pre-design investigations were sufficient in the light of contemporary knowledge and that methane was not present during construction. It was held even applying the standard of the ordinary competent and skilled professional, the Consulting Engineers should reasonably have foreseen the presence of some, not necessarily a dangerous, quantity of methane and should therefore have reviewed their ventilation design in the light of experience during construction. By all events since 31st March 1995 Regulation 13 of the Construction (Design & Management) Regulations 1994 has required designers to ensure that there is a positive regard for the health and safety of any person at work carrying out construction work.

What happens to design risk in design and build contracts?

- 74 Contractors often take on increasing amounts of risk to win work and chase short-term turnover. When projects go wrong, thin margins disappear and, without sufficient capital assets, contractors are in difficulties. There have been a number of well-publicised casualties. The cast list is long and includes the British Library, the Channel Tunnel, the Jubilee Line extension, the Royal Brompton Hospital, Portcullis House, the Great Eastern Hotel and countless other projects. Laing, one of the UK's oldest and best-known contractors, sold its construction business to O'Rourke for £1 following a number of difficult contracts, including its design-and-build contract for the Millennium Stadium in Cardiff. Given Laing's experience, it was perhaps no surprise that no UK contractor had the appetite to take on the risks of Wembley Stadium which itself is a design and build contract. A lot of these big name contractors have burnt their fingers in design and build projects.
- 75 Yet, the demand for design and build is huge among employers. See footnote 14 *ibid*. Within the scope of a design and build contract there can be a wide range of risk apportionment between the employer and the contractor in relation to design. Employers like them so as they wish to pass as much risk as possible to the contractor. This risk apportionment depends principally upon four issues and the negotiating weight of the parties:

³⁷ 18 Con.L.R. 1, CA

- 75.1.1 the nature of the design duty, e.g. whether it is a duty to achieve a specified result or satisfy particular criteria, or whether it is a more general duty to achieve fitness for purpose;
 - 75.1.2 the level of responsibility or nature of the obligations of the contractor in relation to the design carried out by it, i.e. whether the duty is an absolute one, or whether it is a lower duty (for instance) of reasonable skill and care;
 - 75.1.3 the definition under the contract of the documentation for which the employer is responsible and the documentation and/or tasks for which the contractor is responsible (the *Employers Requirements v Contractors Proposals*); and
 - 75.1.4 the liability of the contractor in relation to that design, taking into account any limitations on liability, for instance, an exclusion of liability for economic or consequential loss.
- 76 In practical terms, it is often very difficult for a building owner to know whether a building defect arises out of a failure of the architect or engineer to make a proper design, or out of the failure of the contractor to execute the design which of course is where the role of construction lawyers and experts comes in. Likewise, it is often difficult to know whether a workmanship failure by the contractor could have been prevented by proper supervision by the architect or engineer. This difficulty can have special importance in that a building owner often needs to know whether to regard the architect or engineer as friend or foe in litigation against the contractor. For this reason pre action protocol procedures have a distinct advantage in flushing out facts on such positions. These protocols are rather better than the old days.

What limitations on liability for design and defects can be included in contract conditions to limit exposure?

- 77 The most common restrictions upon liability in relation to design and defects in design and build contract conditions are among the following:
- 77.1.1 The limitation of the design duty to one of reasonable skill and care is mentioned above.
 - 77.1.2 In some engineering and EPC contracts where there are performance tests, there may be liquidated damages for performance in relation to defects which are not a condition of completion after (where appropriate) suitable remedial periods to optimise have been carried out. These liquidated damages will be an exclusive remedy in relation to the relevant breach of contract.
 - 77.1.3 The contract may also exclude liability after the end of the defects liability period. This was, to some, the unexpected effect of the cases of *Colbart v. H. Kumar* and *Crown Estate Commissioners v. John Mowlem and Company Limited*. The JCT in the mid 1990's issued amendments to the relevant forms to reverse the effect of these seminal cases.

- 77.1.4 In any event, great care needs to be taken with any clause which might purport to suggest that the effect of a final or maintenance certificate is conclusive proof that the works have been performed in accordance with the contract: see *Attorney General of Hong Kong v. Wang Chong Construction Company Limited*³⁸.
- 77.1.5 It is normal in many types of contracts, particularly those for process plants, to exclude all contractor's liability for consequential loss, other than liquidated damages for delay and (if relevant) performance and specific indemnities, for instance, in relation to intellectual property. For example, the FIDIC conditions for electrical and mechanical works, but not the FIDIC conditions for civil works, exclude the liability of either party to the other for any loss of profit, loss of use, loss of production, loss of contracts or any other indirect or consequential damage.
- 77.1.6 Some contracts, for instance, the FIDIC electrical and mechanical conditions mentioned above, state that the parties intend that their respective rights, obligations and liabilities as provided in the contract should alone govern their rights under the contract in relation to the works. If such a clause is included, it could be argued that there are no rights on the part of the employer extending beyond the obligations in relation to defects stated in the contract. These will typically be restricted to an obligation to repair the physical defects during the defects liability period. The effect of such a clause may be both to exclude liability for defects in the works arising after the end of the defects liability period and, in relation to defects arising during that period, to exclude any liability for consequential loss although, if advising a contractor, care will need to be taken that the exclusion is expressed in sufficiently explicit terms. Even if a wide exclusion of liability is not agreed, it may be appropriate to exclude any liability of the contractor to the employer in tort.
- 77.1.7 Particularly in contracts for process plants, there may be an overall cap on the liability of the contractor. The FIDIC electrical and mechanical conditions, for instance, provide that the liability of the contractor to the owner shall not exceed a sum to be stated in the contract, or if there is no sum stated, the contract price. The contract price is defined as the sum specified in the letter of acceptance and this is not the same as the price adjusted after any variations. The contractor may wish to negotiate a cap equal to the total amount actually received by the contractor at the time of the relevant claim or, possibly, at the time the circumstances which gave rise to the claim arose. Furthermore, after practical completion, the limit may be decreased to a percentage of the contract price.

³⁸ 8 Const. L.J. 137 (1991) which considered the Hong Kong Government Standard Form equivalent and decided this meant that the issuance of the maintenance certificate did not bar a claim arising from unperformed contractual obligations.

Insurance issues and design and build

78 As long ago as 1820, in the case of *Duncan v. Blundel*³⁹, Bayley J. stated that:

"Where a person is employed in a work of skill, the employer buys both his labour and his judgment; he ought not to undertake the work if it cannot succeed and he should know whether it will or not; of course it is otherwise if the party employing him choose to supersede the workman's judgment by his own."

79 Since then, English law has developed so as to regard buildability as the province of the builder (even where the employer engages a professional architect and/or engineer) and not the province of the employer. However in the absence of express warranties concerning buildability from the architects and engineers within the employer's design team, the courts should be slow to hold contractors liable if designs appear impossible to implement. This all has deep meaningful implications with the insurance world.

80 Professional indemnity policies for contractors are invariably narrower in scope than those available to professional consultants. There are major restrictions on the scope of activities covered. For instance, inspection by the contractor of his own work is not covered, whereas inspection by a consultant of a contractor's work is. There are restrictions on who must do the work for it to attract cover. It must be done by a "qualified architect, engineer or surveyor". The Architects Registration Board is zealous in enforcing the statutory restrictions on who can call themselves "architects" and architects' practices employ numerous people who would not satisfy the definition. Such requirements for "qualified" professionals are not generally found in consultants' policies, so the work of unqualified architects would normally be covered under an architect's policy, but not under a builder's.

81 The problem with design & build is, of course, that the contractor takes on a whole raft of responsibilities under his contract; but insurers only want to underwrite professional risk - the duty to act with reasonable skill, care and diligence. Distinguishing more onerous risks can cause difficulty even in the sphere of consultant's policies but in the realm of design & build it can cause major problems. Design & build policies bristle with exclusions and conditions but there is one silent exception which can be the most important of all; pricing risk.

82 Picture that contractors have signed a design & build contract to construct a hospital that includes the installation of a baby critical care facility with special M&E. The contractors subsequently (and properly) discover that there has been a major calculation error so that the power demand of the unit is twice that allowed for at tender, which requires major enhancement of plant and containment ductwork. The contractors suffered a loss the moment they signed the contract as they were unwittingly committed at that point to delivering a system considerably more costly than that for which they had bid at tender stage. At the date of execution, the contractor owed no professional design duties to the employer. His losses have

³⁹ (1820] 3 Stark 6

arisen from correcting the contract design to meet the employer's performance requirements. Only if they do not amend the design will they be in breach of their professional duties. This loss is not therefore covered under the design & build policy.

- 83 If the embedded design error is not discovered promptly, the contractor may begin to aggravate the situation by ordering and installing incorrect equipment. Negligent errors which produce measurable cost additional to the intrinsic contractual necessity to upgrade the design will be covered under the policy. It will be necessary to identify when the change in design should first have been identified in the course of professional duties post contract and then calculate the additional losses caused through delay in identifying the required design change. Clearly, the moment of discovery can be at any time from immediately after signature to after expiry of the defects liability period.
- 84 This exercise correlates with the exercise that would be involved in identifying losses under traditional procurement. If the consultant undersizes plant initially, it will be a defence to prove that the larger plant was necessary and the employer would always have had to meet the cost if properly advised. The consultant will be liable to the employer for additional losses caused through failure to identify the correct plant at the right time. As a general rule therefore it can be said that these "employer" risks, which under design & build are transferred to the contractor, are not recoverable under the contractor's design & build policy. They are the contractor's own pricing risks of the transaction. Correct analysis shows that these losses are irrecoverable at whatever stage they manifest, whether before, during, or after, construction.
- 85 The need for the contractor to give credit for the pricing risk element is sometimes missed, both before and after practical completion, when claims are adjusted. Typically the later the design error is discovered, the larger will be the proportion of loss that is covered. If the problem is discovered before practical completion, it may trigger a claim under the mitigation of loss provisions in the policy. These typically provide for insurers to pay costs of rectifying problems, which if not corrected would produce a greater claim under the policy than the costs of necessary remedial works. Mitigation of loss clauses are often not clear in how the compensation under the policy is to be calculated. Insurers should not be obliged to pay the cost of completing the work properly without getting credit for the costs the contractor would have had to incur in performing the contract without negligence.
- 86 For contractors, protection can best be secured by obtaining independent professional advice affecting the key design risks before the contract is signed and by sub-contracting the professional work after the contract has been won. If the professional advice about the key design risks is wrong, then the contractor will have a claim for the additional price he would have quoted for the job if the unrecognised risk had been pointed out. In our example, if M & E engineers acting on the employer's behalf had failed to pick up the error before contract, the contractor would have a claim against them for the additional price he would have quoted for the job had he been aware of the air conditioning system that would be required.

- 87 As Mahatma Gandhi once said, "Live each day as if it were your last, but learn each day as if you were to live forever" - this way constructors will do justice to their clients, their pocket and their funders.

Cost of reinstatement v diminution in value

- 88 The basic principle is that awards of damages for breach of contract are intended to put the innocent party in the position they would have been in had the contract been properly performed, so far as money can do this. Where the claimant has suffered financial loss, then money will be able to do this relatively easily. So, for example, the usual measure of damages for defective work or materials is either the diminution in value of the property which results from the defects or the cost of putting the defects right, subject to considerations of reasonableness, mitigation of loss and so on.
- 89 It is perhaps extremely rare for a complex construction project to be completed without there being at least some minor breach of the contract requirements concerning the quality and attributes of the finished building. Virtually all construction contracts contain very detailed specifications, drawings and details relating to such matters, and a combination of the complexity of the construction itself and human nature gives ample scope for minor deviations from the contractual specifications.
- 90 The normal measure of damages for defective work is the cost of reinstatement taken at the time when the defect was discovered *East Ham Corporation -v- Bernard Sunley* (1966)⁴⁰. The claimant will not necessarily lose his entitlement to damages if he waits for the outcome of the case before carrying out the remedial works, it all depends upon the circumstances of the case *William Cory & Son Ltd -v- Wingate Investment (London Colney) Ltd* (1980)⁴¹.
- 91 Where the law has had difficulties in the past is where there has been a breach of contract but the innocent party claims damages - for example, for distress, anxiety, discomfort, inconvenience and loss of amenity - which fall outside these two recognised classes of damages.
- 92 In most cases, the building owner will be able to recover damages representing the costs of remedying any breaches of the requirements of specifications without great difficulty. However, this may not always be so. To give an example, suppose that a specification for the construction of a ten-storey office block stipulates that the first ten courses of brickwork are to be built using a particular coloured brick, but that the contractor uses a different colour from that stipulated. In these circumstances, what is the building owner's remedy? They will not have a claim for loss represented by diminution in value, since the value of the office block is unaffected. Can they recover the cost of remedying the defect, involving dismantling large parts of the building and replacing the bricks with those of the right colour? Again, the answer is likely to be no, since a court would regard the cost of repairing the defect as wholly

⁴⁰ 3 ALL ER 619

⁴¹ 17 BLR 104 CA

disproportionate to the loss suffered and therefore unreasonable. In these circumstances, the contractor will no doubt argue that the building owner has suffered no loss, so that the contractor should not be accountable for their breach.

- 93 In consumer contracts, claims are frequently included in claims for damages for breach of contract for damages for 'distress, anxiety, disappointment and inconvenience'. In commercial contracts, however, such damage is unlikely to be suffered, let alone be recoverable. As stated in *Johnson v Gore Wood & Co*: Contract-breaking is treated as an incident of commercial life which players in the game are expected to meet with mental fortitude.
- 94 This suggests that the building owner may be left without remedy as a result of the contractor's breach. The House of Lords in *Farley v Skinner*⁴², however, has restated the law on the recoverability of damages for non-pecuniary losses and suggests that the building owner may, in fact, be entitled to recover an award of general damages for loss of amenity.
- 95 By all events damages are fundamentally assessed on the compensatory principle. That is to say that the aim is to provide full compensation to the claimant for the wrong and to restore him to the position he would have been in had that wrong not been done. The aim is not to penalise the defendant as such.
- 96 If restoring the claimant to the position he would have been in but for the wrong means that the claimant will be left better off than he would have been had he not committed the wrong, then the law does not act to prevent this result - *British Transport Commission v Gourley*⁴³.
- 97 It follows from the compensatory principle that the claimant is prima facie entitled to recover not just the loss directly resulting from the wrong, but also his consequential loss, including future loss.
- 98 Difficulties and arguments in the assessment of damages almost all derive from the problem of trying to apply this principle to the facts of a given case, and quite often from a failure to apply it.
- 99 The cost of making construction works conform to contract is regarded as the ordinary measure of damages for defective performance under a building or engineering contract.
- 100 But if the cost of reinstatement is out of all proportion to the benefit to be obtained by the building owner from the remedial works then the correct measure is the diminution in value. That was the decision in *Ruxley Electronics and Construction Ltd v. Forsyth*⁴⁴. See below.

⁴² [2002] 2 AC 732

⁴³ [1956] AC 185 it should be remembered that in calculating a loss by the claimant, the incidence of hypothetical tax on any actual and prospective loss of earnings, etc. must normally be taken into account. Damages are therefore assessed on the basis of the net loss.

⁴⁴ [1996] A.C. 344 at 366, HL

- 101 In *Bence Graphics International v. Fasson UK Ltd*⁴⁵ the defendant supplied defective vinyl film which was used to make identification decals which were then sold on by the claimants. The claimants settled one claim from a buyer but the claimant's major buyer had not made a claim at the date of trial, although one had been intimidated. The Court of Appeal held that the first instance judge had erred as he had not had regard for the fact that damages awarded would leave the claimant over half a million pounds better off than it would have been if there had been no breach of warranty. The loss was to be assessed by reference to the actual loss, which was likely to be less than the diminution in value of the goods by reason of the defects, because the defendant knew of both the proposed end use of the vinyl film and that defects were likely to result in claims on the claimants.
- 102 Where the claimant's claim is based upon breach of an obligation of the defendant with regard to building work, the main head of damage is usually the cost to the plaintiff of having the work remedied or completed, or otherwise obtaining what he has a right to expect from that defendant. In breach of contract cases the plaintiff must give credit for any sums which he has not paid, but which he would have been obliged to pay, had the defendant completed his contractual obligations.
- 103 It should be stressed that this rule applies where the claimant has a right to the proper execution of work. Different rules apply to negligent survey cases where the defendant's only obligation was to advise upon an existing building. A surveyor who negligently fails to identify dry rot does not cause that dry rot and is liable only for such loss as arises subsequently. The basic rule is subject to occasional exceptions.
- 104 In *Newton Abbott Development Co Ltd v Stockman Brothers*⁴⁶ it was held that a property development company was entitled to recover the diminution in the value of houses that it had sold in their defective state. It is thought that there is an exception to the basic rule where remedial work would be wholly inappropriate.
- 105 In *Cory v Wingate Investments*⁴⁷ the Court of Appeal said:

There may be cases where the carrying out of remedial work to bring the building into line with the specification may be so entirely out of line with what the cost of those works would be and the nature of those works having regard to the nature of the building as a whole that the Court would gladly accept some other basis for the assessment of damages.

- 106 In *George Fischer Holdings Limited v. Multi Design Consultants Limited*⁴⁸ His Honour Judge Hicks Q.C. awarded damages, not only for the cost of remedial work, but also for loss of value on the ground that:

In point of principle a plaintiff who carries out the best and most economical repair which can be devised to defective property that is left

⁴⁵ [1997] 1 All ER 979

⁴⁶ (1931) 47 T.L.R. 616

⁴⁷ (1980) 17 BLR 104 CA

⁴⁸ (1998) 61 Con LR 85

at the end with an asset for which purchasers in the market are not prepared to pay as much as one which never had the defects has plainly lost both the money expended on the repair work and the residual difference in value.

- 107 In *Ruxley Electronics and Construction Ltd v. Forsyth* Mr Forsyth engaged the plaintiff to construct a swimming pool with a maximum depth of 7'6". The pool built extended to only 6'9" in depth. At first instance, Mr Forsyth was awarded £2,500 for loss of amenity. He appealed, giving an undertaking that he would use any damages recovered to reinstate the pool, and the Court of Appeal awarded the full cost of reinstatement of £21,560. The House of Lords held that this was out of all proportion to the loss actually suffered by Mr Forsyth and that the damages to be awarded should be limited to the difference in the value of the actual pool compared with the requested pool. Lord Mustill stated:

...the test of reasonableness plays a central part in determining the basis of recovery, and will indeed be decisive in a case such as the present when the cost of reinstatement would be wholly disproportionate to the non-monetary loss suffered by the employer. But it would be equally unreasonable to deny all recovery for such a loss. The amount may be small, and since it cannot be qualified directly there may be room for difference of opinion about what it should be. But in several fields the judges are well accustomed to putting figures to intangibles, and I see no reason why the imprecision of the exercise should be a barrier, if that is what fairness demands.

- 108 In summary, the principles in *Ruxley* are as follows:

- The question of whether you will be allowed the cost of the remedial works claimed should be answered according to whether remedial cost would be so wholly disproportionate to its benefit as to make it unreasonable.
- If it is so disproportionate, you may be entitled to recover on the basis of diminution of value, if there has been any.
- Damages are not limited to only diminution of value or reinstatement. The Court in *Ruxley* recognised that there may be a middle figure to reflect loss of amenity or inconvenience through the claimant not have received what he wanted and what he contracted for.

- 109 *Earl Freeman v Mohammed Niroomand*⁴⁹ considered shortly after *Ruxley* the issue again was over the measure of damages and the availability of diminution of value or reinstatement. Freeman had entered into a contract to carry out building work to Niroomand's home and the work including building a porch, in accordance with the drawings prepared by the architect. Freeman built the porch but did not build it according to the architects drawings and specifications.

⁴⁹ (1996) 52 Con. L.R. 116 CA

- 110 As in *Ruxley* there was no diminution of value to the house from this breach of contract and to rebuild the porch to conform was unreasonably costly. It is note worthy that the claimant in this case indicated he did not want rectification work undertaken on the existing structure as this would decrease its size. The Judge awarded nominal damages to represent the amount saved by the builder. This was upheld in the CA. See too *Farley v Skinner* [2001] UK HL 49. Where regarding aircraft noise and the impact on a house purchase there is no diminution in value caused yet the House of Lords awarded general damages for distress and inconvenience. So it seems if there is no diminution and an immaterial contractor's breach and either the building owner decides not to carry out rectification works or the costs are disproportionate to the nature of the loss, then the building owner in principle should be able to bring a claim for loss of amenity to compensate for not getting exactly what he contracted for.
- 111 Finally, the more recent case of *McLaren Murdoch & Hamilton Limited v The Abercromby Motor Group Limited*⁵⁰ examined the appropriate measure of damages where an architect's design was negligent.
- 112 In this case McLaren acted as architects for Abercromby in relation to a proposal to construct a four car dealership. A dispute arose between the parties as to whether McLaren was negligent in its design of the heating system. It seems that McLaren had specified an electrical under-floor heating system which worked on a night-storage principle. Electrical elements ran through the floor of the buildings and were heated at night using cheap electricity. The resultant heat was stored in the concrete of the floor and released during the following day. The system failed to provide satisfactory heating and an expert witness gave unchallenged evidence to the effect that such a system had a number of fundamental problems. It was said that the buildings, which were largely of lightweight construction, including large amounts of glazing, were entirely unsuited to such a heating system. Further problems arose in relation to the workshop areas. During the day there was a considerable turnover of cars which had to be moved in and out of the workshops through a number of large doors. When the doors were opened heat was lost. The installed heating system provided no means of rapidly restoring heat to the building after the doors were opened. Similar problems occurred in the showroom areas in which the heating, particularly during winter, had proved inadequate.
- 113 In consequence the Abercromby Group had replaced the entirety of the heating systems. McLaren contended that the under-floor heating could have been augmented rather than the whole system replaced. Relying upon the decision in *Ruxley* McLaren argued that the cost of reinstatement would not be the appropriate measure of damages if the expenditure was out of all proportion to the benefit obtained. McLaren accepted that it was at fault as to the design but disputed that Abercromby had shown any loss or damage. McLaren contended that replacement was not reasonable and therefore Abercromby could not recover its costs for this.
- 114 Lord Drummond Young of the Scottish Court of Sessions noted the evidence of Abercromby that underfloor heating was not suitable for the workshop area.

⁵⁰ (2003) 100 Con. L.R. 63

Accordingly it needed to be replaced as it was a liability, which made it difficult to install foundations for equipment. Based on this evidence the Court held that replacement of the underfloor system in the workshops was reasonable.

- 115 The second area that the Court had to consider was the underfloor heating in the showroom areas. Again, the Court held that the cost of replacement of the underfloor system was reasonable and noted that the architect had not demonstrated that replacement was unreasonable.
- 116 This case provides confirmation of the principles of recovery set out in the earlier cases. A party will be entitled to rectification if reasonable in the circumstances. When the costs involve the complete replacement of a system, that will not necessarily be unreasonable and it will be dependent on the facts of each individual case.

Redress for technical breaches in defects cases

- 117 Since *The Board of Governors of the Hospitals for Sick Children and Another v. McLaughlin & Harvey plc and others ("Great Ormond Street")* [1987]⁵¹ it has become something of a construction lawyer's 'rule-of-thumb' that if a claimant wants to recover the cost of rectification it is more likely to do so if remedial works have been carried out upon a professional consultant's advice.
- 118 But it seems from the recent judgment of HH Judge Humphrey Lloyd in *Birse Construction Ltd v Eastern Telegraph Co Ltd* that, even if a claimant has carried out remedial works on a consultant's advice, it will not recover the cost of rectification of defects, even if "*numerous and seemingly reprehensible*", if the same have not caused damage or are not likely to cause damage in the future - in other words, where there was no real need for remedial work.
- 119 *Eastern Telegraph* looked at the level of compensation which should be paid for defects which the Employer did not propose to remedy.
- 120 This case concerned a residential training college built by Birse for Eastern Telegraph. Eastern Telegraph complained that there were various defects in the college but as it had decided to sell the property it did not undertake any rectification work. Eastern Telegraph found a buyer for the property, and negotiated a price which did not appear to be discounted on account of any of the defects.
- 121 Eastern Telegraph claimed from Birse damages on the basis that it had not received what it had contracted for and it also noted that the defects made the college unsightly and affected the comfort. Birse contended that Eastern Telegraph had incurred no loss as the price it had negotiated for the sale of the property was not affected by the defects.
- 122 On the issue of the measure of damages for defects the Court held that although the normal principle was to award the reinstatement cost for defective works, these costs had to be reasonable on the facts of the case. Where the costs were out of

⁵¹ 19 Con LR 25

proportion to the real loss incurred then it was necessary to use a different measure for assessing the costs to be awarded.

123 The Court held that a reasonable owner would have put right the defects that affected the general appearance. Eastern Telegraph had not done so and it was clear it had no intention of carrying out works of this nature. On that basis it was held that a claim for damages based on un-remedied defects (which were not going to be remedied) was unreasonable.

124 The loss as a result of the un-remedied defects was minimal and it would be out of proportion to award reinstatement costs, therefore the Court awarded a nominal sum of £2 for breach of contract in respect of the un-remedied damages. The Court noted that the Eastern Telegraph was entitled to recover costs already incurred in remedying defects of workmanship that amounted to breaches of contract by Birse.

125 Interestingly, Judge Lloyd also commented on the occurrence of minor defects in construction contracts generally. A reasonable interpretation of his judgment is that:

- the existence of a number of minor defects should to be regarded as 'normal' for a building contract:

"... I ought to record ... although the trial necessarily focussed on the quality of workmanship, the documents and evidence did not establish that the overall performance of Birse was below average, although, as will appear, there were too many defects ..." [Para. 4]

- in a purely commercial contract, if a defect is not visible or deleterious, the claimant should just accept it:

"A building owner is not entitled to expect perfection and has to accept work that does not comply with the contract where such work does not materially detract from the intended use and occupation of the building. An owner has to expect and accept unwanted "presents" from the builder, provided that they are not visible and not deleterious. What the eye does not see the heart should not grieve ..." [Para. 130]

126 Judge Lloyd described non-material defects as *"unwanted presents"*. Perhaps we have judicial notice that building in the UK is not what it once was, but then again the old cases show things were never really different.

Date of assessment of damages

127 The cost of repair was once thought to be assessed as at the date of the breach. It is now clear that this so-called rule is merely a mitigation point, so that if repairs are undertaken at the first time they can reasonably be undertaken then the plaintiff is entitled to damages assessed at that time, even if that time does not arise until trial. The court will consider either the actual cost of remedial work, or its estimated cost if the work has not been done at the time the damages are assessed.

- 128 The original strict rule was that damages should be assessed at the date of loss, or at the date the cause of action accrued. The effect of this rule was that the value of any benefit lost, or the cost of any restorative work would be assessed as at the date of loss, even if it had changed in value since.
- 129 However this is not an absolute rule - *Johnson v Agnew* [1977] 1 WLR 1262. Even before this case the courts had been very willing to regard the rule as flexible.
- 130 It had effectively been abandoned altogether in personal injury cases, where the relevant date is the date of assessment.
- 131 There is also in any event the potentially conflicting rule that the court should take into account in assessment all relevant events between the date of accrual and the date of assessment.
- 132 The effective date is therefore a matter of the court's discretion. It is actually highly unlikely that damages will be valued literally at the date of accrual. Any evidence of the cost of restoring the claimant to his *position if* will be based on the date the cost was ascertained. It is hardly reasonable to expect a claimant to rectify damage instantly in every case.
- 133 The appropriate date needs to be considered in conjunction with the claimant's duty to mitigate. It would be contrary to the mitigation principle to value damages at a date earlier than that on which the claimant could reasonably have been expected to rectify the damage. The *position if* principle basically requires damages to be valued at the date of assessment except insofar as any alteration in value between the date of accrual and the date of assessment has been caused by extraneous factors or the claimant's failure to mitigate.
- 134 In the case of repairs to property, damages should be assessed as at the date on which it is reasonable to expect the claimant to undertake the repairs: *Dodd Properties (Kent) Ltd v Canterbury City Council* [1980] 1 All ER 928. This may be as late as the date of trial or assessment.
- 135 The court may have regard to the fact that a claimant may be unable to carry out the repairs until such time as he has established liability and is awarded damages, in which case date of trial will necessarily be the appropriate date: *Perry v Sidney Phillips & Son* [1982]⁵².
- 136 We shall now look at design liability issues concerned with the JCT and ECC latest families.

Design responsibility under JCT 05

Background

- 137 As Professor Peter Hibberd, Secretary General of the JCT comments: "The existing [JCT] suite was overdue a revamp - these documents have grown up over 75 years so it was inevitable that there would be some inconsistencies and redundant text."

⁵² 3 All ER 705

- 138 Change was due on a number of counts. The standard JCT forms were originally drafted by committees comprised of representatives from various potentially conflicting interests, including contractors, insurers and employers. The resultant forms issued by the JCT were, necessarily, compromise contracts which, in many respects, could be said to favour the contractor rather than the employer. As a result, it is not uncommon to find such standard forms being amended by schedules of amendments running to, in some cases, as many pages as the original contracts.
- 139 It is a fact of life here in the UK that whilst many construction projects look to the Joint Contract Tribunal (JCT) forms of contract as a basis for their main contract documentation very few will use these standard forms in pure un-amended form. Most construction lawyers advising parties involved in such projects will have extensive schedules of amendments which they will urge their client to adopt if their interests are to be adequately contractually protected. This applies not only to the employer/client on such projects but also to other parties who may have interests in the project, including funders, purchasers and tenants.
- 140 The need to incorporate such amendments leads to protracted negotiations and increased legal costs. It has also resulted in entrenched positions being taken by contractors who resist such amendments on the basis that, as the standard JCT forms were initially drafted and agreed by parties supposedly representing all potential parties to a major project, they should be readily acceptable to all parties and should not require amendment. The JCT has at long last realised that their previous suite of standard forms (last issued in 1998) is not acceptable to any party and gone a long way to address these issues, incorporate most amendments that might be required by other competing interests, and arrived at forms of contract that should be readily acceptable by all parties. The 60 million dollar question is whether they achieve this purpose. We shall have to see what happens with JCT 2005.
- 141 In short we now have:
- Minor Works Building Contract (MW 2005);
 - Minor Works Building Contract with Contractor's Design (MWD 2005);
 - Intermediate Building Contract (IC 2005);
 - Intermediate Building Contract with Contractor's Design (ICD 2005);
 - Construction Management (CM)
 - Management Build Contract (MC)
 - Prime Cost Building Contract (PCC)
 - Repair and Maintenance Contract (RM)
 - Framework Agreement (FA);
 - Framework Agreement (FA/N); and
 - Design and Build Contract (DB 2005).
- 142 First the basics. Not only have the 2005 forms been redrafted using less legalistic language and sorted into a more user-friendly format, important developments have also been incorporated, triggered by changes in both the industry and the law. The headings, sub-headings, typefaces and so on have been standardised across all the contracts to make them clearer and easier to use.

143 There are no longer any separate supplements. Fluctuations, Sectional Completion and Contractors' Design Portion have all been incorporated within the contract if appropriate.

144 The documents listed below are new additions to existing contract families.

2005 Contract Family	New documentation
Standard Building Contract	Standard Building Contract Guide (SBC)
Intermediate Building Contract	Intermediate Building Contract with contractor's design
	Intermediate Sub-Contract - Agreement
	Intermediate Sub-Contract - Conditions
	Intermediate Sub-Contract with sub-contractor's design - Agreement
	Intermediate Sub-Contract with sub-contractor's design - Conditions
	Intermediate Building Sub-Contract Guide
Minor Works Building Contract	Minor Works Building Contract with contractor's design
Design and Build Contract	Design and Build Contract Guide
	Design and Build Sub-Contract Agreement
	Design and Build Sub-Contract Conditions
	Design and Build Sub-Contract Guide
New Contract Family for 2005	
Framework Agreement	Framework Agreement Non-binding
	Framework Agreement
	Framework Agreement Guide

145 The reformatting of the 2005 JCT contracts has seen two particularly important additions to the suite pertinent to design, namely the Minor Works Building Contract with Contractor's Design ("MWD 2005") and Intermediate Works Building Contract with Contractor's Design ("ICD 2005"), specifically fashioned for the smaller end of the market where the contractor provides some design input subject to supervision from the architect or contract administrator.

146 Neither contract is intended to be a substitute for a design and build contract. Indeed, both seem to be suitable in circumstances where the parties intend that the contractor is to be responsible for a 'discrete element' of the design.

- 147 To emphasise this point, both contracts oblige the employer (i) to supply detailed requirements for the intended "Contractor's Design Portion", (ii) to examine the Contractor's Proposals in respect of such requirements and (iii) to satisfy himself that those proposals are adequate (see Seventh Recital).
- 148 While it is open to an employer to delete or amend such provisions in an attempt to impose a more onerous design responsibility upon a contractor than was intended by JCT draftsmen. This may well be an area where disputes occur.
- 149 More interestingly from the lawyer's point of view, the contractor's design obligation differs between the two contracts. Under ICD 2005, the standard of care in relation to the design of the particular portion is that of a professional designer. Conversely, under MWD 2005 the standard is that of reasonable skill, care and diligence. The question which will be left for the courts to decide is whether the reasonable skill and care to be expected of a contractor carrying out design work is different to the skill and care to be expected of a professional designer.
- 150 The Standard Form of Building Contract (SBC) and Design and Build Contract are two of the most popular within the Construction Industry (use of the word "popular" is used in terms of number of projects they are used on) and any revision to these Contracts obviously has considerable importance.
- 151 It is likely that the industry will not be so slow to adopt the new 2005 Editions. On the whole both Contractors and Employers will benefit. Some of the benefits which I will address in more detail in this paper include the following:-
- 151.1.1 The format of the Contract has been radically changed, both in terms of layout, arrangement of clauses and the various Supplementary Schedules which replace the old Appendix.
 - 151.1.2 As stated above, there are no longer any separately published Supplements to the Standard Building Contract. The Contractor's Design Supplement and Sectional Completion Supplement are now integrated into the Contract which is far better than the ungainly sowing and stitching done on previous editions.
 - 151.1.3 Optional clauses no longer form part of the Contract Conditions but are contained in Schedules.
 - 151.1.4 The existence of third parties who have an interest in enforcing the terms of the Contract is now acknowledged. There is a choice of either obtaining warranties for these Parties or, alternatively utilising the Contracts (Rights of Third Parties) Act 1999.
 - 151.1.5 There is no separately published Local Authority versions of the Standard Building Contract. The provisions relating to Local Authorities are incorporated within the Contract Conditions.
 - 151.1.6 Headings and, insofar as possible, the text of the Contract Conditions, is consistent across the Standard Building Contract and the Design and Build Contract.

152 Dealing with those changes in more detail:-

Formatting of the Contract

153 All the Contracts across the entire JCT range now have a common layout, a “section-headed format” with the following common section headings.

Section 1 - Definitions and Interpretations;

Section 2 - Carrying out the Works;

Section 3 - Control of the Works;

Section 4 - Payment;

Section 5 - Variations;

Section 6 - Injury and Damage Insurance;

Section 7 - Assignment, Third Party Rights and Collateral Warranties;

Section 8 - Termination;

Section 9 - Settlement of Disputes.

154 This should make it easier to locate particular provisions in each Contract.

155 The re-formatting of the Contracts into Sections, each of which covers a particular aspect of Construction Works, has meant a complete re-arrangement of the Conditions, particularly in the Standard Building Contract and the Design & Build Contract. The intention is, of course, that these clauses are now more logically grouped so that it is not necessary to flick backwards and forwards within the Contract in order to locate and identify each of the Party's obligations.

Separate Supplements Dispensed With

156 Anyone familiar with the JCT 1998 Private With Quantities Form will be aware of the Contractor's Design Portion Supplement, Sectional Completion Supplement and the composite Contractor's Design Portion and Sectional Completion Supplement, which needed to be incorporated into the Standard Form if the Employer wished to take advantage of them. Each supplement came in a “With Quantities” and “Without Quantities” version. It was necessary to check to make sure that the supplement that you intended to use incorporated the same amendments as the Main Contract. You were then faced with the rather laborious task of having to read the Contract in tandem with the chosen supplement, cross-referencing the numerous amendments to the recitals, articles and clauses.

157 The new JCT 2005 Standard Building Contract has done away with this task by incorporation of the Contractor's Design Portion and Sectional Completion into the text of the Standard Building Contract. This is achieved by simply retaining or deleting the optional recitals, e.g. if the Works are to have Sectional Completion, then Recital 6 should be retained, but otherwise it should be deleted. If there is an element of the Works which are to be designed by the Contractor, then Recitals 7 to 10 should be retained, but otherwise they should be deleted.

- 158 The 1998 editions of JCT contain the entire information specific to the Project in Appendix 1 towards the end of the Contract. This Appendix is now called the "Contract Particulars" and has been moved so that it is to be found immediately after the Articles of Agreement up front. The Contract Particulars contain an entry for Recital 6, Sectional Completion and space for a description of the Sections of the Works. Equally, if elements of the Works are to be designed by the Contractor, then there are entries for Recitals 7 to 9 for description or identification of the documents containing the Employer's Requirements, Contractor's Proposals and CDP analysis.
- 159 The Contract therefore follows a logical progression, with the Articles of Agreement giving a summary of what the parties require. The Contract Particulars provide information specific to the project and the Terms and Conditions are generic. By simple amendments to the Recitals and insertion of information in the Contract Particulars, the provisions relating to Sectional Completion or Contractor's Design in the text of the Terms and Conditions are activated. There is no need to make any amendment to the Terms and Conditions themselves.

Use of Schedules

- 160 As stated earlier, in the 2005 Editions many of the optional clauses such as the insurance provisions, fluctuations and the Clause 13A Quotation, are now incorporated in separate schedules at the back of the Contract. This is to be contrasted with the 1998 Editions which incorporate the optional clauses into the main text of the Terms and Conditions. The 2005 Edition allows the use of the Contract with or without the whole or part of a Schedule. It is fairly simple to utilise the Schedules and incorporate them into the Contract by brief cross-referencing between the Contract Particulars and the Terms and Conditions.

- 161 For example, the insurance options at Schedule 3 (in respect of which a decision will always need to be made):

In the Contract Particulars, against the entry for Clause 6.7 in Schedule 3, the three options are listed and simple deletion of those which are no longer required is all that is necessary.

- 162 In the Terms and Conditions, Clause 6.7, states:-

"Insurance Options A, B and C are set out in Schedule 3. The Insurance Option which applies to this Contract is that as stated in the Contract Particulars."

- 163 The JCT 2005 Editions, like the 1998 Editions, contain a Schedule which sets out in full the forms of bond which may be required from each party. The JCT 2005 Editions, however, also contains, at Schedule 5, the third party rights for purchasers, tenants and funders in relation to the Building Contract. Incorporation of these rights is by way of the Contract Particulars and operation of the Contracts (Rights of Third Parties) Act 1999. The Parties have a choice of either utilising the Contracts (Rights of Third Parties) Act 1999 or, more traditionally, at Part 2 of Schedule 5 the British Property Federation warranties which are identified as being required for Purchasers, Tenants and Funders.

164 The Construction Industry hitherto has been slow to accept the Contracts (Rights of Third Parties) Act 1999. This resistance to change is no doubt in part because the banks and institutions which fund commercial developments are, in many respects, even more conservative than Contractors. The inclusion in the JCT of an option to use the Contracts (Rights of Third Parties) Act 1999 is a huge step forward in acceptance of that Act, and should result in a reduced reliance upon collateral warranties.

Omissions from the Contracts

165 Having addressed the inclusions in the Standard Form of Contract, the other change that users will note is that large elements of the Contract have simply gone. This is particularly so in relation to statutory procedural material, the Construction Industry Scheme, the VAT Supplemental Provisions and CDM Regulations which have all been removed. The extensive VAT provisions have been reduced to the following single clause:-

"4.6.1 The Contract Sum is exclusive of VAT and in relation to any payment to the Contractor under this Contract; the Employer shall in addition pay the amount of any Value Added Tax properly chargeable in respect of it."

Similarly, the Construction Industry Scheme provision consists of:

"4.7 Where it is stated in the Contract Particulars that the Employer is a 'contractor' for the purposes of the CIS or if at any time up to the payment of the Final Certificate the Employer becomes such a 'contractor', the obligation of the Employer to make any payment under this Contract is subject to the provisions of the CIS."

thus avoiding the 14 sub-clauses that are contained in the 1998 Editions of these Contracts. Nominated Sub-Contractors no longer exist and the separate clauses relating to Performance Specified Work have also been dispensed with.

166 The result is that both Contracts, and particularly the Standard Building Contract, are much clearer, concise and easier to read, with the Terms and Conditions being arranged in logical section headed formats. The language of the Contract is less convoluted, there is less cross-referencing to clauses within different sections of the Contract, substantially reducing the number of times you have to plough backwards and forwards to get the full meaning of particular provisions.

167 While the formatted appearance of the Contract has substantially changed, the content of the Terms and Conditions has been subject to less change. There have, however, been a number of amendments will be briefly considered below.

Contractor's Design Obligations

168 Under the Standard Building Contract when the Contractor's Design Portion Supplement is used, the Contractor's design obligations are set out in Clauses 2.2 and 2.19. The design obligations in the Design and Build Contract are set out in Clauses 2.1 and 2.17.

169 By including a clause within SBC 2005, DB 2005, IDP 2005 and MWD 2005 which expressly provides that a contractor is not responsible for checking the adequacy of any design contained within the Employer's Requirements - the obligations of the Contractor in relation to design are limited to the design it produces and there is express exclusion of any liability for the Employer's design. In the Standard Building Contract the exclusion is contained in Clause 2.13.2 and in the Design and Build Contract it is contained in Clause 2.11. The wording is the same in both Contracts (apart from clause numbers):-

"Subject to Clause [2.17] [2.15], the Contractor shall not be responsible for the contents of the Employer's Requirements or for verifying the adequacy of any design contained in them".

170 This express exclusion of liability for the contents of the Employer's Requirements arises as a result of the case of *The Co-operative Insurance Society Limited v. Henry Boot Scotland Limited* (July 2002) (2002 CLJ Volume 19, page 109).

171 The case concerned the JCT 1980 Standard Form of Building Contract Private with Quantities, including Contractor's Design Portion Supplement. The Contractor under the Contract was, amongst other things, responsible for the design of the earthworks support to sub-basement excavations, bored bearing piles to foundations and contiguous bored piled walls, together with temporary propping to the contiguous bored piled walls and temporary supports and propping to the walls of adjoining properties.

172 The Contract contained a number of additional conditions, namely:-

Clause 2.11 required the Contractor to ensure the proper integration and compatibility of the various elements of the Works, one with another, and with the remainder of the Works; and

Clause 2.12 made the Contractor responsible for the co-ordination of the design to the extent that such design was stated in the Contract Documents to be the responsibility of the Contractor.

173 In addition, there were unusual features in the way in which the Contract Documents had been prepared. There should have been separate documents for the Employer's Requirements, Contractor's Proposals and Contract Sum Analysis in respect of the Contractor's Design Portion, but none was actually used, although there was reference to both the Employer's Requirements and the Contractor's Design Portion in sections of the Bills of Quantity.

174 His Honour Judge Seymour QC, who heard the case, decided that the Contractor was responsible for satisfying itself, using reasonable skill and care, that assumptions upon which the pre-existing design had been proposed and which the Contractor was responsible for developing to the point where it was capable of being constructed were appropriate and in doing so this involved checking the Employer's Design was not defective or negligent.

175 It is arguable that *Henry Boot Scotland* like *Mowlem plc (formerly John Mowlem) v Newton Street Limited* does not provide any guidance on the interpretation of the

JCT 1998 Standard Form of Building Contract and Contractor's Design Contract because of the bespoke amendments that were incorporated, coupled with the manner in which the Contract was set up without any Employer's Requirements or Contractor's Proposals. The case has, however, been treated as providing guidance on the interpretation of the Standard Forms and, as a result, the accepted interpretation is that the 1998 Contracts require the Contractor to check the Employer's Requirements.

176 So under the 2005 Editions, the Contractor is expressly excluded from any responsibility for the adequacy of the design in the Employer's Requirements by virtue of Clause 2.13.2 in the Standard Building Contract and Clause 2.11 in the Design and Build Contract.

177 Whether the JCT likes it or not, when using the 1998 and previous versions of the Standard Form of Contract with Contractor's Design Employers frequently insert a provision expressly requiring the Contractor to check the Employer's Requirements and this practice is unlikely to change.

178 However, this is not to say that a contractor has no responsibility whatsoever in relation to the design:

- under SBC 2005, DB 2005 and ICD 2005 (though not MWD 2005), a contractor is obliged to notify any inadequacies in the employer's requirements upon becoming aware of the same, and then to seek reimbursement for related costs by way of a variation;
- Further (save under MWD 2005), it is incumbent on the contractor to ensure that the employer's design complies with any statutory requirements (except in the case of DB 2005 where the employer's requirements state that they are so compliant).

179 In relation to the contractor's primary obligations this remains "to carry out and complete the works" (Clause 2.1 in both JCT 98 and SBC 05). Yet at first blush it seems that the JCT have dropped the qualifying statement "provided that where and to the extent that approval of the quality of materials or of the standard of workmanship is a matter for the opinion of the architect, such quality and standards shall be to the reasonable satisfaction of the architect", but this phrase has been amalgamated with the text from what was clause 8.1.2, to form a combined clause 2.3.1 which states:

Where and to the extent that the quality of materials or goods or the standard of workmanship are a matter for the opinion of the Architect, such quality and standards shall be to his reasonable satisfaction. To the extent that the quality of materials and goods or standards of workmanship are neither described ...nor stated to be a matter for such opinion or satisfaction they shall in the case of the Contractor's Designed Portion be of a standard appropriate to it and shall in any other case be a standard appropriate to the Works"

180 The difference is that the old wording required the contractor to achieve a standard “appropriate to the Works”, which applied only to workmanship in the absence of a specified standard. The result is the new wording applies also to materials and goods. It should therefore no longer be necessary to argue implied terms where the specification is incomplete or ambiguous for a material or good in question.

Design Review Procedure

181 Another significant alteration, connected with Design, is the introduction of a Design Review Procedure, this is to be found in the Standard Building Contract when the Contractor's Design Portion has been selected and also in the Design and Build Contract and its JCT derivatives, which require the operation of the Procedure. The Procedure is based upon that which is already contained in the JCT Major Project Form.

182 The Contractor is required to submit two copies of all design documents, e.g. drawings and detailed specifications it prepares to the Employer or the Architect (as the case may be) for review.

183 Within 14 days of receipt of that documentation, or if a date for submission of documents has been previously agreed within 14 days of that date, (which ever is the later) the Employer/Architect must have reviewed the documentation and return it to the Contractor marked with 'A', 'B' or 'C'. If the Employer/Architect does not respond within the 14 days allowed, the documentation is regarded as having been marked with an 'A'.

184 The significance of 'A', 'B' and 'C' is as follows:-

184.1.1 'A' means the Contractor can carry out the Works in strict accordance with that document;

184.1.2 'B' means that the Contractor may carry out the Works in accordance with that document, provided that comments are incorporated into it and an amended copy of it is promptly submitted to the Employer/Architect;

184.1.3 'C' means that the Contractor is required to take account of the comments on it and either promptly re-submit it to the Employer/Architect in an amended form for comments in accordance with the Design Submission Procedure, or notify the Employer/Architect that it considers the design is in accordance with the Contract and that compliance with the comments would give rise to a Change. The Contractor is required to make that submission within 7 days of receipt of the drawings with comments on them, failing which it is deemed that the comments do not give rise to a Change.

185 The whole procedure is designed to operate fairly quickly and consequently any design document that is not returned marked up by the Employer/Architect within 14 days of its submission is deemed to be marked 'A'. To ensure that the Contractor complies with the Design Submission Procedure, the Contractor is not entitled to be paid in respect of any works for which Design Documents should have been

submitted, but in respect of which there are no Design Documents with the status 'A' or 'B'.

- 186 The contractor may therefore object to the comments on a B status, if it does must explain why their incorporation would give rise to a variation. Clause 8.3 of the Schedule states helpfully that no comments or any action by the contract administrator will “diminish the Contractor’s obligation to ensure that the Design Document or the CDP works are in accordance with the contract”.
- 187 These provisions give the CA the means to monitor the developing design, and to make comments where there is concern as to the achievement of the employer’s requirements, but otherwise no power to influence the development of the design without issuing a variation to the requirements - that is the theory at least. Note that under JCT 05 the design documents to be provided are those “reasonably necessary to explain or amplify the Contractor’s Proposals (Clause 2.9.2.1) and that they are to be provided “as and when necessary from time to time or as otherwise stated in the Contract Documents”
- 188 It remains to be seen whether an employer may seek to cross the line between making comments on designs which are for the purposes of gaining confidence that the contractor is having proper regard to the contractual requirements and making comments which, in effect, attempt to vary the design requirements via the back door. To protect against this, a contractor is required to raise any challenges to comments which appear to introduce a variation within 7 days of the comment being made. Absent this, such comments will be deemed not to constitute a variation.
- 189 It is relatively easy to anticipate that on large projects the amount of documents passing from the Contractor to the Employer/Architect requiring review and comment will be extensive. Employers when using the Design and Build Contract commonly novate the majority of their professional design team across to the Contractor at the stage of entering into the Contract. Thereafter they retain only the Quantity Surveyor and Employer’s Agent. This practice may have to be reconsidered if they are to operate the Design Review Procedure for submissions effectively and unless they are to retain consultants which defeats the object somewhat.
- 190 The JCT 2005 Contracts now contain express provisions whereby the Contractor can be required to take out Professional Indemnity Insurance. For example the Professional Indemnity Insurance clause is Clause 6.11 in both the Design and Build Contract and Standard Building Contract. It is activated by an entry in the Contract Particulars specifying the amount of cover required. If no amount of cover is entered in the Contract Particulars, it is assumed that Professional Indemnity Insurance is not required. The Contract Particulars need to be carefully completed as not only is there a requirement that the level of cover needs to be inserted, but it is also necessary to identify whether it has any restriction on the level of cover in respect of pollution and contamination claims and the period for which the insurance policy is required to be maintained. Normally this would be either 6 or 12 years from Practical Completion; the default period is 6 years.

- 191 Both the Design and Build Contract and the Standard Building Contract states that the Contractor retains copyright in his Design Documents, which is quite an interesting concept, particularly as the Contractor's Design Documents will be based on a design prepared by the Employer, copies of which will have been provided to the Contractor under a licence to use them for the purposes of constructing the Project. While there may be design details which have been prepared by the Contractor which are original and consequently it is entitled to claim copyright on those documents, it is difficult to see how the Contractor can claim copyright in relation to all the Design Documents, as but for the licence granted by the Employer, it would itself be in breach of copyright.
- 192 The Contractor having claimed copyright in all the Design Documents, generously grants a licence permitting the Employer to re-use the content of those documents for any purpose in connection with the Works, subject to the Contractor having been paid all sums due to it under the Contract.

JCT Major Projects Form

- 193 The first JCT publication following the HHJ Seymour QC decision in *Henry Boot Scotland* was the Major Project Form. Published in 2003, it sought to turn the clock back and maintain the *status quo* as it was believed to have existed, prior to Judge Seymour's decision. This was achieved through wording that expressly addressed the status of the design in the Employer's Requirements by stating "The contractor shall not be responsible for the contents of the requirements or the adequacy of the design contained within the requirements" (clause 5.1). As we have seen this is picked up by JCT 05.
- 194 The 2005 edition of the Design and Build Contract (DB05) states "Subject to clause 2.15, the contractor shall not be responsible for the contents of the Employer's Requirements or for verifying the accuracy of them" (clause 2.11). Similar wording applies in relation to any CDP within the Standard Form of Building Contract (SBC05). Whilst this wording may seem clear and effective, the same was believed of the previous provisions and it will only be when a dispute comes before the courts that the effectiveness, or otherwise, of the new wording will be established.
- 195 The JCT warns in its Guidance Notes that the new Major Contracts Form⁵³ (MCF) of contract is not for everyone. The notes say it is designed for use by experienced Employers that require limited procedural provisions in the contract form, have their own sophisticated in-house procedures and protocols, and have Contractors with whom they regularly work. Also, because the Contractor assumes more risks and responsibilities under the new contract than under traditional JCT standard forms, the JCT is particularly concerned that work be carried out only by experienced, knowledgeable contractors that undertake proper risk analysis and put in place appropriate risk management systems. It is understood that the JCT specifically decided to call the new contract the "Major Project" form to try and dissuade inexperienced Employers and Contractors from adopting it for their projects. It remains to be seen whether the new form is used as intended.

⁵³ Now the Major Project Construction Contract

- 196 The Contractor may undertake the task of design through its own resources or it can utilise sub-contractors and/or consultants. The Contractor is required to satisfy Clause 11 which provides the Requirements as to the Standards of design, materials and workmanship. The Contractor warrants under Clause 11.2 that the design:

Shall comply with Statutory Requirements; Satisfy any performance criteria within the Requirements; Will use materials selected in accordance with good practice in the selection of construction materials.

- 197 The level of design liability is set out in Clause 11.3. It provides that the Contractor will exercise in the performance of his obligations the skill and care of a professional designer appropriately qualified, competent and experienced. The Contractor **does not** warrant that his designs will be suitable for any particular purpose.

Risks, Responsibilities and Contractor Freedom

- 198 Under the MPF form, the Contractor assumes significantly more risks and responsibilities than under traditional JCT standard forms. The quid pro quo is that the Contractor has potentially greater freedom in how it delivers the Project. The intention of the new Contract is that the Employer, having defined its Requirements, should permit the Contractor to undertake the Project without the Contractor being constrained by or reliant upon the Employer for anything more than access to the Site, review of Design Documents and payment. In particular, there is no requirement or expectation that the Employer will issue any further information to the Contractor because all design and production information beyond that contained in the Employer's Requirements is to be produced by the Contractor.

Design Responsibilities under the MPF

- 199 Depending upon the manner in which the Employer's Requirements are formulated, the Guidance Notes suggest, the Contractor could find itself responsible for virtually the entire design of the Project or, possibly, just the design or the design detailing of specific elements of the Project. The allocation of design responsibility is something that will need to be clearly spelt out in the tender documents.
- 200 The contract expressly states that the Contractor "shall not be responsible for the contents of the Requirements or the adequacy of the design contained within the Requirements," but it is not immediately apparent how, or on what basis, the Contractor can seek recompense for additional time and/or costs incurred in overcoming any shortcomings in concept or detailed designs contained within the Employer's Requirements. Perhaps it is intended that when the Employer's general expectations and requirements are at variance with specific concept or detailed designs contained within the Requirements, the Contractor will fall back on provisions dealing with discrepancies in the Requirements, which effectively entitle the Contractor to choose between discrepant provisions at the Employer's cost. But, what if an element of the design for which the Contractor is wholly responsible is dependant upon an element of design provided in the Requirements - how then does one deal with inadequacies in the Employer's design? No firm answers are settled on that one as yet.

- 201 With three notable exceptions, the Contractor's design warranty is generally one of skill and care, albeit "the skill and care to be expected of a professional designer appropriately qualified and competent in the discipline to which such design relates and experienced in carrying out work of a similar scope, nature and size to the Project."
- 202 In fact, the contract expressly states that the Contractor does not warrant that the Project, when constructed in accordance with the Contractor's designs, will be suitable for any particular purpose.
- 203 The three enhancements to the skill and care warranty are compliance with:
- Statutory Requirements;
 - any performance specification contained within the Requirements; and
 - the guidance on selection of materials contained in the publication "Good Practice in the Selection of Construction Materials" prepared by Ove Arup & Partners.
- 204 Very importantly subject to the Contractor not being responsible for the contents of the Employer's Requirements or the adequacy of designs contained in them, the Contractor gives an otherwise strict, unqualified assurance that the design of the Project will comply with the Statutory Requirements, performance specifications and stipulated guidance on the selection of materials.
- 205 While the new design provisions generally are in line with frequent amendments to the older form of contract, it remains to be seen how professional/design indemnity insurers will react to these new standard form proposals.

Design Submission Procedure (DSP)

- 206 The DSP started with the MPF. The contract recognises that not all of the Contractor's designs necessarily will be contained within the Contractor's Proposals. The contract contains a first for the JCT, a procedure for the preparation, submission and review of Design Documents after contracting.
- 207 Thus we see the Employer has the right to review all designs prepared by the Contractor and can comment upon any that it considers not in accordance with the Contract. The Employer is obliged only to pay for Contractor-designed works executed in accordance with designs that have the status "no comment" or only limited comments.
- 208 It must be said that JCT have made a credible effort at achieving the results that they intended: a contract for major projects which will largely be acceptable to all parties but the Nirvana of a contract which requires no further amendment or negotiation and does away completely with the need for collateral warranties is still some way off.

Summary

- 209 The new Editions of the Standard Building Contract and the Design and Build Contract are undoubtedly still complex, but this is hardly surprising as the building projects they are expected to be used on are complex in themselves, as are the legal relationships formed by the parties when carrying them out. The new Editions, however, are more clearly drafted and more easily comprehensible. Redundant provisions have been dispensed with and most of the provisions that relate to a particular aspect of the administration of the project are now logically grouped together in the same Section.
- 210 There are still one or two minor irritations, for example the provisions setting out the effect of the Final Certificate are not contained in Section 4, which deals with the issue of the Final Certificate, but instead are contained in Section 1 relating to Definitions and Interpretations. Minor irritations aside, the Contracts have introduced some useful new provisions, such as the Design Submission Procedure and the ability to invoke the Contracts (Rights of Third Parties) Act 1999 unlike JCT 1998 which excluded it.
- 211 Whilst concentrating on the new Standard Building Contract and the Design Build Contract, the JCT have of course updated, or are in the process of updating, the entire family of JCT Contracts and Sub-Contracts. Certainly the use of a common format and language in the Sub-Contracts must be an improvement on the Industry Standard Sub-Contracts, namely DOM/1 and DOM/2.
- 212 On the whole the revised Editions of the JCT Contracts are an improvement and while that will not prevent Employers amending them, the revised issue should require fewer amendments and should be easier to use than the current 1998 Editions.

The Engineering and Construction Contract (ECC), 3rd Edition

- 213 Remaining on the topic of standard form contracts and the issue of design, in July 2005, the Institution of Civil Engineers ("ICE") launched the third edition of the New Engineering Contract family of contracts ("NEC3") in response to feedback from the construction industry. In addition to a revised main contract ("ECC3"), the NEC3 suite of contracts contains a new Framework Contract and a new NEC Term Service Contract.
- 214 Like its earlier versions it is different from other more traditional UK building/engineering forms of contract. There are three reasons (i) its "plain English" present tense style alien to most lawyers; (ii) its pro-active management approach from cradle to grave - the major preoccupation being processes and actions, carefully flowcharted and (iii) its modular structure with "core clauses", six main pricing options (A-F) and 22 secondary options to deal with everything from bonds to excluded rights.
- 215 Under the ECC any or all of the design responsibility, and ultimately the liability for that design, can be apportioned to the contractor through the Works Information; there is no separate contract document to cover design and construct contracts. Contrast this with the ICE Conditions of Contract the liability of the contractor is

subject to the important qualification that it is generally not liable for the design or specification of the permanent works or of temporary works designed by the engineer. Therefore a division of responsibility is maintained such that the contractor undertakes to construct according to the engineers design.

- 216 Section 2 of the ECC 2005 sets out the Contractor's main responsibilities and Clause 21 sets out the Contractor's design responsibilities. The Works Information should state the parts of the work that the Contractor is required to design (Clause 21.1). The design should interface with those parts of the works designed by the Employer.
- 217 Although the basic layout and structure of the NEC contracts is unchanged, there have been some revisions to risk positions. The principal amendments to the main contract include; extending the grounds for claiming an extension of time and compensation to include unauthorised works and "force majeure". The introduction of an extensive optional clause which includes individual limits for design liability and consequential loss and an aggregate overall limit on liability; The ICE's stated hope is that the new features and amendments will enable the contract to be used even more effectively across a wider range of projects.
- 218 One of the areas this contract continues to attract attention is its approach to design liability of the contractor and it is worthy of attention since there are no changes on this from NEC 2 to address design liability re standards of materials, goods and workmanship. There is no clear statement in NEC 3 of whether the contractor's liability for his design is based on fitness for purpose or reasonable skill and care. Nothing is stated expressly. All the key relevant provisions consistently refer just to the contractor's obligation to ensure that his design complies with the Works Information, which may not address the issue or be ambiguous. Whilst this issue is often dealt with by special express amendments it is surprising in this new edition to have been left untouched.
- 219 One of the key collaborative features of the NEC has been the requirement that the contractor and project manager give each other early warning of matters which could affect the cost, timescale or quality of the project. The contractor is encouraged to comply because failure to do so may reduce the payment to him for a related compensation event in that the project manager may assess the compensation event "as if" an early warning had been given. Obvious matters requiring early warning would include design problems, discovery of unexpected ground conditions and bad weather. NEC 3 develops the use of the early warning system beyond its role in NEC 2. It does this by introducing the concepts of a "risk register" and "risk reduction meetings". The risk register is a live document. Initially, it will contain risks identified in the contract data. However, any matters which are the subject of early warnings are added to the register and then discussed in risk reduction meetings, in order to solve the problems in question. This procedure allocates the actions needed for efficient management of specific risks and assists in identifying the time and cost consequences of risk events.
- 220 The risk register (Clause 16) is new to ECC, in line with the objective of "encouraging good project management". NEC 3 is one of a comparatively small body of contracts which incorporate this principle into the contract itself and is one of the strong

selling points for the pro-active attributes of this contract family on the part of the project manager and contractor. The intention is that, as part of the Contract Data at commencement of the process, the parties should set up a risk register by noting those risks that they identify as having the potential to increase the total cost. The *Guidance Notes* give examples of the matters it might contain such as design problems, unexpected ground conditions, issues with supply of plant or materials. The dynamic is such that it is intended the register is not static. The project manager must enter in it any matter the contractor raises an early warning upon that may increase total cost and the project manager and contractor may each add or modify the register with the outcome of noted risks discussed at risk reduction meetings previously known as “early warning meetings”. If a decision made at a risk reduction meeting requires a change to the Works Information, then that must be instructed by the project manager and may constitute a compensation event.

- 221 It will soon be appreciated that this could potentially disturb the risk allocation already agreed between the parties. For example if the parties have agreed the design and build contractor should chose the form of air conditioning system e.g. thermal pile, chilled beam, but say the contractor encounters a problem in the ground with his thermal piles, this should be brought up at a risk reduction meeting. If the decision is then made to opt for say traditional chillers and a cooling tower etc, then the Works Information will need to be altered, which will trigger the compensation event regime despite the initial risk allocation arrangements under the contract. Given that project risks need to be allocated (as discussed above), and in a transparent way it is most important that risk allocation is changed other than default mechanisms such as this, which cannot have been the ICE’s intention.
- 222 So like JCT, the ECC has reached maturation in its third edition. We have yet to see whether its use will spread meaningfully to the private sector on one off projects notwithstanding that NEC has been endorsed and recommended by the Office of Government Commerce, and its use on public sector projects in the UK⁵⁴, with the Olympics being flagged for it. There is no doubt the big project management companies are touting it for sound risk management issues but its materially different set up from other established contract forms still represents considerable inertia to those clients who are unfamiliar with partnering philosophy and without established supply change arrangements and nervous of its so far court untested machinery.
- 223 **Conclusion:** Keep track of the dynamics, design liability will remain a fundamental topic for our courts and its users for as long as it has to this point!

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⁵⁴ Channel Tunnel Rail link, T5, NHS Procure 21 etc.