
Guide to Identification of Construction Defects

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Both construction contracts and construction cases speak glibly of “defects”.

Unfortunately, there is in practice, a great gulf between the theory and the practice.

Sadly, many eminent practitioners in the construction industry are not even sure where to start with a defects problem.

The following article is both practical and authoritative.

Introduction

Background

Construction lawyers and their *plaintiff* clients are confronted with having to identify the likely cause or causes of construction defects to assist to:

- have the work rectified and completed with the minimum fuss;
- properly identify the parties responsible for the defects;
- identify the cause or causes of action against those parties;
- ensure that limitation periods do not prevent pursuing the claim;
- find other possible defendants that are not insolvent or may carry insurance;
- limit using the “shotgun approach” to suing everyone because of the possible adverse cost consequences;
- deal with the client’s insurance issues and those of any defendants; and
- brief the appropriate experts.

It is equally important for construction lawyers and their *defendant* clients to identify the cause or causes of construction defects to assist in:

- determining whether they are responsible for rectification;

- identifying parties who may be contributors to the plaintiff's loss;
- denying liability;
- determining whether any insurance policy responds to the plaintiff's claim; and
- briefing the appropriate expert.

Finally, construction lawyers and their *insurance company* clients need to identify the cause or causes of construction defects to assist in:

- identifying whether the insurance policy responds to an insured's claim;
- denying liability on behalf of the insured;
- seeking appropriate contribution from others involved or associated with the construction; and
- briefing the appropriate expert.

The source of construction defects

Many people not closely associated with the construction industry think that design methodology and construction techniques are completely scientific, so that if there is a construction defect then, using a cooking analogy:

- there must have been a failure in the recipe;
- a failure to properly follow the recipe;
- the ingredients were defective; or

- the oven was defective or the utensils were unsuitable,
- causing the loss.

In any case, his or her argument is "someone is at fault, find out who they are and sue them!"

This approach fails to recognise that there is as much art as science in design, and that construction does not generally involve precision work where everything is or could be perfect. In addition, science itself does not purport to be exact, and engineers, in particular, recognise that models, theories etc are the current best "guess" at approximating reality. Therefore, it is incorrect to expect that nothing will go wrong, or that everything is 100 per cent foolproof.

Lawyers need only look at their own discipline of the law to confirm that the law is not black and white, but varying shades of grey. However, outsiders to the law often have the perception that it is all cut and dried. Hopefully, construction lawyers can appreciate the frustration felt by those involved in the construction and engineering industries that hold the view that sometimes a "defect" may not necessarily mean that anyone is at fault.

However, designs generally work, construction usually complies with the contract and science does approximate reality reasonably well. Accordingly, the task of succeeding in sheeting home liability to the defendant or defendants appears relatively straightforward. Unfortunately, construction defects are elusive and devilishly difficult to capture, and

construction lawyers could well educate their respective clients to develop a realistic appreciation of the difficulties involved. One merely needs to start with the definition of a defect.

Definition of "Defects"

The Oxford English Dictionary meaning of defect is:

1. The fact of being wanting or falling short; lack or absence of something essential to completeness (opposed to excess); deficiency.
2. A shortcoming or failing; a fault, blemish, flaw, imperfection (in a person or thing).
3. The quality of being imperfect; defectiveness, faultiness."

However, in the context of construction law, defects are considered more broadly in certain circumstances. *Hudson*¹ suggests that a *defect* (when used the context of a contractual defects clause), "includes any breach of contract affecting the quality of the work, whether structural on the one hand or merely decorative on the other, and whether due to faulty material or workmanship, or even

design, if the latter is part of the contractor's obligation."

The difficulty with *Hudson's* broad definition is that one may well have something that is technically defective as accepted by any architect or engineer, for example, as regards quality, but it may well comply with the contractual specification. In these instances, the contractor may well argue that it has complied with its obligations under the contract, and providing the contract does not embody a performance specification, the contractor may well succeed. One is dealing with a "contractual defect" for want of a better term, and the pass mark is compliance with the contract. This may not necessarily fall within the dictionary definition of being *a fault, imperfection or falling short*; it is simply something constructed which was not agreed. Equally, something may well be a fault or imperfection as described by the dictionary, but in compliance with the contract.

This illustrates the mercurial nature of the meaning of defect and introduces a potential for significant confusion between construction lawyers and their experts preparing a case for litigation. Furthermore, at trial, the plaintiff's experts may well miss the distinction in a claim for breach of contract and adopt an intransigent position during cross-examination to the detriment of the plaintiff's case. The same can apply to the defendant's experts. Equally, counsel and instructing solicitors during a trial may be confused by answers given by their own or the other side's experts, and without the intuitive technical expertise to

¹ *Hudson's Building and Engineering Contracts* (10th ed, Sweet and Maxwell) p 389.

properly distinguish or challenge the content of the expert's answers, a trial may well go off the rails.

The parties may not have the luxury of an experienced judge to thoroughly sort through the evidence. With respect, his Honour Giles J, carried out a magnificent job in the case of *RW Miller & Co Pty Ltd v Krupp (Aust) Pty Ltd* (1995) 11 BCL 74. The case is 78 pages long with a significant component of the judgment dealing with the very complex expert evidence relating to the cause of collapse of a large bucket wheel reclaimer used in mining. The contending scientific explanations involved very difficult theories, which were advanced to prove or disprove liability. His Honour commented on the evidence of one of the experts who fairly stated that his analysis was getting close to reality but did not completely replicate reality. His Honour said:

"It would be wrong to treat that figure as gospel. For example, one of the fixed values was founded on a buffer compression of 380mm, but it was simply not possible to conclude that the buffer compression was precisely that figure: a variation of even a few millimetres was highly significant to the calculation."²

Perhaps one needs a means of classifying and differentiating between construction defects into two categories: (1) *contractual defects* and (2) those that are *technical defects*. A construction lawyer could concentrate on classifying the former because they have contractual expertise and leave *technical defects* for classification by technical experts if negligence or some other non-contractual cause of action is pleaded. However, as many are no doubt aware, most traditional construction contracts incorporate technical specifications and drawings that require technical input. In determining whether there is a *contractual defect*, it is necessary, therefore, to look at the technical aspects, which requires assistance from experts.

The inability to pursue certain parties for defects

There can be a number of reasons that realistically prevent a plaintiff receiving adequate compensation for its loss resulting from construction defects, for example:

- exclusion clauses in the construction contract or consultancy agreement;
- exclusion clauses in the plaintiff's insurance policy;
- designer not negligent
- plaintiff does not have standing to sue, for example, TPA claims — for instance, not a consumer;
- insolvency of defendant;

² *R W Miller & Co Pty Ltd v Krupp (Aust) Pty Ltd* (1995) 11 BCL 74 at 87 per Giles J.

- Limitation of actions; and
- issue of final certificate by a superintendent.

In these circumstances, the construction lawyer is then required to establish other causes of action against other defendants so as to recover the client's loss against someone of substance within the requisite time limitations.

The search for causes of actions and potential defendants requires identification of construction defects, and this article attempts to summarise the literature and some cases in the area as well as provide some personal observations in order to provide some guidance to help construction lawyers prepare for litigation. Discussion follows in progressively lesser detail in relation to:

- Design faults — the “recipe”
- Faulty workmanship — not following the “recipe”
- Faulty materials — incorrect “ingredients”
- Foundation movements — the “oven or utensils” being defective.

Design faults

*Halsbury*³ states that design involves the description of work to be done, including the

materials to be used, and may even extend to the manner of performance.

Current law

The classic statement of Windeyer J in *Voli v Inglewood Shire Council* (1963) 110 CLR 74 at 84 identified the standard of care required of an architect:

“An architect undertaking any work in the way of his profession accepts the ordinary liabilities of any man who follows a skilled calling. He is bound to exercise due care, skill and diligence. He is not required to have an extraordinary degree of skill or the highest professional attainments. He must bring to the task he undertakes the competence and skill that is usual among architects practising their profession. And he must use due care. If he fails in these matters and the person who employed him suffers damage, he is liable to that person. This liability can be said to arise from a breach of his contract or in tort.”

This same duty applies to others providing professional services: *Astley v Austrust Ltd* (1999) 73 ALJR 403.

The duty expected of an engineer was reaffirmed recently in a Queensland case. (*De Pasquale Bros Pty Ltd v Cavanagh Biggs & Partners Pty Ltd; NJF Holdings Pty Ltd v De Pasquale Bros Pty Ltd* (2000) 16 BCL 116.) In this case, an engineer breached his duty of

³ *Halsbury's Laws of Australia* (Butterworths, Looseleaf Service), para 65-1415.

care in failing to commission geotechnical consultants to carry out a geotechnical investigation prior to design and also to engage them after discovering a damp spot in the excavated area prior to allowing further construction to proceed. The water was artesian water, which caused an adjoining building's foundation to be destabilised as well as that of the building being constructed. Both buildings suffered structural damage. The engineer did not have the geotechnical skill to determine the reason for the damp spot, but he ought to have recommended advice from someone who had that skill.

If the geotechnical report had been obtained, a suitable design to accommodate the artesian water for the new building could have been developed. In addition, appropriate measures could have been taken to prevent the damage to the adjoining building. Chesterman J held that the damage to the adjoining building was physical injury, thereby only requiring the plaintiff of that building to establish reasonable foreseeability of injury for the duty of care to be made out.⁴ The damage to the new building was characterised as economic loss, which has a more confined basis for liability than that for physical damage. His Honour stated that:

“The loss is economic where damage consists of a defect in the structure itself arising from inadequate design or building so that the value of the structure is diminished and it may require remediation.”⁵

The designer does not, however, warrant that the structure is fit for its purpose,⁶ unless they are also the constructor.⁷

Other liability examples

- A structural engineer who designed the structure and prepared working drawings and who visited the site during excavations was not held to be negligent when an adjoining property collapsed. He had given some suggestions to the builder to check adjoining buildings and keep earth support on the boundary, but did not advise the builder to underpin the adjoining property. This omission was not held to be negligent: *Loth Properties v Roy*

⁴ *De Pasquale Bros Pty Ltd v Cavanagh Biggs & Partners Pty Ltd; NJF Holdings Pty Ltd v De Pasquale Bros Pty Ltd* (2000) 16 BCL 116 at 127 per Chesterman J, citing *Bryan v Maloney* (1995) 182 CLR 609 at 617.

⁵ *Ibid* at 127.

⁶ *Orlit Pty Ltd v JF & P Consulting Engineering Pty Ltd* (1992) 11 BCL 260. (Qld Sup Ct).

⁷ *High Mark (M) Sdn Bhd v Patco Malaysia Sdn Bhd* (1984) 28 BLR 129. (HC Malaysia).

B Hoskins (unreported, Qld Sup Ct, Ryan J, 31 July 1986).⁸

- In 1985, a structural engineer designed a parapet for a commercial building at Eagle Farm. The parapet collapsed in January 1995 due to inadequate design according to the learned trial judge. The present owner who bought the building in 1989 sued the engineer for damages for negligence. (*Tod Group Holdings Pty Ltd v Fangrove Pty Ltd* (1999) 15 BCL 328.) The Court of Appeal classified the damages as being “pure economic loss”. The court was not prepared to extend the *Bryan v Maloney*⁹ principle of a special relationship of proximity between a builder and subsequent house owner to commercial buildings. The plaintiff, in the court below, had failed to make out that it had relied upon the engineer’s design or that the designer had assumed responsibility. The court specifically declined imputing reliance or assumption of responsibility in the case of a commercial building, so that negligence was not made out.

Damages

Under this topic and “Faulty workmanship” below, there is brief reference to calculation of damages because this can be tricky. A useful summary can be obtained from the case of *Beregold Pty Ltd v D Mitsopoulos & Associates*

(1999) 15 BCL 290. Cole J referred to the rule that the injured party is to be put in the same position it would have been in if they had not sustained the injury for which damages are claimed and also provided three categories of loss that flow from negligent engineering design:¹⁰

- Simple repairs may be required not involving any work, which should have been required initially. The loss is then the repair cost.
- Repairs involving work that should have been included in the initial design, and would have involved additional initial construction cost. In calculating the loss involving the repair cost, regard must then be had to this initial construction cost that would have been incurred had there been no negligence in design.
- Repairs may involve both categories referred to above. Again, regard must be had to the initial construction cost that would have been incurred had there been no negligence in design, when the repair cost is calculated.

Discussion

In *Tod Group Holdings Pty Ltd v Fangrove Pty Ltd*, above, there was no question that there was a construction defect as a result of the design being inadequate, that is, defective, but

⁸ Referred to in “Current Topics” (1987) 3 BCL 91.

⁹ *Bryan v Maloney* (1995) 182 CLR 609 at 617.

¹⁰ *Beregold Pty Ltd v D Mitsopoulos & Associates* (1999) 15 BCL 290 at 292 per Cole J.

as with many anomalies within the law, the particular plaintiff failed in its cause of action.

In actions for negligent design, proximity currently remains a “governor” on the potential expansion of the liability of a designer in an indeterminate amount for an indeterminate time to an indeterminate class. The requirement of establishing reliance of the plaintiff or an assumption of responsibility by the defendant is fundamental to a plaintiff’s success, and in commercial buildings the courts are currently not imputing either of these elements. It remains to be seen whether the High Court will alter this approach.

How does a construction lawyer start the analysis to determine whether there has been a design defect? The starting point should always be the agreement between the client and the designer, with particular regard to limitation or exclusion clauses. Thereafter one needs to ascertain whether the design professional reached “the necessary benchmark” in the performance of this retainer.¹¹ Consultation with experts is necessary in this regard.

In addition, *Halsbury*¹² has provided a useful list of responsibilities expected of a designer. Reference to the Building Code of Australia

and case references from other research have been added, where possible:

- Be aware of, and have regard to applicable statutory requirements, for example, the *Building Code of Australia* (BCA). The BCA specifies *performance requirements* that can only be met by complying with the *deemed-to-satisfy provisions* or provision of an *alternative solution* that complies with the *performance requirements* or is a least *equivalent* to the *deemed-to-satisfy provisions*. Part A0 of the BCA explains how it operates. If the BCA applies because the building falls within its classification, then design loads, materials and forms of construction are required to adhere to Australian Standards nominated in the BCA.
- Comply with applicable guidelines published by the relevant professional institutions.¹³
- Provide advice as to any risks involved in the design or construction.¹⁴
- Review the design during the currency of the project.¹⁵
- Correct any deficiencies which may come to light.

¹¹ Kearney, “Professional liability — Design Professionals” 66 ACLN 32.

¹² *Halsbury’s Laws of Australia* (Butterworths, Looseleaf Service), para 65-1420.

¹³ *Carosella v Ginos & Gilbert Pty Ltd* (1981) 27 SASR 515.

¹⁴ *BL Holdings v Robert J Wood & Partners* (1979) 12 BLR 3.

¹⁵ *Equitable Debenture Assets Corp Ltd v William Moss Group Ltd* (1984) 2 Con LR 1.

- Seek assistance from specialist experts, if they do not have that expertise, or exclude that aspect from the design role.¹⁶

To this list it may be appropriate to add the following gleaned from a study of an article by eminent construction lawyer John Dorter:¹⁷

- The designer should be particularly alert when they consider a novel design departing substantially beyond codes because this results in prima facie liability.¹⁸
- Be careful if one is relying upon representations made in trade pamphlets or by trade representatives of a specialist product. Ensure reasonable inquiry and testing if one is unfamiliar with a product, unless there are trade secrets.¹⁹

Faulty workmanship

Current law

A contractor has the obligation to construct the work free of defects at final completion.²⁰

¹⁶ *De Pasquale Bros Pty Ltd v Cavanagh Biggs & Partners Pty Ltd; NJF Holdings Pty Ltd v De Pasquale Bros Pty Ltd* (2000) 16 BCL 116.

¹⁷ Dorter, "Performance" (1999) 15 BCL 361 at 370 and 373.

¹⁸ *Bevan v Blackhall & Struthers (No 2)* [1978] 2 NZLR 97.

¹⁹ *Sealand of the Pacific v Ocean Cement Ltd* (1973) 33 DLR (3d) 625.

²⁰ *Qantas Airways Ltd v Joesland & Gilling* (1986) 6 NSWLR 327.

As discussed above, the work is defective when it fails to comply with the contract and it is necessary to have regard to the terms of the contract.²¹ In *Onerati v Phillips Constructions Pty Ltd (in liq)* (1989) 16 NSWLR 730, the court held that faulty workmanship is a reference to the manner in which something was done, to fault on the part of a workman or workmen.²²

A brief analysis of two well-known standard construction contracts is made to determine what is meant by a *defect*.

AS 4000–1997 provides in the interpretation clause 1 that "*defects* has the meaning in clause 35 and includes omissions;" however, cl 35 does not provide any guidance in this regard. One is compelled to look at cl 29.3 for some guidance, which provides:

"29.3 Defective work

If the *Superintendent* becomes aware of *work* done (including material provided) by the *Contractor* that does not comply with the *Contract*, the *Superintendent* shall as soon as practicable give the *Contractor* written details thereof. If the subject *work* has not been rectified, the *Superintendent* may direct the *Contractor* to do any one or

²¹ *Halsbury's Laws of Australia* (Butterworths, Looseleaf Service), para 65-1495.

²² Referred to in Dorter, "Performance" (1999) 15 BCL 361 at 369.

more of the following (including times for commencement and completion):

- (a) remove the material from the *site*;
- (b) demolish the *work*;
- (c) reconstruct, replace or correct the *work*; and
- (d) not deliver it to the *site*.”

AS 2124–1992 does not define defects and provides a similar regime regarding defective materials and work in cl 30.3.

In both contracts, therefore, the pass mark is compliance with the contract rather than some other test, and construction lawyers should start with interpreting the contract, with expert technical assistance to help understand the drawings and specifications.

Damages that flow from faulty workmanship in Australia are still evaluated in accordance with the principles in *Bellgrove v Eldridge* (1954) 90 CLR 613 as the *plaintiff's rectification costs plus profits or earnings lost* with the proviso that:

- Rectification was necessary to produce conformity with the contract; and
- It is a reasonable course to adopt.²³

²³ *Bellgrove v Eldridge* (1954) 90 CLR 613 at 617.

In the event rectification is unreasonable, then one may have regard to the diminution in value created by the defective workmanship or materials.²⁴

In the English case of *Ruxley Electronics and Construction Ltd v Forsyth* [1996] AC 344, the House of Lords have adopted a measure based on the loss of amenity to the owner caused by breach of contract. This approach is an attempt to quantify the “loss truly suffered by the promisee”.²⁵ This principle does not appear to have been followed in Australia but one commentator is of the view that this principle could sit comfortably with the High Court’s approach in *Bellgrove v Eldridge*.²⁶

Discussion

In light of the complexity that can be associated with the investigations into construction defects and the alarming costs that can be very quickly incurred, construction lawyers should consult technical experts early so as to gain an understanding of drawings and specifications. No client is appreciative of costs of this nature at the best of times, and they are likely to be furious if the experts’ reports fail to address the relevant issues, or its case is pleaded incorrectly.

²⁴ *Ibid* at 619.

²⁵ *Ruxley Electronics and Construction Ltd v Forsyth* [1996] AC 344 at 360 per Lord Mustill.

²⁶ Bates, “The Assessment of Contractual Damages for Defective Building Work in Australia: Is loss of Amenity an Available Measure?” (1999) 15 BCL 2.

A starting checklist in this area in a traditional construction contract could include:

- careful review of the contract to understand exactly what was agreed, including the effect, if relevant, of the final certificate;
- selection of an appropriate expert, who themselves may not be expert in everything, but who has an appreciation of the relevant technical issues;
- review of the drawings and specifications with technical expert assistance;
- analysis and preliminary determination of the construction defects;
- drafting pleadings;
- reaching an early decision on the significant technical issues that require specific reports to address these defects; and
- review of the reports and amendment of pleadings, if required.

Faulty materials

The inquiry into identification of whether materials are the cause of a construction defect should start with construing the construction contract, including the drawings and specifications. It is not possible in this paper to consider this further, as each case will depend on the particular contract. In the event that the contract does not make express reference to materials, then one needs an appreciation of the law in this area.

Current law

Even if a construction contract does not expressly deal with warranties relating to quality of materials, the common law implies warranties that materials and products will be of merchantable quality and fit for their particular purpose.²⁷ The implication is made as a matter of law.²⁸ The implication can be excluded in the circumstances where, for example, both parties are aware of the difficulties of testing and rely upon the certification of a third party.²⁹

The fitness for purpose test is not applied generally; it must be applied having regard to the purposes within the contract for which the works or product were required.³⁰ In order to sheet home liability in this case to a contractor; it is necessary that the defect must lie in the region within which the contractor is to exercise its skill and judgment.³¹ Reliance remains a necessary governor on too wide an implication in these cases, as the courts need to be satisfied there was reliance by the “innocent” party.

²⁷ *Young & Marten Ltd v McManus Childs Ltd* [1969] 1 AC 454.

²⁸ *Liverpool City Council v Irwin* [1977] AC 239 at 262A per Lord Salmon.

²⁹ *Helicopter Sales (Aust) Pty Ltd v Rotor-Work Pty Ltd* (1974) 132 CLR 1.

³⁰ Lloyd QC, “Problems of Fitness of the Product” (1990) 6 BCL 10.

³¹ *Cammell Laird & Co Ltd v Manganese Bronze and Brass Co Ltd* [1934] AC 402 at 419.

Naturally, terms may be implied by statute, for example, the *Trade Practices Act 1975* (Cth) (the TPA) and as most are aware of these provisions, no further discussion need be considered. However, it is as well to bear in mind, that if one is having difficulty casting around for potential defendants, it may be appropriate to have regard to Pt VA of the TPA (Liability of manufacturers and importers for defective goods). Using these provisions may allow a successful action against third parties (manufacturers or importers) if the case involves buildings for private use. The TPA relevantly provides:

“Liability for defective goods — loss relating to buildings etc

75AG. If:

- (a) a corporation, in trade or commerce, supplies goods manufactured by it; and
- (b) they have a defect; and
- (c) because of the defect, land, buildings, or fixtures, ordinarily acquired for private use are destroyed or damaged; and
- (d) a person who:
 - (i) so used; or
 - (ii) intended to so use;
 the land, buildings or fixtures, suffers loss as a result of the destruction or damage;

then:

- (e) the corporation is liable to compensate the person for the amount of the loss; and
- (f) the person may recover that amount by action against the corporation.”

Section 75AC provides for the meaning of the goods having a defect.

A starting point for identification of defects in this area could be as follows:

- Construe the particular construction contract, with particular attention to drawings and specifications with expert help.
- If there are no express clauses that assist, in providing liability or exculpation by way of an exclusion clause, then have regard to the implied terms of merchantable quality and fitness for purpose.
- Consider the statutory provisions that may imply terms of merchantable quality and fitness for purpose.
- If one is dealing with a building for private use, check s 75AG of the TPA.

Foundation movements

This topic is so contentious that a paper of this sort could not hope to make a significant inroad into the area. It is perhaps better in this regard to provide a brief philosophical background to the topic, so that the reader

has an appreciation of the difficulties confronting engineers when designing foundations.

Whilst the writer appreciates that most construction lawyers left the sciences and mathematics, at the end of their schooling (with a welcome sigh of relief no doubt), it may interest them to know that some significant engineering advances and formulas have been derived empirically. This means that there was no theoretical foundation for the formulas, often because "it was too hard to find science or mathematics to fit". In these cases, observation of events and experiments have taken the place of theory, and through trial and error a formula or process is developed which is then accepted into engineering "folklore".

In the past, engineers have recognised the limitations of these formulas and have tempered their application of them with a lot of common sense and judgment. Unfortunately, there is now enormous computer power available to engineers, together with a vast array of engineering computer programs. This has allowed a new generation of engineers to enter the profession, some of whom who believe that one merely needs to "plug the experimental or test result variables" into the computer program and wait for the computer to give the right answer.

Foundation design is an art and a science that requires particular skill, experience and judgment that one cannot simply glean from textbooks. Engineering judgment plays a

significant role in this area. Test holes and core samples cannot possibly cover the whole area in which a structure requires foundations. The use of statistical models, which are now very sophisticated, can assist greatly, but everything is based on the primary assumptions made by the engineer. These assumptions require experienced engineering judgment based on academic knowledge honed by years of experience. Accordingly, sensible extrapolation, "gut feeling", experience and instinct play as important a role as the engineering calculations and running of computer models. The critical issue remains the assumptions on which these calculations are based, and nothing takes the place of experience.

Current law

In *Orlit v JF & P Consulting Engineering* (1995) 11 BCL 260, Moynihan J held that a consulting engineer specialising in civil engineering ought to have appreciated that the propensity of the soil to vary in volume as moisture content varied with the consequent imparting of stresses, was an important design consideration to be taken into account.³² This case is a useful starting point for the search for defect identification, and also provides the names of some of the experts in this area; in the event one is confronted with a problem of this kind. Further elaboration is precluded

³² *Orlit v J F & P Consulting Engineering* (1995) 11 BCL 260 at 264 per Moynihan J.

because of the nature of this article is to provide a guide only.

In the event the construction lawyer is dealing with a residential foundation failure, it is appropriate to obtain a copy of Australian Standard AS 2870 — *Residential Slabs and Footings* and get expert advice with regard to its interpretation.

Discussion

At the start of this topic, it was mentioned that the area is so contentious that it was thought best to provide some insight into the difficulties with this area, so that the investigation into identification of foundation defects does not become some fruitless search for the Holy Grail or a “witchhunt”. Needless to say, the court, with respect, grapples well with these issues. In *Orlit v JF & P Consulting Engineering*³³, above, Moynihan J was quite prepared to find that although foundations using floating slab designs were more generally favoured for domestic dwellings in 1982 in Brisbane, the use of a stiffened raft foundation in areas of highly reactive soils should have been used in the circumstances. Evidence had been led from eminent geotechnical and structural design experts of domestic foundations on both sides.

A checklist in this area is probably more simple:

- Construe the retainer, if there is a contract between the designer and the relevant parties. Otherwise one needs to consider negligence or the TPA; and
- Then seek appropriately qualified and expert help.

Geotechnical engineering, even to a qualified professional engineer, such as the writer, is an area of some mystery, the clouds of which only dissipate with the advent of sound academic knowledge and significant experience.

Conclusion

The writer appreciates the complexity of this area and the inability of an article of this nature to do much more than summarise some of the current issues, add some personal observations and provide some checklists for identification of construction defects. The writer hopes that it is a useful starting point for some inexperienced construction lawyers embarking on a career in a specialised discipline, as well as a reference to those more experienced lawyers.

The starting point in the checklists is construing the contract, if this is relevant to the cause of action. If this can be done well, the further search for identification of construction defects can proceed in an orderly fashion. In this difficult area, the proper management of the interface between the world of the construction lawyer and the architect, engineer and scientist, will yield better than average results. It is hoped this

³³ Ibid at 264.

article has identified some signposts that will make that management process more effective.