

Quality Assurance and Liability

- John Tyrill

This article briefly considers quality assurance and liability for design, documentation and construction.

Purpose of QA

The purpose of quality assurance ("QA") is to ensure conformity and to identify and correct defective design, documentation, manufacture, construction or commissioning, i.e. to ensure non-conformities are not inadvertently constructed, installed or used. QA is a system of self-checking.

Getting it right first time is a quality objective; QA is important to identify whether that objective has been achieved. QA will assist in the early correction of problems, before there are adverse consequences or, at least, when it is still possible to minimise the consequences. Thus, QA is important both to risk management and risk reduction.

By earlier highlighting problems in each of the phases of a project, QA can also assist in better project planning and co-ordination.

QA gives comfort to the client about conformance.

Yet to the non-believers QA is just another way of destroying trees to produce copious, meaningless checklists. Of course, the purpose of a QA system is not to produce mountainous checklists all filled in perfectly, but which bear no resemblance to reality. Any QA system which does that has failed.

The Standards

Australian Standard 2990-1987, Quality System for Engineering Construction Projects, is derived from the Canadian Standards CAN3-Z299.1.2.3.4-1985 and CSA-Z299.0-1979, which have been the basis of quality management in Canada for heavy engineering projects, such as power stations.

The AS3900 series is identical to the international ISO9000 series. Its use might better align Australia with international practices. Although developed for manufacturing, the AS3900 series can be well applied to design and construction.

The Standard most likely to be applied to architectural and engineering design and documentation is AS3901-1987, Quality Systems for Design, Development, Production, Installation and Servicing. Whilst AS2990-1987, Quality for Engineering and Construction Projects, could also be applied to architectural design (see Category A, 3.2 Design), it is, perhaps, more likely AS2990 would be

applied to engineering design for large, complex engineering construction projects.

In any event, Standards Australia has announced it intends withdrawing AS2990 by 1995 in favour of the AS3900 series.

In 1993, Standards Australia published AS3905.2, Guide to Quality Systems Standards AS3901, AS3902 and AS3903 for construction. This Guide is intended to provide a better understanding of quality systems applied to the construction industry. For those professionals concerned about the introduction of QA to their design and documentation services, this Guide will assist in the interpretation of AS3901 for design work.

Accountability

There has been an increasing trend to require each participant in the fragmented design and construction process, from architects and engineers to builders, contractors, subcontractors and suppliers, to be accountable for both the quality and consequences of their work. The imposition of QA on both willing and unwilling participants is a part of that trend.

Additionally to imposing a quality consciousness and discipline, QA might also assist traceability and identification of responsibility by providing an audit trail.

QA documents might be used subsequently in dispute proceedings to (prima facie) evidence design, manufacture or construction non-conformities. That might be relevant both to breach of contract and breach of a duty of care. QA records might also constitute evidence about the manner in which the QA system has been implemented - in conformity or otherwise with QA obligations.

The 1982 (UK) Construction Industry Research and Information Association (CIRIA) Special Publication 84, Quality Management In Construction - Contractual Aspects, made the following comments and recommendations on this issue:

"The potential use in legal proceedings of documents prepared for (or generated by) a quality management system should be appreciated - in particular, the use of such documents as evidence as to whether the supplier has exercised due skill and care, where this is a legal or contractual requirement. Quality system procedures and work

instructions should, accordingly, be drawn up so that they can and will be faithfully complied with, and so that compliance can readily be demonstrated. Procedures and work instructions should be prepared for use, not to impress prospective purchasers. Retention and disposal of documents should be planned and controlled having regard to the relevance and evidential value of the documents, and the relevant statutory limitation periods."

Those concerned about the potential for an increased incidence of liability through QA will find some confirmation of their fears through this potentially negative use of QA.

Cost of QA

Upon the introduction of AS2990-1987, Quality Systems for Engineering and Construction Projects, the attitude of the major national contractors was that quality assurance was an important method of assisting contractors to work efficiently and to do it right the first time, with consequential benefits in cost, reputation, marketing and in the avoidance of disputes.

However, many smaller contractors, builders and subcontractors did not share this positive attitude about the introduction of formal quality assurance. Many of them were concerned about AS2990's apparent complexity and the cost of AS2990 quality assurance.

Assertions of the cost of a QA system range from 1%-6%, with some wild assertions considerably higher. On some significant individual projects QA has cost about 1.5%. What is perhaps not so evident from any of these cost figures is the cost-benefit equation; the level of savings through increased efficiency and in the avoidance of liability can be significantly higher.

Construction Contracts

Building and Construction contracts such as JCC, NPWC3 and AS2124-1986 contain quite onerous (and appropriate) provisions dealing with defective materials or workmanship. It is important that quality assurance does not cut across those provisions.

In the absence of appropriate special conditions to supplement the standard form contracts there is some possibility that a builder, contractor or subcontractor might contend compliance with a quality assurance system is equivalent to and evidences compliance with the contract. There is a tendency on the part of some contractors and subcontractors to treat a quality assurance "tick in a box" as evidencing compliance with the contract. Further, that any apparent QA approval or authorisation by the superintendent or architect amounts to a direction; there is certainly a problem in the width of the definition of "direction" in AS2124 and NPWC3 in that it includes "agreement", "approval", "authorisation" and "permission".

Depending upon the facts and circumstances, as a consequence of QA, there might also be some potential for

a builder, contractor or subcontractor to assert:

- (a) waiver of the contract's requirements;
- (b) possibly, depending also upon the contract's terms, that the contract's requirements have been varied;
- (c) that an estoppel has arisen through say the architect's or superintendent's apparent approval of work through a quality assurance system preventing the proprietor or principal from later enforcing contractual rights regarding defective materials or work;
- (d) notwithstanding the difficulty of establishing the necessary ingredients for tortious liability, that the architect, superintendent etc. has been negligent in administering the quality assurance system and is jointly responsible for the builder's, contractor's or subcontractor's non-compliance with the contract (at least, from the point of time the problem might reasonably have been discovered by a diligent architect, superintendent or other relevant person).

Consequently, a special condition along the following lines might be included in building and construction contracts (with appropriate changes in terminology to suit the particular standard form):

"The Contract's quality assurance requirements shall not affect in any way the Contractor's other obligations under the contract.

Compliance by the Contractor with the Contract's quality assurance requirements shall not relieve the Contractor in any way from compliance with any of the other requirements of the Contract.

Notwithstanding any knowledge of, or involvement in, the Contract's quality assurance system or the provision of any apparent approval resulting therefrom the Superintendent shall not be:-

- (a) responsible in any way to ensure conformity of the work under the Contract with the requirements of the Contract;
- (b) liable to the Contractor for, or in connection with, the Contract's quality assurance requirements, or any consequences thereof."

It is understood BOMA proposed a version of this clause (appropriately amended for the JCC contracts' structure, terminology and language) in the review of the JCC contract. Due to the JCC committee's "rules of engagement", which required unanimous agreement for any change to JCC, it was not included in the 1993 revision, JCC-C and D.

Compare AS2124-1992's optional clause (the asterisk so indicates):

"*30.2 Quality Assurance

The Contractor shall, if requirements are so stated in the Contract-

- (a) plan, establish and maintain a quality system

which conforms to those requirements;

- (b) provide the Superintendent with access to the quality system of the Contractor and each of the subcontractors of the Contractor to enable monitoring and quality auditing.

Any such quality system shall be used only as an aid to achieving compliance with the Contract and to document such compliance. Such system shall not relieve the Contractor of the responsibility to comply with the Contract.

NOTE: The inclusion of Quality Assurance requirements in a contract will require detailed clauses in the Specification or elsewhere in the Contract which have regard to the Quality Standard selected for the work."

Arguably, the AS2124-1992 provision does not go so far as the provision set out above in its preservation of the contractual position and protections against potential assertions by the contractor. Furthermore, it states that it is to "document ... compliance". Thus, with AS2124-1992 the contractor might say the QA system shows compliance.

Manufacturers' Liability

In addition to contractual and common law liability, manufacturers can also incur liability under the recent product liability amendments to the *Trade Practices Act* 1974 (Clth); see sections 75AA to 75AS. That liability, independent of contract or tort, is to persons who suffer, injury, loss or damage caused by defective goods; the manufacturer will be liable to any person who suffers loss as a result of a defect in its goods, regardless of that person's proximity to the manufacturer.

The term "manufactured" is defined widely to include "produced, processed and assembled". Thus, it would seem it could include items such as fabricated steelwork used for construction.

The meaning of "defect" is wide; section 75AC defines goods as having a defect if the safety of the goods is not such as people generally are entitled to expect.

Where a corporation in trade or commerce supplies goods manufactured by it which have a defect which causes a person to suffer injuries, section 75AD enables that person to bring an action for compensation against the corporation. Section 75AE extends the potential for recovery. It enables a person to recover for loss suffered as a consequence of the death or personal injury of another caused by defect in manufactured goods.

Recovery is also possible for loss or destruction of household goods (s75AF) and for damage to or destruction of land, buildings or fixtures ordinarily acquired for private use (s75AG).

Whilst there is an ultimate limitation period of ten years (s75AO(2)), action must be brought within three years from the time the person became aware, or ought to have become aware of the defect and the identity of the

manufacturer.

The provisions of this Part of the *Trade Practices Act* cannot be modified or excluded by contract (s75AP).

If two or more corporations are found liable for the same loss, their liability is joint and several.

The potential for liability for defective products is a further reason for manufacturers, including those involved in manufacturing construction industry products or fabricating items for construction, to exercise risk management by quality assurance.

Clients' Changing Attitudes to Design Professionals' Liability

Traditionally, many design professionals have been "let off the hook" by clients for the consequences of problems in their design or documentation; particularly, perhaps, by public sector clients.

In recent years, both public and private sector clients have increasingly expected design professionals to meet their contractual and professional responsibilities and have tended to hold them liable in contract or in tort for negligence for the consequences of their acts, defaults or omissions.

Reflecting this attitudinal change, design professionals have been treated more as contractors for the provision of their specialist, professional services, rather than "all care and no responsibility" advisers. Contracts often now imposed upon design professionals are tougher than those developed by their professional associations - which the designers might prefer to use.

The tendency to make design professionals responsible for the, at times, unfortunate construction consequences of their work, rather than just for defects or failures, has increased design professionals' risk. Liability for construction delay and disruption costs or damages and for variations can be significant.

In tougher economic times there is less financial ability to absorb problems caused by others and a greater need and desire to sheet home responsibility. Those clients who engage separate contract administrators from the designers might be purposely made more aware of construction problems arising from design or documentation.

The design and construction procurement strategy results in a single point responsibility for both design and construction. The D & C contractor is likely to be painfully aware of the manifestation of design/documentation problems in construction. Consonant with many D & C contractors' approach to design professionals as contractors for the provision of services, often subject to tougher contracts than many design professionals would prefer, some D & C contracts expect errant design professionals to take responsibility for any adverse consequences of their work.

Risk management and minimisation is essential for design professionals in response to these developments. QA is, perhaps, the greatest risk management tool - after careful selection of quality, key people, development of clearly delineated objectives and responsibilities and of effective lines of communication. A good QA system will

not remedy incompetence but, perhaps, incompetence is less likely with the assistance of the self-assessment and analytical tools QA provides; QA follows the event but can impact upon initial approaches to quality through awareness, organisation and discipline.

QA also serves important internal functions for management. That is to provide a monitoring system to alert management to existing or potential problems for the organisation and to provide management with some assurance that the organisation's services or work conforms to the requisite quality.

QA - Design Professionals

Quality assurance for design and documentation is to:-

- (a) monitor the process;
- (b) ensure conformity of design with purpose;
- (c) introduce checks to establish whether design and documentation are correct or require rectification;
- (d) reduce costs and the potential for liability by getting it right the first time or, at least, identifying and correcting non-conformities before construction;
- (e) give comfort to the proprietor that the work is being properly and professionally carried out and checked.

QA should be applied to the design and documentation process, in addition to the manufacture and construction processes. QA limited to construction will assist in ensuring the design, as documented, is properly constructed, but will not address problems in design or documentation.

Industry research has revealed that the primary cause of construction claims and disputes relates back to the quality of design and documentation (see the 1988 report "Strategies for the Reduction of Claims and Disputes in the Construction Industry and the 1990 NPWC/NBCC report "No Dispute: Strategies for Improvement in the Australian Building and Construction Industry").

Whilst there are various reasons that is so, it is important from a liability point of view for design professionals that any problems in design or documentation do not flow through to construction. Accordingly, a design and documentation quality assurance system to identify non-conformities, to correct them and to ensure they are not inadvertently carried through to construction is most important for risk management.

Yet some design professionals have resisted quality assurance on the basis they will thereby incur additional costs and because "it as another way of incurring liability".

The starting point for QA applied to design is a carefully considered and fully developed client's brief, which clearly and contractually establishes the client's objectives, including matters such as function, aesthetics, standards and other considerations to be achieved and project and life-cycle costs. Too frequently, that analytical, objective brief is lacking. QA should be applied to brief preparation.

The designer's potential liability for design or docu-

mentation non-compliances will depend upon that measuring stick - and other contractual requirements and legal impositions.

Whilst a contractual requirement for QA in accordance with a Standard requires formalisation of systems, procedures and documentation, most design professionals have had some de facto QA scheme long in place (albeit of varying quality) to ensure delivery of their contractual promises and business survival. A contractual requirement for QA conforming to a Standard will likely increase the quality and efficacy of that risk management.

The former New South Wales Attorney General, Mr John Dowd, in his 1990 discussion paper "Professional Liability, Regulation and Risk Management" stated:

"Advantage of risk management

Clearly the best way of avoiding liability problems is to avoid negligence in the first place. Matters which go to minimising the risk of a claim include improving professional standards, education and quality control. It is therefore suggested that any scheme to limit professional liability should be based on a positive requirement for the profession to engage in risk minimisation procedures.

Quality management

With the increase in claims and litigation many professionals have as a matter of necessity considered the benefits of quality management. Quality management includes proper assessment of practice, risk assessment, and measures taken to reduce risk. It also involves consideration of insurance policies to ensure a practice's risks are properly reflected in the terms of its insurance policy.

Quality management can be encouraged by the professional bodies by:

- educating members in quality review;
- codifying management procedures;
- introducing formal arrangements for checking including occasional peer review;
- and issuing quality assurance certificates to professionals who practice quality management.

The benefit to the professional comes from increased efficiency and reduced risk. The issuing of quality assurance certificates may also promote client confidence and encourage clients to deal with a certified firm.

Further, and particularly where insurance is controlled through the professional body, quality management may give rise to a decrease in premium and/or deductibles. Some professionals already allow for a reduction in premiums where a professional agrees to undergo peer group preview."

Contract - Breach of QA Requirements

Non-compliance with a contractually obligatory QA system would constitute a breach of contract, but damages might or might not flow from that breach - depending upon the consequences of the breach, if any. In practice, defective workmanship might have greater consequences than any simple non-compliance with a QA system. Yet, a failure or refusal to comply with a contractually obligatory QA system might lead to a show-cause notice under default provisions and might even constitute repudiatory conduct.

Standard of Care

The standard of care required of design professionals is to exercise due care, skill and diligence. A design professional must bring to the task undertaken the competence and skill usual amongst persons practising that profession, but the design professional is not required to have an extraordinary degree of skill or the highest professional attainments.

In the leading Australian High Court decision, *Voli v Inglewood Shire Council* (1963) 110 CLR 74, Windeyer J said at 84:

"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 attainment. But he must bring to the task he undertakes the competence and skill that is usual among architects practising their profession. And he must exercise due care. If he fails in these matters and the person who employed him thereby suffers damage, he is liable to that person. This liability can be said to arise either from breach of his contract or in tort."

Reinforcing this view on professionals' tortious as well as contractual liability, in *Brickhill v Cooke* (1984) 6 BCLRS 47 the New South Wales Supreme Court, Court of Appeal rejected *Groom v Crocker* (1939) 1 KB 194 (in which it was held a solicitor could not be held liable to his client in tort - which immunity was thereafter extended to accountants, bankers, stockbrokers and valuers) as an "aberration" and held that a client may sue an engineer in tort as well as in contract. Relevantly in this case, the Court of Appeal also noted the test of remoteness of damage in tort is much less demanding than in contract, as it allows recovery in respect of loss or damage which is foreseeable in a general way as a possible consequences of the breach of duty.

There has been a tendency on the part of the courts to regard evidence of a departure from standards, codes, regulations and statutory requirements as prima facie evidencing negligence on the part of design professionals.

In *Voli v Inglewood Shire Council*, in the plans and specifications for a hall, an architect was held liable for his failure to specify joists of sufficient strength under the stage of the hall to support the minimum live load recom-

mended by the Standards Association of Australia and required by the Council's By-laws.

In *Bevan v Blackhall and Struthers* (No. 2) [1978] 2 NZLR 97, it was held that a design which departs substantially from codes is prima facie faulty, unless it could be demonstrated that on a rational basis it conforms to sound engineering practice.

In *District of Surrey v Church* (1977) 76 DLR (3(d)) 721, an engineer's failure to comply with the Canadian National Building Code was a basis for liability to the owner in tort for negligence.

In *Balnaves v McLeay* (1982) 5 BCLRS 284 the Royal Australian Institute of Architect's Practice Notes were an issue. The Practice Notes were tendered in evidence, but the architect disputed their status. White J said:

"Nor is the status of the Practice Notes clear to me, they may be designated to uplift professional standards; they may be no more than counsels of perfection, demanding rather more of a professional man than his duty to exercise an ordinary degree of care. However, the Notes do serve to illustrate why it is not only desirable but reasonable and an implied condition of engagement to advise a client of cost estimates of each stage or architectural work..."

In *Carosella v Ginos and Gilbert Pty Limited* (1981) 4 BCLRS 37, failure by an engineer to comply with advisory guidelines published by The Institution of Engineers Australia for the design of footings was an element in the Court's decision that the engineer's design and actions were negligent.

Furthermore, failure to take account of relevant codes of practice and the knowledge generally available to the particular professional has been held to amount to professional negligence: *Kaliszewska v John Clague* (1986) 5 CONLR 86.

In *Dorter and Sharkey Building and Construction Contracts in Australia*, second editions, Law Book Company, 1990 at [7.620] the authors state:

"It is now clear that liability will result not just from failure to observe statutory or semi-statutory provisions such as a national building code..., but also from failure to be informed from professional and industrial "state of the art"."

Consequently, departure from a quality assurance system might be taken as prima facie evidencing negligence or, perhaps, a component of negligent conduct. Depending upon the terms of the contract, it might also be a breach of contract. (In the implementation of a QA system, bald non-feasance might be easier to establish than misfeasance.)

Furthermore, depending upon its terms and the detail of its requirements, a quality assurance system might raise the standard required of the design professional; benchmarking a higher standard than is usually expected.

Aware of the judicial weight sometimes given to benchmarks, an RAI A Practice Division paper states it would be inappropriate for the RAI A to publish a manual

of QA management procedures on the basis such a manual would "produce uniformity and liability benchmarks which will work against the interests of architects and the advancement of architecture". Nevertheless, the RAIA's excellent QA publication "CHECKIT!: Project Quality Record" provides assistance to architects in recording their own QA systems.

Perhaps contrary to RAIA's benchmark and liability concerns, ACEA has available to members a publication entitled "Practice Quality Systems Documentation". This publication was prepared largely due to ACEA's smaller members' lack of resources to research and write QA documentation from ground zero.

If the general standard amongst professionals of a particular calling is to have in-place a quality assurance system, and if that were generally required in the industry, then, perhaps, the lack of an appropriate QA system (or an inadequate QA system) might be regarded as a departure from the standard required of the professional.

Liability Related to Fee?

Some designers might consider that a reduced liability should logically follow reduced, or inadequate, fees. Furthermore, those designers opposed to imposed QA obligations might think "well, we're not getting paid for it, why should we be liable for it?" Subject to any express (and effective) limitations or exclusions of liability in the contract - regrettably, not so!

In *Brickhill v Cooke* (1984) 6 BCLRS 47 a structural engineer unsuccessfully contended before the New South Wales Supreme Court, Court of Appeal that the modest fee charged for a pre-purchase house inspection did not require him to perform the duty of care to be expected of a structural engineer carrying out a detailed and more costly structural report. The Court of Appeal held it was not in accordance with settled negligence doctrine to so de-limit the duty and that the engineer's duty was to exercise such care as would be shown by a reasonably competent qualified engineer retained for the purpose.

Quality Assurance at the Interfaces

Frequently, conflicts in design and documentation occur at the interfaces between the different design disciplines. Similarly, the interface between design/documentation and construction has been identified by industry research (see the 1988 report "Strategies for the Reduction of Claims and Disputes In the Construction Industry" and the 1990 NPWC/NBCC report "No Dispute: Strategies for Improvement In the Australian Building and Construction Industries") as a major cause of construction claims and disputes. Finally, there is often an interface problem at subcontractor level (between the different specialists or trades) and also between the builder or contractor and those subcontractors.

Unfortunately, in recent years, there has often occurred an intentional abdication by the key designer of responsibility for co-ordination of the other design disciplines to reduce responsibility and liability - and costs.

The logical solution would seem to be the engagement

of a consultant with express responsibility to carry out this co-ordination. Likely, that cost would be saved many times over in reduction of interface conflicts and resulting delays, disruption, claims and disputes.

The 1987 (English) Building Economic Development Committee's report "Achieving Quality on Building Sites" states:

"... poor production drawings have too often been the cause of a low quality finished product, poor cost control and failure to meet completion dates. Well organised, complete and co-ordinated production drawings are a pre-requisite for the management of construction."

This report recommends:

"A named person (generally the architect) needs to be identified in the tender documents with responsibility for co-ordinating the drawings and ensuring they arrive on time."

The 1982 (UK) Construction Industry Research and Information Association (CIRIA) Special Publication 84, Quality Management In Construction - Contractual Aspects, made the following comments and recommendations on this issue:

"The concept of Project Control Plans should be developed to provide overall project quality assurance where contractual responsibilities are divided, in particular to provide coordination, to deal with interface problems and to ensure that all parties operate their own quality management systems."

QA should also be directed to the interfaces to avoid or, at least, minimise conflicts and co-ordination problems.

QA and Partnering

The Building Research Centre, a division of the University of New South Wales' Unisearch Ltd, suggests that QA, properly implemented has the potential to reduce conflict in the workforce and in contractual relationships through a consultative, co-operative approach to quality. Thereby risk of liability might be lessened.

Applied to all aspects of a project, including the interfaces, QA has an important, positive role in a "partnering" approach to projects.

Defects - Who is Responsible?

QA applied to manufacture and construction will, of course, assist the designer achieve the design intent and also uniform standards. That might not seem to directly reduce designers' risk, but it might do so indirectly.

Frequently, when disputes arise over quality, builders, contractors and subcontractors assert the cause of the problem lies with the design rather than manufacture, construction or installation - as to so establish would transfer responsibility and liability to the designer(s). Designers are frequently unwilling participants in those disputes.

In the event of catastrophic failure or major defects, the

designers are often sued directly as co-defendants, or joined as co-defendants by others such as the builder or contractor, in either event with it left to the court to determine responsibility and apportion liability amongst them.

It is in the interests of the design professionals that this risk be reduced through QA applied to every aspect of project delivery.

Accreditation of QA Systems

Accreditation of QA systems is carried out by "certifying" organisations such as Standards Australia, Lloyds or Bureau Veritas. The certifying organisation investigates whether an organisation's quality manuals, quality procedures and internal auditing conform to a QA Standard, such as AS3901.

Not all clients (yet) require that tenderers, for design or construction, have achieved certification of their QA systems. However, there might be a marketing advantage in having a certified QA system. Certification is also a convenient way of establishing the existence of a satisfactory QA system, rather than putting forward supporting information and completing forms and surveys.

Once certification has been achieved, it is important that the QA system be maintained to the certified standard. Allowing QA to lapse might be used to evidence negligence and, possibly, breach of contract.

QA and the Small Firm

A difficulty might arise for one-person and small design consultancies in the lack of the resources of personnel to carry out QA. This might be solved by the one-person operation or small firm making arrangements with others in similar circumstances to assist in QA or by engaging another firm to carry out QA. The latter approach would involve the professional in additional costs, but they might be off-set by the commercial benefit of being able to perform the work and in risk management. Otherwise, the work available might diminish as more clients require QA.

Marketing Quality Assurance Capabilities

It is important that any marketing, representations or promises about the QA system which a design consultant, project manager, construction manager, manufacturer, contractor or subcontractor has available is of the quality represented and is properly implemented. Otherwise, if the representations are not delivered by performance those representations could be used against the design professional. Allegations might be made that the design professional (etc) is liable on the following bases:

- (a) possibly, for deceit;
- (b) negligent misrepresentation;
- (c) for breach of section 52 of the *Trade Practices Act* (or the comparable provision of *Fair Trading Acts*) regarding misleading and deceptive conduct in trade or commerce;
- (d) for breach of section 51A of the *Trade Practices Act* regarding representations about a future matter. It might be significant that this

section would shift the onus of proof onto the design professional (etc) to establish there were reasonable grounds for making the representation;

- (e) (depending upon the terms of the contract of engagement) breach of contract.

QA Efficacy Survey

Perhaps only a long term industry survey and analysis of the cost-benefits of QA will convince the sceptics and those directly opposed to the imposition of QA on all participants in the construction industry.

Whilst it might be difficult for such a survey to establish conclusively whether or not QA has resulted over time in a lessening incidence of liability, it should be possible to determine some trend from the records of professional indemnity insurers. There might also be some identifiable trend in the incidence of construction defects and, perhaps, construction costs and time.

Conclusion

QA, which assists construction professionals, builders, contractors, subcontractors and suppliers in the early identification and rectification of non-conformances, is an essential risk management tool to avoid or minimise liability.

Whilst regarded as an unwelcome, costly and even risky imposition by some, QA should increase efficiency, reduce costs and, most importantly, reduce disputes and the incidence of liability.

Those design professionals who view QA as only another way to incur costs and liability should re-appraise this view. Rather, its potential risk management benefits in reducing exposure to liability should significantly outweigh any increased risk by QA, perhaps, benchmarking a standard of performance to be achieved.

Whether convinced or not of those benefits, QA cannot be ignored, as an increasing number of public (e.g. Australian Construction Services, the Public Works Department of NSW) and private sector clients are demanding the implementation of QA for design, documentation and construction. Simply put, QA competence will become a pre-requisite for winning work. In time, accreditation of quality assurance systems will also become essential to winning certain work.

Finally, despite themselves, those reluctant to implement QA will likely benefit from the impending commercial imposition of QA. □