

ROYAL COURT (INFERIOR JUDICE)

--1977/6.

Before: Sir Frank Eresaut, Bailiff,
Jurat A.A.H. Downer,
Jurat the Hon. J.A.C. Coutanche

See 1985 No 5
and [1985-86] JLR 13

A.C. Gallie Limited, Plaintiff,
v.
W.H. Davies, First Defendant,
and
T.O.P. Walker, Second Defendant

Advocate V. Vibert for the plaintiff
Advocate R.G. Day for the first defendant.
Advocate G. Le V. Fiott for the second defendant.

In 1967 the plaintiff engaged the services of the first defendant (hereinafter referred to as "the architect"), a chartered architect practising under the name of Breakwell and Davies, to design and supervise the construction of a new warehouse, offices and flat on plot number 23, Rue des Pres Trading Estate. On 31st October, 1967, the plaintiff entered into a building contract with the second defendant (hereinafter referred to as "the builder"), a building contractor, who undertook to construct the building in accordance with the plans and specifications prepared by the first defendant.

Practical completion of the building was achieved on or about 25th April, 1968, when the plaintiff moved into the building.

Subsequently, a number of defects and omissions were observed in the new premises, and protracted negotiations then took place,

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lasting several years, in an attempt to settle responsibility and so lead to the defects and omissions being remedied. Unfortunately, both the cause of, and the responsibility for, them remained in dispute, and eventually the whole matter was brought before the Court by this action.

Originally, the plaintiff actioned only the first and second defendants, but during the course of the pleadings Mr. C.H. Rothwell, a chartered structural engineer, who had designed the foundations of the building, was convened as a third party, but at the commencement of the hearing he was discharged from the proceedings, and the case continued against the first and second defendants. During the trial, it was conceded that the admitted defects were not due to any fault in the design of the foundations.

The building comprises a rectangular warehouse, with the gable ends at the North and South, and an office block (which includes a flat on the first floor) adjoining the Southern end of the warehouse. On the advice of the architect, the framework of the warehouse was constructed of pre-cast concrete portal frames manufactured by Sitecast Limited (which company subsequently went into liquidation) and erected by that company's employees. The frames are 15 feet apart. The builder then erected concrete block cavity walls, 14 feet high, consisting of two 4" skins with a 2" cavity between.

By agreement, our task is limited to apportioning responsibility for the several alleged defects and omissions. We deal with each item separately.

The first with which we deal, and the most serious of the defects in issue, were a number of structural cracks in the North, East and West walls of the warehouse. The plaintiff and the architect and their technical advisers all agreed that this damage

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was caused by the movement of the portal frames against the adjacent blockwork walls, but disagreed as to how this movement had come about and, in consequence, as ^{to} where the responsibility lay. The plaintiff contended that the movement should have been anticipated and that the architect's design failed to take it into account; the architect was therefore responsible.

The architect contended that his design was adequate to accommodate the degree of movement to be reasonably anticipated, but that the actual movement of the frames was excessive due to faulty erection by Sitecast employees; the fact that his design was not capable of accommodating that excessive movement which could not be reasonably anticipated did not make it defective. Sitecast, and not he, was therefore responsible.

The architect claimed that the vertical cracks were due not to any defect in the architect's design, but to a failure by the employees of Sitecast to tighten sufficiently the knee bolts of the portal frames. This had caused the frames to rack to the East, that is to say, they had gone out of plumb, and the knee bolt had then jammed in the gap left by the failure to tighten the bolt sufficiently, with the result that the frames distorted and remained permanently out of plumb, instead of returning to plumb as they would have done if they had been made rigid by the bolts being properly tightened.

The architect described his design. Two factors guided him. First, he intended that the portal frames should move with the walls. Secondly, he allowed for an initial movement when the roof was put on of plus or minus $\frac{1}{4}$ " , but did not allow for any further movement, whether from wind or any other cause, because he did not anticipate any, on the assumption that the frames would be properly erected and the bolts tightened fully.

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He specified a 2" gap between the inner and outer skins of the blockwork wall. That gap would narrow to 1" opposite the frames, which would be sufficient to accommodate the $\frac{1}{4}$ " movement allowed for, so that the frames and the inner face of the outer skin of the walls would not touch.

The frames were to be fixed to the inner skin by a permanent mortar joint, and both skins were to be connected by metal ties at specified intervals, thus ensuring that both skins would move together and with the frames. The frames included holes through which metal reinforcing rods could be inserted so as to give an additional connecting tie between the frames and the adjacent walls, but the architect did not consider it necessary to use this method, partly on the ground of expense, because the plaintiff wanted an economical job, and partly because in any event he did not expect the frames to move more than $\frac{1}{4}$ ".

The architect agreed that the damage to the outer skin of the walls was caused by their having been fractured when pushed outwards in an Easterly direction by the excessive movement of the frames, which had broken loose from the mortar joint at the inner skin. The excessive movement, which he estimated at about $\frac{3}{4}$ ", was due to a failure by Sitecast to tighten the knee bolt at frame B and probably at other frames also.

The architect relied mainly on the evidence of Mr. Rothwell to support the explanation that there had been excessive movement of one or more portals due to a failure to tighten the knee bolts sufficiently. Mr. Rothwell's evidence was as follows.

He was asked to examine the portal frames in 1969. He compared frame B, adjacent to which there was damage to the wall, with frame E. Both frames leant to the East. The amount of lean in the Eastern leg of both frames was identical -- $1\frac{1}{16}$ ".

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The Western legs varied; in the case of frame B the lean to the East was $\frac{1}{2}$ ", in the case of frame E it was $\frac{1}{4}$ ". In addition, he noticed, when looking up at the apex joint of frame B from the warehouse floor, that the top 3" of the joint was closed and in contact, whereas over the bottom 3" there was a slight gap. He did not see a similar gap in the apex joints of the other frames. He also saw a $\frac{1}{4}$ " gap at the knee joint of frame B.

Mr. Rothwell reported to the architect in March 1969 that his conclusion from these observations was that excessive movement of the portal frames in the Northern part of the building had caused cracking of the blockwork walls, and that that movement was probably due to incomplete tightening of the main knee bolts, particularly at the Eastern knee of frame B.

As a result of that report, Sitecast was asked to visit the site, which they did in July or August, 1969. They subsequently reported to the architect that they had tested the knee bolts of all the frames. Using a spanner with a four foot extension they could not tighten the bolts at all, but with a ten foot extension they were able to obtain about half a turn on one of the bolts. They therefore concluded that the trouble was not caused by any failure to tighten the bolts sufficiently.

Mr. Rothwell accepted that that report of Sitecast showed that the bolts were tight at the time of that test, because a ten foot extension spanner should not normally be used. However, that did not mean that the Eastern knee bolt of frame B had been sufficiently tightened at the time of erection, and indeed he was sure that it had not been.

He explained his conclusion in this way. The proper method of erecting portal frames is first to place the legs in their foundations and secondly to place the rafter on top of the legs. The weight of the rafter should push each leg out equally. Next,

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the knee bolts are inserted and the rafter should then be lifted slightly to release the weight from the legs. The bolts can then be tightened, and one would then expect to find a uniform contact down the full depth of the knee joints. After checking the plumbing, the roof covering is then placed on the frames, and the weight of this will cause the knees to spread equally in both directions. Mr. Rothwell thought that at that stage in this case the spread was equal.

The frames will then be subject to wind pressure, which in Jersey will be mainly from the West. The frames will bend slightly under wind pressure but will return to plumb if the knee bolts have been properly tightened, making the whole of the frame rigid. But if the bolts have not been fully tightened, so that there is a gap, and movement of the thread can occur, the frames will ~~rock~~^{rock}, that is to say, they will lean, in this case to the East, the bolts will jam in the gap so giving the appearance of being fully tightened and the frames will not return to plumb but will remain out of plumb because of their weight.

It was an admitted fact that frames B and E were leaning to the East and Mr. Rothwell concluded that the cause was a failure to tighten one or more knee bolts sufficiently, possibly through failure by Sitecast to lift the weight of the rafters off the legs while tightening the bolts. He agreed that there was no evidence of the bolts having jammed, in the sense of the concrete having fractured. He also conceded that if a bolt was tight it was not possible to say by visual inspection whether it had been jammed or had been tightened with a spanner. The only way of telling was to jack up the rafters, and the removal of the weight would then enable the bolt to be tightened if there was any gap. Mr. Rothwell did in fact submit such a recommendation to the architect, but no such remedial work was done. He added that there was nothing now apparent of that which he had reported on in 1969.

/Mr. Cameron-Clarke

Mr. Cameron-Clarke, a local architect, who inspected the building at the request of the architect, in February 1976, also gave evidence for the architect. He agreed that a movement of $\frac{3}{4}$ " in the portals was excessive, because movement from shrinkage was minimal and from wind pressure, which portal frames are designed to withstand, only about $\frac{1}{4}$ ". One must therefore look for another factor, and racking was the obvious answer. If the knee bolt on a portal frame is tight, the frame will return to plumb each time after wind pressure has ceased, but if not it will remain racked. No cracks in the wall were reported at the date of practical completion, which showed that the trouble was caused by the frames racking and so becoming distorted, pushing and pulling the walls with them.

Mr. Cameron-Clarke agreed that in designing a building which included portal frames, an architect must select one of two alternative systems - either the frames must be independent of the walls or they must move with the walls. In this case, the architect selected the second alternative, which is the cheaper method. Mr. Cameron-Clarke said that if he himself had selected that method he would not have relied solely on a mortar joint. He was not prepared to say that the architect's practice in this case was bad, but he thought that it could have been improved. However, the design was adequate to accommodate the normal anticipated movement of $\frac{1}{4}$ ", but not the excessive movement of $\frac{3}{4}$ ". He added that cost was a function of design, and it was permissible to design to a cost, which did not mean an inferior standard but did mean omitting frills. As to the holes provided by Sitecast in the frames, he did not think they were for use in tying the frames to blockwork.

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The plaintiff relied mainly on the evidence of Mr. Fincham, a structural engineer, who first saw the building at the request of Mr. Peck in November 1970, and saw it again during the trial. His evidence was as follows.

Portal frames move initially under a superimposed loading, which is vertically downwards, causing a spread at the knee joints. There is also a permanent horizontal wind loading.

In cladding the portal frames, the design should adopt one of two methods to accommodate the movement in the portals. One method is to make the wall independent of the frame, in which case the wall must be made sufficiently strong to be self-supporting. The other method is to ensure that the wall moves with the frame. To achieve that, rods should be passed through the holes in the frame which are there for that purpose, and one end of the rod should be bedded in cement in the inner skin of the wall; then the inner and outer skins should be well tied. In this case, what has been done is a mixture of the two methods. The frames are partially tied to the wall because the wall is wedged up to the under-side of the gutters, which in turn are attached to the frames; so that when the frames move the wall moves. But there is no firm tie between the bottom section of the wall and the frames. Mortar joints were inserted but the movement of the frames broke those joints so that the wall did not move with the frames when the latter were subjected to wind pressure from the West. The gap between the outer face of the portals and the inner face of the outer skin was in some parts non-existent and overall was insufficient to accommodate the movement to be anticipated from the frames, particularly when there was nothing to restrain them.

The result had been that whereas the top section of the wall attached to the gutters had moved with the frames, the bottom section, which is secured to the ground beams but not to the frames,

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had not moved with them. There had thus been a differential movement of the walls which was bound to cause serious cracks, and in this case did so.

Mr. Fincham was asked during the course of the trial to inspect the building so that he could express a view as to Mr. Rothwell's contention that the knee bolt of frame B had jammed because it had been insufficiently tightened by Sitecast. He did so, and his evidence on this point was as follows.

He saw no misfitting at the apex joint of frame B other than slight manufacturer's inaccuracies. As regards the knee joint, he saw no difference between that at frame B and the joints at the other frames. He saw no evidence of the bolt at frame B being over-stressed or slack. The bolt was at least $1\frac{3}{4}$ " in diameter and therefore large and strong and extremely unlikely to distort. The hole through which it passed in the reinforced concrete had a tolerance of at least $\frac{1}{8}$ " which was adequate to avoid damage. The end of the bolt was clean. The threads were sharp and bore no sign of the damage one would have expected to see if the bolt had been driven home. His conclusion was that there was no evidence that the bolt had jammed and he did not think it had.

He went on to say that he accepted that the frame B was leaning to the East, but it was his view that that frame had been initially erected out of plumb by Sitecast because at the Western leg the mortar between the inner face of the outer skin of the blockwork and the frame was still up against the frame, which showed that the frame had not subsequently moved away from the wall, and there had been no relative movement between the wall and the frame. He therefore formed the view that there had been no racking in the sense of distortion. The frame was out of plumb but it was rigid and tight. Although portal frames should not be erected out of plumb to the extent of $\frac{3}{4}$ ", a small tolerance was permissible and

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should not normally cause difficulty provided that the frame and wall were designed so that either they moved together or the frame moved independently.

Mr. Fincham said that although not all the wall ties specified had been inserted that was not a principal cause of the problem. Moreover, the architect should have specified movement joints (as the architect himself agreed), but that also was not a principal cause of the problem in relation to the East and West walls, for whilst their provision might have reduced the cracks, particularly from shrinkage and thermal causes, they would not have overcome the effect of the principal cause, which was a failure so to design the frame and the wall as to ensure that when the frames were subjected to wind pressure, as should have been anticipated, they would move together throughout the whole building.

Further evidence for the plaintiff was given by Mr. H. Peck, an architect called by the plaintiff, who first examined the building in 1970. His evidence was as follows.

The use of portal frames is good practice, but they are not a rigid structure, they must be free to move, and therefore the design of the building must be such as will permit them to do so without causing damage to the rigid wall blockwork. There are two alternative methods. The building can be designed to enable the frames to move independently of the walls, but in that case the walls must be strengthened as they will not then have the support of the portals. Alternatively, the walls are designed to move with the frames, in which case they must be firmly tied together, and for that purpose holes are provided in the frames for reinforcing rods. In the latter case, there must be adequate movement or expansion joints.

In the case of this building, neither alternative has been properly adopted. The top of the wall is built into the gutter

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which is part of the Sitecast structure, but the lower section of the wall was not sufficiently tied to the frame, with the result that the wall has moved differentially and the portals are in contact with the outer skin of blockwork, thus causing vertical cracks in the area of the portals.

We have considered all the highly technical evidence at length, and, as must always be the case when well qualified experts disagree, we have not found it easy to arrive at a conclusion.

It appears to us that the first issue is whether the portals racked, because the knee bolts of one or more portals were not properly tightened initially, or whether one or more of them were erected out of plumb before the blockwork was constructed. The ~~plaintiff~~ ^{defendant} puts forward two grounds as to why we should adopt the first explanation. The first was what Mr. Rothwell saw when he inspected frame B in 1969. Unfortunately, no photographs were taken of the gaps, and subsequently, as he admitted, there remained no visible sign of the gaps, so that Mr. Fincham was not able to see them. Sitecast was asked to inspect the knee bolts, and in no case were they able to obtain any significant turn with a spanner.

That might have been a complete answer to the explanation that the bolts had not been properly tightened, but the theory was then advanced that if the frames had racked the bolts would have jammed tight, which would have had the same effect, so far as subsequent tightening was concerned, as if they had been sufficiently tightened in the first place. Mr. Fincham inspected frame B and saw none of the signs which, for the reasons he gave, he would have expected to have seen in the case of such a comparatively large bolt, if the explanation of racking were correct. Moreover, in further rejection of that explanation Mr. Fincham described how the mortar between the

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inner face of the outer skin and the western leg of frame B had held to the frame, which was clear evidence to him that the frame had been out of plumb before the construction of the blockwork, rather than becoming so afterwards.

After the most careful consideration, we consider on balance that the evidence favours the explanation that the frames were erected out of plumb, rather than that the knee bolts were insufficiently tightened.

However, it was submitted on behalf of the architect that the movement of the portals was excessive and that that could be accounted for only by some unusual cause such as a failure to tighten the knee bolts sufficiently. We accept that the lean to the East was in the order of $\frac{3}{4}$ ". Mr. Rothwell described that as excessive. Mr. Fincham described it as a maximum normal design movement, due to a combination of shrinkage, thermal and wind causes. In this connexion it appears to us to follow that if the frames had been initially erected out of plumb so that they leant to the East before the wall was constructed, then the subsequent design movement would have been less than $\frac{3}{4}$ ".

We are satisfied that once the initial outward movement of the frames caused by the roof loading has taken place, there continues to be a wind (and snow) loading for the life of the building. Provision for that movement occasioned by that loading must be incorporated in the design of the building, so that one of two alternative courses is firmly followed: either the walls are made independent of the frames or the frames move with the walls. On the evidence which we have detailed earlier, we find that the design in this case did not come down sufficiently firmly on one side or the other, and we have concluded that this provides the key to the question before us. We would accept that the

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design of a building incorporating portal frames is not perhaps an easy matter, and we think that the architect did appreciate the problems to some extent, but we consider, as events have shown, that he did not take those problems into account to the extent that was necessary to resolve the conflict between a flexible frame and an inflexible wall and which has caused the serious cracks.

It was submitted on behalf of the architect that even if there were short comings in the design, the architect could not have been expected to foresee, and to provide for the excessive movement of the portals in this case. We accept that the movement was probably at the very maximum of the scale of movement to be anticipated, but taking into account that we think that the frames were erected out of plumb initially we do not regard the movement as being outside that for which a prudent design should have provided. We think that such a design would not only have taken into account all the factors to be reasonably anticipated, but would have allowed as a matter of caution for a slight margin of error. Such a design would have tolerated the movement in this case. The fact that the movement caused serious damage to the walls was, in our view, due to a failure fully to appreciate what was admittedly a testing problem of conflicting forces, and the responsibility must therefore lie with the architect.

The second defect which we have to consider consists of several serious cracks in the South wall of the warehouse, which is also the North wall of the office block. The cause of the cracks was not in dispute. Because of the use of the portal frames therein, the warehouse building was a flexible structure whereas the office building was rigid. Mr. Rothwell, who designed the foundations, incorporated the necessary movement joint to provide for that situation; the architect, who designed the structure, did not. He agreed that on reflection he should have done, but it was

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submitted on his behalf that the failure to do so was not the cause of the damage to the North wall of the office block. That cause was the unforeseeable excessive movement of the portal frames, with its consequential effect on the office building, which the provision of a movement joint would not have prevented. He was therefore not liable for the damage. Because we have found that the damage to the warehouse walls was due to errors in the architect's design, it must follow that the architect is also responsible for the damage to the office block resulting from the differential movement between that block and the warehouse.

We now come to those alleged defects in respect of which the plaintiff held the builder to be responsible, as well as the architect. Before we examine them, however, it is necessary to consider the following matter.

Certain of the alleged defective work for which the plaintiff now claims damages against the builder were not notified to the builder by the architect within the Defects Liability Period, which began to run from the issue by the architect of his Certificate of Practical Completion, and which was extended by agreement to nine months, ending on 26th February 1969. The builder therefore argues that he is not liable to make good any such work not so notified to him. He relies, firstly, upon clause 1 of the R.I.B.A. Agreement entered into between him and the plaintiff, whereby he was required to complete the works to the reasonable satisfaction of the architect. He argues that the failure of the architect to require him to remedy patent defects within the nine month period showed that the architect must have been satisfied. Secondly, he relies upon the wording of clause 15 of the same Agreement, which requires the builder to make good at his own cost any defects notified to him not later than 14 days after the expiration of the Defects Liability Period.

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We find against the builder on this matter.

Where a building contract provides that the work is to be done to the satisfaction of the architect, and in particular if that satisfaction is required to be recorded in a certificate such as a final certificate, an employer will not usually be permitted to complain of defective work, once the satisfaction or certificate has been recorded. In the case of the R.I.B.A. Contract as used in this case (1963 edition, revised in 1966), the issue of a final certificate under clause 30(7) would clearly have that conclusive effect (subject to certain exceptions), and the parties agreed with the legal authorities on that point.

In this case, however, no final certificate has ever been issued and, as we have said, the builder relies on the wording of clause 15. We have, therefore, to examine that clause to see whether the rights under it were intended to supplant the right to damages at common law altogether, because our interpretation of the authorities is that where there is no express provision that the satisfaction of the architect or a certificate issued by him shall be conclusive, then the remedies under the clause in question are in addition to, and not in substitution for, the common law rights. We find in clause 15 no such express provision as is, for example, contained in clause 30(7). We regard clause 15 as essentially giving the right to call for the physical return to the site of the contractor for a limited period after the employer has resumed occupation to make good defects of which he has been notified. We do not read into it the interpretation that if the architect has omitted to include in his Schedule of Defects certain defective items, whether patent or not, that the architect must be deemed to have been satisfied as to all matters not so included, so that the employer is thereafter precluded from his common law remedy of seeking damages.

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Very clear words, such as those to be found in clause 30(7), would be required to achieve that effect, and they are not there. The matter is well explained in Hudson's Building and Engineering Contracts (10th edition), pages 394-6.

We therefore now deal with the items alleged to be defective for which the plaintiff holds the builder primarily responsible, and where necessary we refer to the item numbers in the Schedule attached to the plaintiff's Order of Justice.

1. The level of the ground outside the warehouse and office block.

The plaintiff claims that the builder, on completion of the work, left the outside ground level six inches too high, with the result that the damp proof course and the pile caps, both of which should have been left exposed, were covered.

The builder claimed that he left the outside ground at the correct level and that the plaintiff must subsequently have brought in hard core. The plaintiff denied that he, or anyone subsequently employed by him, had altered the level of the ground.

Mr. Leighton, a building inspector, made a final check of the building on 22nd May, 1968, and passed it. One of his duties would have been to check that the damp proof course was exposed, and he felt sure he had done so, but with the long lapse of time he could not actually recall having done so. If the damp proof course had been exposed, then the ^{pile}~~pile~~ caps would also have been exposed to a height of six inches; Mr. Leighton told us that it was very unusual to see pile caps exposed and he thought that he would have remembered if they had been.

We have examined the considerable amount of relevant evidence on this matter. We have not found it easy to come to a conclusion because of the long lapse of time. The factor which has finally decided us is the inspection carried out by Mr. Leighton. One of the

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main purposes of his inspection was to check the level of the damp proof course and although understandably he cannot now remember exactly what he saw, it is, in our view, so unlikely that he would have passed the building if the course had not been exposed that we find on a balance of probabilities that the builder left the ground at the correct level when he vacated the site. We therefore dismiss the allegation against him under this head.

2. Warehouse internal, item 1.

The level of the warehouse floor is uneven. There is a variation of 6" over a distance of 90 feet, which the majority of the witnesses agreed was well outside a reasonable tolerance. The uneven level causes difficulty and inconvenience to the plaintiff in the use of his fork-lift truck and in allowing water to collect. The subsequent construction of a mezzanine floor has certainly reduced the inconvenience to the plaintiff of the original floor, but the plaintiff was entitled, and remains entitled, to have a floor the level of which is within acceptable limits, and the builder must be held primarily responsible.

3. The dusting of the warehouse floor.

We have no doubt that the dusting was due to the plaintiff having moved in and made use of the floor before it had had time to set. He did not have the consent of the builder to do this, and therefore the plaintiff's claim under this head is dismissed.

4. Warehouse, internal, item 4.

The lack of falls at the West and South entrances to the warehouse.

The drawings show that the warehouse floor was intended to be laid to a fall at the South and West doors. Although the ground beam was constructed at a lower level to allow for such falls, they were not put in.

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In the case of the South entrance, the builder was given a variation order requiring him to move the entrance some feet to the West, so as to make room for a petrol pump. That effectively made it impossible to have a fall at that entrance, as the ground beam had not been lowered along the whole length. However, the petrol pump was shown on the drawing, and therefore we conclude that the drawing was defective.

On the other hand, both the builder and Mr. Hadley claimed that the plaintiff had told them that he no longer wanted a fall, because he intended to buy a small electric truck which could not negotiate a ramp. The builder added that it would have been easier for him to have put in the fall.

The plaintiff strongly denied that he had ever changed his mind about wanting ramps, although it was true that he had not at first noticed their absence. In the early complaints of defects sent by his solicitor there had been no mention of them, but that was because he had then been more concerned about the dusting of the floor.

In the case of the West door, there was no variation order. The builder and Mr. Hadley claimed that the plaintiff did not want a fall there, partly because of his electric truck and partly because he wanted to have a vehicle wash place there. Again the plaintiff denied this.

After eight years the memories of witnesses are bound to be unreliable. We have concluded that the plaintiff succeeds on this issue for two reasons. First, we do not think that he is likely to be mistaken in a matter which must have been in his mind for so long. Secondly, where a particular feature is in the drawing, it is for the defendants to show that there was a change of mind; they have not so satisfied us.

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The lack of a fall at the South entrance was a design fault and therefore the responsibility of the architect. The lack of a fall at the West entrance was the fault of the builder in failing to build according to the drawing, and of the architect in failing properly to supervise that the drawing was being followed.

5. Warehouse, external, item 18, Gas Ventilator.

One of two gas ventilators at the warehouse is leaning over at an angle, although restrained with a stay where it projects at roof level. It is the responsibility of the builder to put the ventilator vertical, or pay for the cost of doing so.

6. Warehouse, external, item 19.

The cement jointing to the asbestos rain water pipes is defective. It is the responsibility of the builder to rectify this, or pay for the cost of doing so.

7. Warehouse, internal, items 11 and 12.

There is dampness in both toilets. The cause may be due to the outside level of the ground covering the damp proof course, or to another factor. If it is due to the former cause, the builder is not responsible; if it is due to any other cause, he is.

8. Office block, external, item 2.

The lead flashing has not been properly fitted. The builder should remedy or pay for the cost of doing so.

9. Office block, external item 4.

The blockwork on the South wall, and to some extent on the east and west walls, is out of plumb. This is the primary responsibility of the builder, and the secondary responsibility of the architect, and the plaintiff is entitled to financial compensation for this defect.

10. Office block, external, item 6.

It is the responsibility of the builder to rectify the defects in the outside staircase, or pay for the cost of doing so.

11. Office block, internal, items 1 - 3.

We make the same comments as under "Warehouse, internal, items 11 and 12".

12. Office block, internal, items 4 - 6.

This is the result of the movement of the warehouse portal frames, and is the responsibility of the architect.

13. Office block, internal, item 7.

Extensive crazing in the plaster work above the gas fire in the west wall of the lounge. This is the builder's responsibility.

Any other defective items in the office block which have resulted from the movement of the warehouse portal frames are the responsibility of the architect; and any such items which have not are the responsibility of the builder.