



ENGINEERS  
AUSTRALIA

# Risk Management Strategies Guide

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# Foreword

Engineers Australia has prepared a guide for members on the risk management process and possible strategies to consider when preparing a risk management plan, as well as an outline of the fundamental documentation which would be deemed to comply with the risk management requirements of the Engineering, Science and Technology Professional Standards Society (ESTPSS). The strategies and documentation outlined are not exhaustive and should be tailored to individual practices.

The guide is consistent with AS/NZS 4360 — Australian/New Zealand Standard on Risk Management — and builds on the principles set down in the Standard in the context of the requirements of Engineers Australia’s professional standards scheme.



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# Introduction

The Risk Management Strategies Guide has been developed to assist members, in particular those who join the Engineering, Science and Technology Professional Standards Society (ESTPSS), to develop a risk management plan.

The Guide deals with what Engineers Australia considers to be two key areas of risk exposure, namely an Organisation's Risks and specific Project Risks for each project undertaken. When preparing a Risk Management Policy Statement/Manual, strategies need to be developed to cater for both areas of risk. Some strategies members might consider for controlling risk exposure in each of these areas are provided at **Appendix 1**.

# Developing your risk management plan

## Stage 1: Planning

There are three key aspects to putting together a risk management plan:

- ▶ Appointing someone in your business to take responsibility for risk management;
- ▶ Reviewing the availability of resources required to complete the process; and
- ▶ Developing a timetable for ongoing review of your risk management plan.

## Stage 2: Risk Analysis

Risk analysis requires identification and documentation of all risks.

Having identified each of the risk activities relevant to your practice, you will need to list them in order of severity and frequency. This is a difficult process as one risk activity may carry a high severity factor but the likelihood of something going wrong may be remote.

When determining the order of severity and frequency, it may be useful to allocate a priority to each risk based upon a scale of 1–3 in terms of severity and allocate a priority to each risk based upon a scale of 1–3 in terms of frequency. The following risk weightings may assist with prioritisation of the risks.

RISK WEIGHTINGS		
<b>Severity</b>		
1	= Insignificant/Minor	Low-Medium Financial Loss – a cause for concern if arises too frequently
2	= Moderate	High Financial Loss – may need to seek assistance from others to resolve
3	= Major/Catastrophic	Huge Financial Loss –without the protection afforded by insurance would definitely put you out of business – will still impact on your business through inability to procure future insurance
<b>Frequency</b>		
1	= Likely	Has a high probability of occurring
2	= Possible	Can occur at some time in the future
3	= Rare	May happen but only in exceptional circumstances

## Stage 3: Policies and Procedures

When all risks have been identified and weighted, design and articulate the policies and procedures to be covered in the plan. These policies should, at a minimum, cover:

- ▶ Job acceptance protocol.
- ▶ Terms of engagement.
- ▶ Work procedures.
- ▶ Business Plan.

## Stage 4: Risk Treatment

Each of the risks identified will need to be reviewed in terms of how you plan to 'treat' them, starting with the highest priority and moving to the lowest. Treatment includes control, elimination or transfer of risk. The key elements in risk treatment are:

- ▶ Measuring the results of your risk analysis against your Policies and Procedures.
- ▶ Identifying those risks that can easily be eliminated.
- ▶ Identifying those risks that can be transferred through contracting or redirecting the contractual relationship.
- ▶ Determining what steps can be introduced to exert more control over risks identified and not eliminated or transferred.
- ▶ Calculating your financial ability to retain risk — your risk retention limit.
- ▶ Articulating those risks you are prepared to retain.

Where a risk is unacceptable, it should be eliminated. **Elimination** is self-explanatory — you simply cease that activity.

The most common form of risk **transfer** is insurance. However, other forms exist such as contractual transfer, where you impose upon another party a significant portion of your liability for an activity. If you transfer the risk, you will need to make sure that the person or organisation you are transferring it to has the financial resources to cover the risk.

You also need to be careful that you are not increasing your risk exposure by losing control as a result of the transfer. Appropriate risk and/or financial management strategies may need to be considered in these circumstances.

For risks that cannot be eliminated or transferred, you will need to develop a method to control the risk. This means managing the risk so that it remains at an acceptable level for you. Suggested strategies are set out in **Appendices 1 and 2**.

The residual risks are those that cannot be controlled, eliminated or transferred. These generally relate to your core business activities and represent that layer of risk you feel comfortable retaining. If you are not comfortable, revisit the treatment process. The amount of retained risk will reflect your appetite for risk and also should reflect your capacity to retain risk. Problems exist when the level of risk retained far outweighs the capacity of your business to finance the risk.

## Stage 5: Documentation

Summarise all of the above into a formalised risk management plan. Examples of the documentation to consider in the formulation of a risk management plan are provided in **Appendix 2**.

## Stage 6: Monitoring and audit

Like any management discipline, risk management requires constant monitoring. A person within your business should be responsible for risk management implementation and monitoring. In a single director or sole practitioner business, this will have to be carried with all of the other management responsibilities. *Your risk management plan must be reviewed regularly.*

It is also necessary to identify the process and frequency of reviews to annually assess compliance with the risk management plan.

To be effective, a system of annual audit should be introduced for your risk management plan and procedures. For members of the ESTPSS, Engineers Australia will audit both your risk management plan and procedures and your continuing professional development activities. However, it is recommended that you have your plan and procedures independently audited. Independent audits would be at the cost of the individual member.

# Appendix 1: Risk management strategies

## 1. Organisational risk management

The development of Risk Management strategies deals principally with two areas namely Organisations' Risks — their way of approaching their business — and specific Project Risks — relating to each specific project.

A project activity that may normally have a benign risk profile could result in a substantial claim if approached in a careless or unprofessional manner. Therefore, there exist two aspects to the Risk Analysis process — organisational risk and project risk.

Strategies need to be developed to cater for the Organisational Risk and you will need to consider these when preparing your own Risk Management Policy Statement/Manual. These strategies will also assist in setting out how the risk profile of each project undertaken will be approached.

### 1.1 Clients

#### Dependency & Influence/Size

There is an argument that suggests that where an engineer has a significant dependency upon a single client there is the risk of undue influence being exerted by that client to determine favourable outcomes from the engineer's work.

Professional Indemnity insurers measure this by a rule of thumb 20% measure. If a single client is responsible for delivering 20% or more of an engineer's annual fee income then premium loadings will be applied or, even worse, insurers may not provide insurance.

An additional aspect to this is where an engineer has such dependency and they lose the contract. This will place a substantial financial strain upon the engineer's business and potentially lead to greater risks associated with the need to quickly (and possibly somewhat carelessly) replace such income.

Strategies need to be developed to avoid over dependency upon a particular client.

The size of a particular client may also pose a risk element. A client significantly larger than your own firm has the capacity to cause you significant harm from a legal perspective even though you may have done nothing wrong. Include as part of your client selection strategy your own acceptance criteria for the size of clients you wish to become involved with.

Size of project is also a consideration. Many professional indemnity insurers are now identifying this as a major acceptance criterion. Some insurers do not wish to be involved with engineers if they work on projects with a total project budget of more than \$10,000,000; others identify figures such as \$20,000,000. Check with your insurance broker to see if this may apply in your case.

#### ***Possible strategies***

- ▶ Broaden your client base — develop a business plan that sets out how you will achieve a broader client base with less dependency upon dominant customers; consider new client segments for your target markets.
- ▶ Formulate an acceptance criteria for size of project — check with your professional indemnity insurer to determine if they have any preferences in this area; consider your own capabilities and work/lifestyle objectives.

**Ability to pay (solvency)**

Many contractual disputes arise out of the refusal of the client to pay the engineer's fee. In many instances this is because of the inability of the client to fund such fees.

A strategy needs to be developed to identify the capacity of the client to fund the agreed fees and any anticipated (or typical) overrun of fees that may occur.

***Possible strategies***

- ▶ Research the business/credit history of this client — this can be achieved through credit bureaus or other credit reference sources.

**Relationship — easy/difficult/sophistication/communication/track record**

The type of client can also lead to problems arising during the contract:

- ▶ Is the client easy to deal with?
- ▶ Have you had any previous experience with this client?
- ▶ How complicated is the work?
- ▶ What is the client's level of sophistication relating to the type of project proposed? Was the client referred by a colleague?

These are some of the questions you need to ask yourself when considering a new client. A strategy setting out the process you will adopt for assessing a new client needs to be established and followed rigorously.

***Possible strategies***

- ▶ Formulate acceptance criteria — work out what qualities you would like to see in your clients and see if these can be identified prior to bidding for a job or entering into a contract.
- ▶ Research their background — ask for referees or during conversations with clients ascertain if they have had experience with other engineers before. Follow up with that engineer to identify their experiences — ask around, you may be surprised at how well known some clients are among your colleagues!
- ▶ Assess ease of communication — consider how easy is it to understand and communicate with the client during negotiations for the Brief; identify communication traits that you find unacceptable (not returning calls, e-mail communication only etc.) and avoid such clients.

**1.2 The Brief****Clarity of roles and responsibilities**

It is essential that the Brief finally agreed upon is clear in setting out the roles and responsibilities of each party. It is wise to sit down with the client and review the document together; agree your understanding of each requirement. Where differences exist, resolve them and incorporate the solution into the Brief.

Various organisations provide “templates” for contracts. The National Committee on Construction Engineering of Engineers Australia has prepared a guide on *preparing construction agreements*. The Association of Consulting Engineers Australia (ACEA) publication *ACEA Contract* includes both a long and short form contract that can be used.

This is a critical part of managing your risk. It is recommended that strategies are clearly set out on how you intend to approach varying sized contracts/briefs to ensure no confusion or ambiguity exists.

#### **Possible strategies**

- ▶ Adopt industry standard terms and conditions — establish your own contract review process and model documents and seek guidance from your solicitor.
- ▶ Clearly identify areas of responsibility — draw up a list of responsibilities in conjunction with the agreed functions and have these agreed with the client.
- ▶ Agreement with client — incorporate all of the above into a detailed brief and have it clearly understood by the client, sit down and review the brief in detail.

### **Expectations, scope of work and deliverables**

The expectations and scope of work must also be clearly set out in the brief. Managing your client’s expectations is part of the risk management process. If these expectations are not satisfied you will create an environment of dissatisfaction which can lead to allegations of lack of performance, deceptive and misleading conduct or simply an error in your work.

It is best to lower a client’s expectations at commencement and then exceed them at completion! It is dangerous to raise clients’ expectations at commencement.

Set out and agree in detail with your client what it is that you propose to do. Make it detailed and clear.

#### **Possible strategies**

- ▶ Ask what the client “expects” from the project — attempt to reduce their expectation — this can be difficult when attempting to “sell” your services. A client with lower expectations is much easier to satisfy than one with high expectations.
- ▶ Define the scope of work — draw up your understanding of what the scope of work is as envisaged by the client; review and agree this with the client.
- ▶ Prepare a checklist of the deliverables — list in detail those functions you are to perform and review each of these with the client to obtain their clear agreement.

### **Procedure for variations and expansion of scope**

It must be recognised that the Brief may require more detailed design input and require changes during the contract. A significant source of dispute is over the cost or scope of agreed variations to the original brief. The adoption of a mandatory procedure for agreeing variations in writing is strongly recommended; clearly set out any variations and have them signed off by all persons representing the client.

**Possible strategies**

- ▶ A commitment to put all variations in writing and to summarise all discussions in writing — develop a small variations pad where such variations can easily be noted and signed off by the client; quickly and accurately cost the impact of any variations and agree these with the client.
- ▶ Adopt a minute taking approach — in all meetings take notes of what is discussed, responsibilities allocated and distribute minutes to all attendees, summarising the outcomes agreed at the meeting.
- ▶ Conduct Risk Assessment — remember that variations may considerably extend your risk acceptance and therefore thoroughly analyse all agreed variations to identify change in the risk profile of the project.
- ▶ Analyse timetable impact — examine the impact each variation will have upon the project timetable and if delays are expected as a result bring this to the attention of the client and have them acknowledge this delay in writing.

## 1.3 Competency

**Area of expertise**

As a member of Engineers Australia you are obliged to work within your area of competence. As a professional you should recognise your limitations and either decline to undertake work outside this or engage resources that will be able to perform the work.

A strategy enunciating your area is a good start, combined with a process of reviewing the level of expertise required for each contract.

If additional expertise is required, identify this for the client and let them know how you propose to support this.

**Possible strategies**

- ▶ Identify your own engineering competencies — prepare a list of those competencies your firm can deliver.
- ▶ Identify engineering competencies/services required — examine the proposed scope of work and list of functions you have already prepared, consider the range of engineering disciplines required and compare this with your own list of engineering competencies.
- ▶ Establish a means of communicating limitations in competencies — prepare your approach to advising clients of any deficiency in your range of competencies and how this is proposed to be overcome (i.e. use of sub consultants, varying design etc).

**Resources & capacity to deliver**

Each contract will call for a certain level of resources. These will be a combination of internal and external resources. Before committing to a project you need to examine what resources are required and the availability of those resources.

This process can be combined with your strategy for dealing with your area of expertise outlined above.

Part of your strategy may also include consideration as to whether or not any external supporting resources can contract directly with your client and thereby remove you one step away from the liability chain.

#### ***Possible strategies***

- ▶ Establish and maintain a resources plan — in line with your pre-prepared list of competencies include in this plan how you intend to resource such competencies.
- ▶ Identify required resources for the project and create a resource plan — examine the list of functions and competencies previously identified and the resources required to satisfy those functions and competencies you can deliver with minimal risk.
- ▶ Review your resource plan for variations — any changes to the Brief or scope of work or your role may impact upon the required resources; revisit your resource plan as part of any agreed variation.

#### **Conflicts of interest**

Whilst obvious, conflicts of interest often cause problems when not disclosed and acknowledged by your client. In many cases professional indemnity insurance policies exclude claims where a conflict of interest exists. It is not only important to have any potential conflicts acknowledged by your client but also agreed to by your insurer.

#### ***Possible strategies***

- ▶ Awareness of commissions of interest — maintain an awareness of all commissions of interest (current, past or known future) and evaluate the project instructions against those interests.
- ▶ Identify any potential conflicts of interest — list these, declare them to the client and have them acknowledge any potential conflict and agree to proceed; discuss with your insurance broker to determine the application of professional indemnity where a conflict may arise; revisit the other side of the potential conflict (if necessary) to ensure agreement is reached by all parties to your continued involvement.
- ▶ Prepare a plan of management — have a plan prepared to deal with minimising the impact any potential conflict may create in carrying out the brief.

## **1.4 Analysis of Exposure**

### **Design complexity and technical innovation**

If a project is more technically challenging or involves complex design work including innovative concepts, it is generally accepted that the project will carry a higher risk rating than other projects that do not.

Therefore it is important that you have in place a strategy to identify the level of design complexity or technical innovation. “Leading edge” technology generally means high risk!

Such complexity demands that this aspect of your brief needs to be fully “fleshed out” before embarking upon the project.

**Possible strategies**

- ▶ Document technical details clearly — this is extremely important; prepare a complete technical analysis of the project requirements and ensure these can be verified independently if required; establish an audit trail of technical details and how they are changed during the project.
- ▶ Establish benchmarks for the level of detail in specifications — examine industry standards and measure complexity of each project against your benchmarks.
- ▶ Consider level of innovation — examine if this process/design has been used before and in what applications; consider implications of likely design failure; identify tested alternatives; document your position of acceptance of this innovation risk; document proposed design verification processes.
- ▶ Adopt variations protocols — as identified earlier, make sure all variations required during the design phase are thoroughly documented and agreed with the client.

**Risk Allocation/Certification/Quality assurance compliance**

Part of the brief will include the allocation of risk between the parties. This is generally contained within liability clauses requiring indemnification by one party to another. It also can take place by the allocation of responsibilities for various tasks and the achievement of deadlines.

Who is assuming responsibility for certification of the work?

What levels of certification exist that are supplied by others?

Who is responsible for compliance with the Quality Assurance (QA) objectives of the project?

These are all issues that you will need to address as part of your risk allocation strategy.

**Possible strategies**

- ▶ Measure risks associated with listed functions and responsibilities — examine the lists prepared earlier and measure the risks allocated against your functions and responsibilities.
- ▶ Determine the need for certification obligations — examine the need for you to certify works: identify alternative parties with certification capabilities so that liability can be transferred; identify parties whose certification you can rely on to support your own certification.
- ▶ Clarify quality assurance protocols — determine responsibilities for quality control of the project; establish QA processes for design, management of project, materials supply, project build and installation/commissioning.

**Contractual liability**

Contractual liability simply codifies the risk allocation through the provision of indemnity and hold harmless clauses. Extreme importance needs to be placed upon your review of contractual liabilities. In many cases, clauses that may appear benign on the surface may contain onerous liabilities when examined in detail and in the context of the contract as a whole. Seek the assistance of a legal practitioner.

A solicitor does not seek to interpret complex engineering designs so you should not try to fully interpret complex legal documents!

**Possible strategies**

- ▶ Use only standard industry contracts — this possible strategy relies upon the agreement of your client to utilise these contracts and also upon your satisfaction that the obligations and liability imposed upon you are acceptable.
- ▶ Have your solicitor review each contract — this is an expensive option and not practical with every contract.
- ▶ Prepare your own contracts — work with your solicitor to prepare your own documents that you fully understand and accept.
- ▶ List the “danger” clauses — those clauses that regularly appear in contracts such as Hold Harmless, Liability, Insurance and/or Indemnity establish the principle liabilities; outline a brief explanation of each type of clause for future reference and document your position in relation to the assumption of such liability.
- ▶ Seek the views of your liability insurers — most professional indemnity and public liability insurance policies exclude all liability created solely by contract, they will insure your liability that would have existed without a contract i.e. your common law liability, even if such liability is reinforced in the contract. They will not cover liability that goes beyond your common law liability without special agreement.

**Insurances**

As mentioned above, your professional indemnity and public liability insurances operate to exclude any liability that is imposed upon you by contract unless that liability would have existed in the absence of the contract; hence this reinforces the importance of having an expert review the contract wording you are signing or insist upon an industry standard you know to be reasonable.

You should not accept insurance requirements that purport to impose a liability greater than the amount of liability you are insured for.

**Possible strategies**

- ▶ Identify what insurances you are being requested to provide — make sure they are reasonable and check with your insurance broker to make sure they satisfy the contract’s requirements.
- ▶ Make sure limits requested comply with Professional Standards Scheme (PSS) limits — identify what the required limit of liability is and check this against the PSS limits.
- ▶ Match insurance requirements against Risk Allocation — list the insurance requirements and see how they match the risks allocated to you.
- ▶ Ensure sub-consultant compliance — obtain current evidence of insurance from sub-consultants appointed by you.

**Statutory compliance — Professional Standards Scheme (PSS);  
Building Code of Australia (BCA); Occupational Health and Safety (OH&S) etc**

The work you undertake will be subject to various statutory regulations and compliance issues such as the Professional Standards Scheme, Occupational Health & Safety, Building Code of Australia etc.

It is important that you identify what codes and/or standards of compliance and/or legislation you are required to adhere to in respect of a particular project. This should form part of the Brief, which should also allocate responsibility for such compliance.

#### ***Possible strategies***

- ▶ Develop a checklist of relevant codes — before each project (and during each project) review the relevance and compliance with each code identified.
- ▶ Examine legislative impacts — seek external assistance to identify what legislation is peculiar to this project — review possible relevant Building Act or other industry specific legislative implications.
- ▶ Review Occupational Health & Safety issues — consider anything peculiar relating to this project; address with the client any observations of unsafe work practices noted during site visits — this may not be your responsibility yet you may be held partially liable if you fail to make such comments.
- ▶ Ensure Sub Consultant Compliance — obtain evidence of current compliance with OH&S legislation and other code and legislative obligations.

## **1.5 Commerciality**

### **Feasibility and returns of brief**

It is strongly recommend that you avoid remuneration that is related to the outcome of a particular project. This may introduce significant “Conflict of Interest” issues.

You need to consider the feasibility and commerciality of the project. This has two aspects — first, what is the feasibility of your successfully completing the brief within the fee budget established/ suggested and second, the actual commercial feasibility of the project itself.

Analyse the entire project and consider your fee income as part of the entire project. Determine the feasibility of the project. The more a project is likely not to be feasible, the greater the risk you will not be paid.

The level of return to be earned from the project should be dependant upon the risk profile i.e. High Risk, Medium Risk and Low Risk. Obviously, the higher the risk the higher your acceptable level of return should be.

#### ***Possible strategies***

- ▶ Consider the commerciality of a project — examine similar projects and research costing to identify if, in your opinion, the project is feasible — if not avoid!; prepare a business case to assist your analysis.
- ▶ Establish several acceptable levels of return for risk — apply these levels rigorously and over time their commerciality will become apparent. If you are achieving a lot of success with your High Risk profile projects then perhaps your acceptable level of return is too low!.
- ▶ Identify a mechanism for calculating the expected return — apply that formula to each project.
- ▶ Avoid “speculative” based fee formula — where your fee income is a percentage of the final project profit — this could lead to substantial conflict of interest allegations and potential non payment of fees.

## Fee management/credit control

Having secured a contract it is important that you maintain tight control over the collection of your income. Many insurance claims arise due to the engineer leaving the collection of their fee until after completion of their contract. Having failed to adhere to the strategies already outlined herein they did not assess the client's ability to pay or they failed to adequately manage their client's expectations. The client may then choose to renege on payment.

Make sure you have in your risk management plan strategies to manage income collection and credit control. Do not become your client's financier by default!

### ***Possible strategies***

- ▶ Clearly articulate fee payment arrangements — within the Brief, set out clearly the method of calculating your fee and what expenses are reimbursable — include in this process what happens with variations; have the client clearly agree and acknowledge this aspect.
- ▶ Structure fee income — collect a deposit up front, progress payments during the project at regular intervals and a smaller final fee payment upon completion.
- ▶ Maintain accurate records — if you are seeking reimbursement based upon your records make sure they are kept accurately and can be presented in a professional manner; establish templates and explore software systems that can assist (many accounting programs include time billing on individual jobs).
- ▶ Manage credit control — do not leave unpaid fees uncollected for long; maintain tight credit collection — the longer you leave an unpaid fee the more likely it will remain unpaid and lead to disputes.
- ▶ Withhold certification documents or final plans — to encourage fee payment identify what documents can be legally retained until the fee payment is received; the more critical the document to the client the more influence you retain in securing your fee payment.

## Security of payment

This will have been protected to a certain extent by your adoption of earlier strategies identifying the ability of the client to pay and examination of their background; however, it still remains an exposure to be considered.

The fee payment arrangements should be clearly established within the Brief/Contract.

If the fee required for a large project is considerable and would cause financial difficulty for your firm, consider obtaining some form of security of payment from the client either through a cash retainer, insurance bond or even bank guarantee.

### ***Possible strategies***

- ▶ Secure a fee retention bond — these are available from insurers and banks.
- ▶ Reduce Fee amount — arrange for sub-consultants to contract directly (and be paid directly) with the client; have expenses paid directly by the client rather than reimbursed.
- ▶ Conduct Credit Checks — during the project — dependent upon the importance to you of the fee, it may be wise to regularly check with credit reference bureaus the credit status of the client.

- ▶ Sub-contractor research — generally it is the sub-contractors who are the first to feel the impact of non payment; keep close with sub-contractors on site and make regular contact to discuss payment issues/difficulties.

## 1.6 Service Delivery

### Scheduling/Timetable

A critical area to establish clearly is the anticipated Scheduling and Timetabling of the project. Achievable milestones need to be recognised and strictly controlled. If any party (including the client) fails to achieve the agreed deadlines, the entire schedule needs to be revisited and signed off by the client.

Client expectations drive claims and therefore any variation in the agreed timetable needs to be brought to their attention as soon as possible so they do not get a nasty surprise when the project does not meet the original deadline. Numerous small slippages in the timetable will accumulate into a major blow out in the project completion deadline.

#### *Possible strategies*

- ▶ Establish with the client clear and reasonable timelines and deadlines.
- ▶ Prioritise your own projects clearly so resources conflicts do not occur.
- ▶ Maintain an awareness of progress of the project against agreed timelines.
- ▶ Record actual times and measure against estimates so improved estimating can be achieved in future projects.
- ▶ Develop contingency plans for when a lack of resources may become apparent and which may impact upon the timetable; identify dependent resources that may also be affected.
- ▶ Plan regular client contact to ensure they are aware of the timetable, delays incurred and the likely impact upon the final completion deadline.
- ▶ Avoid/Clear communication blockages that may cause delay.

### Budget & cost control

An extremely important aspect is the tight control over the budget and cost control involved in the project. The degree of your influence will obviously depend upon the extent of your authority in the project. Certainly you must maintain tight control over your own costs.

One major and constant source of aggravation is variations. You must agree a procedure for variations with your client as part of the Brief.

#### *Possible strategies*

- ▶ Prepare a realistic estimate of the costs involved in the project and include provisions for the unknown or inaccurate estimation; avoid unrealistic budgets set by the client.
- ▶ Detail the budget within the Brief that is agreed with the client; avoid unsupported lump sum contracts.

- ▶ Develop a simple mechanism for recording requests for variations, costing these and having them agreed by the client — all in writing.
- ▶ Do not assume new roles, functions or responsibilities without first having assessed their impact on your risk retention.
- ▶ Meet regularly with the client to review budget targets, cost management and profitability.
- ▶ Build into the Brief a capacity to deal favourably with estimating errors.

### **Contractor/Sub-Contractor/Sub-Consultant Management**

Engaging or entering into a contract with contractors/sub-contractors/sub-consultants does not release you from liability. You will remain vicariously liable for their actions. Therefore prudent risk management of these relationships is required to prevent them from causing you to suffer a loss.

Whilst it is better to encourage direct contractual relationships between such contractors or sub-contractors/sub-consultants and your principal this is not always practical or commercially acceptable. It will diminish your liability but not altogether remove it as in most cases you will have recommended that other party. Such recommendation incurs a liability on your part.

#### ***Possible strategies***

- ▶ Ensure that a written contract/terms of engagement is entered into between you and the sub-consultant and that the terms of that contract mirror the terms of your contract with your principal.
- ▶ Agree the skill set of the sub-consultants and clearly identify their role and responsibilities and seek their explanation as to how they propose to deliver the required resources.
- ▶ Investigate to ensure management discipline practices by the sub-consultant are similar (or better) than your own.
- ▶ Establish timelines and budgets which are compatible with your own commitments.
- ▶ Establish procedures including “spot checks” to monitor the performance of sub-consultants.
- ▶ Ensure you sight a current certificate of Professional Indemnity and Public Liability insurance issued in the name of the sub-consultant.

### **Establishing a solid foundation for your services**

A critical area of risk is obviously to be found in the actual performance of the services for which you are engaged. To minimise this risk it is essential that a solid foundation for the provision of these services is established. This will include investigations (e.g. geotechnical studies); studies (e.g. transport planning); research (e.g. questionnaires); surveys (e.g. land) etc.

Having ‘well grounded’ foundations upon which you can then draw conclusions, base your designs or draw your plans will improve your risk profile substantially.

**Possible strategies**

- ▶ Build a profile of the type of background work you need to undertake based upon your experience and those of your colleagues. Use your experience to design a template for the activities you need to perform to establish your base of information; this may include “brainstorming” with your colleagues as to what is required for particular types of projects.
- ▶ Establish relationships with trusted sub-consultants to provide resources to undertake the preliminary work you require.
- ▶ Identify information sources that can be accessed easily; maintain a library of common contacts that can be used by all in the firm.
- ▶ Maintain an understanding of the importance of this work.

**Provision of reports**

Reports reflect the “output” of your services and quite frequently are the documents held up in a court action as “evidence” of the negligence of a professional’s work.

Unfortunately not all information can be included in your report and in many instances the results are the only things expressed in your report. Examined in isolation, such results may provide misleading information.

It is critical that your report reflects the results of your brief and also draws the reader’s attention to the scope of the brief, the methodology employed, the information delivered to you by the principal, the investigations carried out and the underlying information upon which the results have been based. An error range must also be included.

The report can also be used to assist to minimise your liability.

**Possible strategies**

- ▶ Summarise the brief and reference it in your report.
- ▶ Demonstrate the method of work you adopted to achieve the desired result; include agreements reached with the principal as to how best proceed with the brief.
- ▶ Include the use of disclaimers and error margins.
- ▶ Include extensive Appendices which bring into the report the base information upon which the results have been based.
- ▶ Note references to external research organisations and sources in respect of information obtained from them in support of your findings.
- ▶ Provide recognition of any other parties’ words used in your report; make sure written agreement is obtained from them (agreement is not generally required when such words are widely publicised and are considered to be “in the public domain”).

**Design management and performance**

The need to closely control and manage the design process is critical to your generation of risk.

Adopt a strict discipline in the design process as errors at this stage generally have the greatest impact upon the final outcome and are frequently the major cause of claims.

**Possible strategies**

- ▶ Analyse the design process, if possible break it down into manageable components each of which can be checked and verified by someone else.
- ▶ Clearly identify the design output objectives and if you believe these are achievable, bring to the immediate attention (in writing) of the principal and seek their instruction.
- ▶ Do not accept unapproved design changes that a principal seeks to impose upon you during the process. Evaluate their impact and adopt your procedure for handling variations with each proposed design change requested by a third party.
- ▶ Verify the accuracy of the inputs into the design.
- ▶ Establish and implement a planned process (design verification) for verifying that design output of each design package/discipline complies with its design input requirements.
- ▶ Establish a planned process (design review) for confirming co-ordination of design, its 'buildability', cost effectiveness and attainment of other project objectives.
- ▶ When applicable, establish a planned process (design validation) for validating that the built work meets the customer's requirements.
- ▶ Document clearly each stage of the design development; ensure an audit trail can be used for later verification.
- ▶ Closely co-ordinate all resources involved in the design process.
- ▶ Review results with a view to identifying if the output will interfere with a third party's intellectual property or copyright.

**Tendering/Probity**

Many members will be involved in managing the tendering process on behalf of their clients. This process will present members with a set of risks. Failure to fulfil this service adequately can impose a liability upon members and lead to major consequences in the event of a failure of the successful tenderer to fulfil the contract as required. If members do not maintain an awareness of their probity requirements in the tendering process, this too can cause liability and other problems.

**Possible strategies**

- ▶ Identify any conflicts of interest you may have and identify these and how you intend to manage them to your principal and confirm their acceptance.
- ▶ Agree rules of probity — what information can be given to tenderers and how the tender process will work.
- ▶ Gather a comprehensive understanding of the principal's objectives and document this.
- ▶ Use industry standard tender documentation and procedures.
- ▶ Establish "pre-qualified" panels of contractors with agreement of the principal for repeat tendering for contracts; or establish clear qualification criteria.
- ▶ Ensure the tender process is transparent and legal.
- ▶ Establish clear communication lines between the principal and your organisation for management of the tender process.
- ▶ Establish a standard template for the assessment of multiple tenders to ensure each is analysed fairly and equally.

## Site management

Where your brief includes the management of the project site you will need to develop strategies to minimise the risks generated through this management activity. If not managing the site, make sure the site management issues are addressed in the tender documentation.

Where construction activities are undertaken you must clearly identify where your professional activities cease and to avoid becoming involved as a “builder”. As such, a new set of risks, obligations and liabilities are created. Problems will also be encountered in securing protection of your liabilities through your professional indemnity insurance.

In accordance with Abrahamson’s principle of allocating risk to the party best placed to manage it, carefully consider the implications of transferring any risk or liability from the Contractor.

### ***Possible strategies***

- ▶ Clearly identify your responsibility in relation to the management of the project site.
- ▶ Agree clear guidelines as to access to the site by contractors and others.
- ▶ Adhere to all statutory obligations.
- ▶ Define and agree with your principal the extent of site protection to be employed.
- ▶ Establish communication protocols for affected neighbouring property owners or other third parties.
- ▶ Establish procedures for the verification of the construction, including materials quality/ quantity upon arrival on site.

## 1.7 Communication Protocols

### **Procedure for responding to errors/unforeseen circumstances**

Whilst it is the objective of every contract to avoid errors, it is wise to assume that an error will occur and to plan how you will handle this prior to its event. Having a strategy in place prior to the event can assist in minimising its impact and can actually enhance your role.

Errors are obviously the cause of many liabilities claims — so the principal strategy is simple — do not make any!

### ***Possible strategies***

- ▶ Identify and agree clear communication protocols with the principal for the communication of errors/unforeseen circumstances.
- ▶ Identify corrective measures and analyse the impact of these upon the budget and scheduled timing.
- ▶ Agree written variation to the Brief as a result of this change.
- ▶ Establish quality assurance management and monitoring procedures to identify any defective work quickly.

## Dispute resolution/Conflict management

Too quickly disputes can escalate into conflict and subsequent legal action. Therefore, it is imperative that such events be managed quickly and effectively. A common theme for most conflict management strategies is to remove the personality issues from the conflict and look at the cold facts of each event and deal with that issue.

### ***Possible strategies***

- ▶ Establish an independent conflict management procedure within your firm using persons not involved in the project.
- ▶ If an internal procedure is not possible, become a member of an external complaints resolution scheme or identify potential mediation services that can be accessed.
- ▶ Insert into all Briefs/Terms of Engagement/Contracts a procedure for informal and formal dispute resolution.
- ▶ Develop strict procedures for maintaining documented records of discussions during the dispute resolution process.
- ▶ Quickly resolve disputes; adopt a “fix it” approach without admitting liability.

## Interference issues

Client interference can be difficult to avoid without affecting your relationship with them. It is imperative that such interference be appropriately managed to avoid increased risk being inherited through such interference.

Interference by the principal may cause an increase in your liability and therefore is an important issue to be addressed.

Where such interference involves changes to design it is recommended that the strategies outlined under Design Management be adopted to deal with them.

### ***Possible strategies***

- ▶ Ensure the respective roles and responsibilities of both yourself and the principal are outlined in the Brief; actively monitor compliance throughout the project.
- ▶ Establish communication protocols at commencement for handling interference; establish a series of regular client meetings at which such issues can be raised.
- ▶ If necessary employ internal/external disputes procedures to manage interference issues;
- ▶ Seek liability relief/financial compensation if interference continues.
- ▶ Do not allow minor interference to go unnoticed — it promotes larger interference which is harder to deal with.

## Incident management

The occurrence of an “incident” can have major consequences. Therefore, you must have the capacity for dealing with it when, and if, it arises. Establishing your protocols before the incident will assist in minimising your liability. Without such procedures in place you may react without thinking and suffer a significant liability. A little forethought will assist you to manage the incident effectively and potentially with minimal liability.

**Possible strategies**

- ▶ During project risk analysis identify potential incidents and ensure Occupational Health & Safety procedures are adequate to provide adequate response.
- ▶ Establish protocols for dealing with accidents causing injury and/or property damage, including provision of first aid.
- ▶ Identify inspectors capable of providing independent assessment of cause; introduce as quickly as possible so details of the incident are not lost; seek views of your professional indemnity insurer as to an inspection service acceptable to them.
- ▶ Maintain open communication with your principal keeping them fully informed as to outcomes, impact, including potential budget, and scheduling implications.
- ▶ Do not admit liability.
- ▶ Establish an incident log where all details are recorded.

## 1.8 Document and Record Management

### Control of business management documents

Your policies and procedures need to be clearly defined and accessible to all in your firm. Documentation of these is vital. How you control and organise such documents will have an impact upon the success of your business.

Procedures manuals are not much assistance if simply printed out and left on the shelf. These documents determine how your business operates and what safeguards and controls are implemented into your practice.

You need to identify how you will handle, store, update and make available these documents.

**Possible strategies**

- ▶ Establish electronic versions of your procedure/operational manuals on your office network and encourage the practice of online access rather than “hard copy” lookup. This makes it more likely that the reader will access the most up-to-date version.
- ▶ Devise a review process to update this documentation on a monthly/quarterly basis – diarise and budget for such times so as to avoid “putting” off such revisions.
- ▶ Store hard copies in a central location, preferably together.
- ▶ Retain old versions.

### Professional services documentation

The outcomes of your professional services will be delivered through a variety of documentation methods, i.e. reports, plans, certificates, letters etc. Additionally, you will generate considerable internal documentation in the form of computations, investigations, notes, base research material and client information.

In the event of an allegation of wrongdoing, it is critically important that ready access to clear and concise documents be available to quickly rebuff such allegations and to resolve disputes before they develop further and become costly litigated actions.

Poor documentation is often cited by professional indemnity insurers as a major cause for unsuccessful defence of liability claims.

**Possible strategies**

- ▶ Identify and implement document generation mechanisms to minimise errors; computer software can be purchased that will generate many standard documents that can be used repeatedly; templates need to be established to minimise errors that may arise in generating individual documents.
- ▶ Implement an internal checking and review process to ensure accuracy of information being released; implement a self “audit” process where a principal member (or multiple members) of your firm regularly reviews working files randomly.
- ▶ Track the issue of documents — date stamp them and store electronically in a centralised library that is regularly backed up. If storage space is an issue then file electronically onto CDs and store on site (for ready access) and well as off site as a backup.
- ▶ Maintain a system of regular note taking when on site or during telephone discussions with clients and other consultants and contractors; where relevant confirm to that party the content of discussions in writing.
- ▶ Take minutes of every meeting and where relevant distribute copies of those to all attendees to ensure a complete understanding of the meeting outcomes exists.
- ▶ Be extremely wary of providing verbal advice without following it up with written confirmation.

**Identification, indexing, retention, archiving and disposal of records**

As mentioned above, the availability of documents is critical to a successful defence of a claim. However, it must also be recognised that the retention and storage of documents can be a significant undertaking resulting in substantial resources being allocated to such storage.

A successful policy needs to be created on how you index, retain, archive and dispose of your records.

**Possible strategies**

- ▶ Adopt a standard method of identifying your documents; many forms of filing systems exist — review these and select the one most appropriate and/or attractive that meets your needs.
- ▶ Where many files exist, the adoption of a filing system can make the world of difference. Do you adopt a traditional alphabetical method or perhaps a “computer” based alphabetical approach where files are filed according to the order in which your computer sorts them?
- ▶ Indexing your systems electronically can make it easier at a later date to retrieve these and also when undertaking research for a new project. Use your existing records as a resource that can be mined for information at a later date. A small investment upon finalisation of a contract in indexing the important issues in that contract electronically will assist greatly in searching for that information at a later date.
- ▶ Organise your files so that you are easily able to identify what documents are contained in them; create a summary page that can be used for every file in which details of the file contents can be recorded; include on that summary page the key documents, when they are removed from the file and the person who has currently control of that document.

- ▶ Determine your optimum retention policy; how long do you hold the file “in-house” and when such files are to be selected for archiving to an external document storage facility (assuming you do not have sufficient internal storage capacity). This can be a purely date-based system or one based on the size or complexity of a file. Files should be retained “in-house” if possible, for at least three years post completion of the project.
- ▶ The ultimate disposal of records needs to be closely examined. It is recommended that you retain all documents. However, if storage capacity is an issue then determine your legal requirements, the liability regime under which you operate and your ability to retain the documents. At a minimum, retention for at least ten years post completion of the project is recommended.
- ▶ How you dispose of files also needs to be considered. The privacy laws currently protect much information in your files. You also do not want your intellectual property to be delivered to a competitor. We recommend the shredding of all documents or the engagement of a file security destruction specialist. You will have heard of many instances where confidential information is seen blowing down the street after the rubbish bins have been knocked over!

## 1.9 Business Management

The success of your business must include planning. Success does not just happen. Several areas require examination as to how you intend to approach the issue and to best allocate your resources.

### Business planning

The creation of a business plan is essential. It provides you with an opportunity to review what you do, how you do it, where you fit in your market, who are your competitors and how you can improve your business. It also establishes action plans that you can pursue and which should assist you to develop, expand or improve your business generally.

Outcomes of implementing a business plan can include increased business, improved economic ratios, better quality outcomes, greater customer satisfaction and a more stable business.

#### ***Possible strategies***

- ▶ Seek out the methodology of establishing a business plan.
- ▶ Create your business plan, seek input from your staff and seek the views of your customers and suppliers.
- ▶ Detail your business objectives and action plans, allocating resources to realistically achieve these.
- ▶ Implement a regular review process — monthly review meetings are recommended.

### Succession planning

Having successfully created a profitable business you need to minimise its critical dependency upon the key staff.

Succession planning achieves two significant objectives namely

- ▶ to relieve the dependency a firm has on such key personnel thereby reducing risk; and
- ▶ to identify how the principal can reduce the workload with a view to retirement.

**Possible strategies**

- ▶ Examine employees for the potential to develop into the key roles performed in the business.
- ▶ Develop an employment strategy if no resources exist in the business.
- ▶ Identify skills training and an education plan for identified employees.
- ▶ Identify functions undertaken by principals and work out how these can be delegated.
- ▶ Implement plans.

**Staff development/Continuing professional development**

Your staff can bring your firm into disrepute and also cause you significant liability. You must ensure both they and you are adequately trained to perform their allocated functions.

You also have an obligation to your profession to maintain your ongoing professional development. Lack of this development may create a liability due to your use of outdated methods or ideas. This exposure, like all others, requires your management.

**Possible strategies**

- ▶ Identify a skills capability matrix for the firm including each employee, director, partner and/or principal.
- ▶ Examine where additional training is required.
- ▶ Develop individual training/development plans for each person in the firm.
- ▶ Review the performance of these at regular intervals and maintain an up-to-date record of achievements.

**Disaster recovery plan**

A disaster is generally defined by the magnitude of its impact upon your business. The development of “Disaster Recovery Plans” is essential to minimise the impact of such potential disasters so their impact is of little or no long-term consequence.

Disasters are things such as a fire or some other peril destroying your office. The customers upon whom you are strongly dependent either ceasing to operate or transferring their business elsewhere; your computer system crashing; key employees leaving the business or even a potential change in legislation destroying your market segment.

The key to appreciate is that a “disaster” may take many different forms and not simply reflect a “physical” impact. Planning for such will minimise its impact.

**Possible strategies**

- ▶ Include within your business plan a disaster identification process and build into that plan steps required to minimise the impact of business disasters as opposed to “physical” disasters; — such things as dependency upon key customers; human resource dependencies etc.

- ▶ Examine the potential for physical disasters and document what steps are required to be taken at the time; identify external resources and their contact details to be called upon for immediate assistance; contact these to identify what can be done in a disaster.
- ▶ Review your information systems back up procedures; how frequently do you capture new information onto your systems? This will determine the frequency of your computer backups. Are these kept on the premises or off the premises? How will you replace your systems quickly?

### **Financial/Cash flow planning**

Your business planning must also include the frequent examination of your financial position. Just letting things happen is not recommended. Make sure you examine your financial results to identify trends as to where the business is going and what profit is being generated.

Lack of financial resources may impact upon the quality of work as the business suddenly finds itself short of cash and forces the taking on of more work at lower profit margins. This in turn places greater pressure upon resources, which may in turn lead to shortcuts or errors or a lack of review.

#### ***Possible strategies***

- ▶ Prepare a financial budget including a cash-flow projection; identify essential and non essential expenses — i.e. how can you continue to operate at the barest of minimum expense.
- ▶ Examine how the funding of major financial outlays can be spread across the year.
- ▶ Regularly review the achievement of your financial objectives — generally monthly; identify trends and amend budgets accordingly.
- ▶ Monitor expenses against budget to ensure your future cash flows will be adequate to meet your minimum expense requirements.

### **Compliance and development review process**

The operation of your business will require compliance with any number of authorities, institutions, associations and your own policies and procedures.

To effectively ensure adequate compliance is achieved, you will need to develop a compliance and review process. This can generally be built into your everyday business practices. This is the most effective method of compliance.

#### ***Possible strategies***

- ▶ Identify what statutory and non statutory compliance issues need to be addressed and document these.
- ▶ Prepare a regular compliance review plan.
- ▶ Establish a project review plan — upon completion of each project examine the outcomes and identify areas where improvement can be achieved and also where success occurred; feed this back into your strategies.
- ▶ Introduce internal and external auditing — many businesses see the cost imposition of an external audit process as just another financial burden. This process should be considered as an opportunity to discover where your business can be improved and serve as reinforcement of the work of your employees.

## **Major headings for implementation/Assessment processes**

### **Development of documented business philosophy**

- ▶ Initial documented position on each risk area.
- ▶ Annual review process of the document.

### **Review/Analysis procedure**

- ▶ Develop easy to use checklists to ensure all aspects of risk are considered at project commencement and refinement.
- ▶ Develop checklist for finalisation of the project and determination of document retention process.
- ▶ Develop compliance checklists, which are reviewed regularly for business management risks.

### **Develop independent audit regime**

- ▶ Determine the frequency of an external audit regime.
- ▶ Determine a remote audit regime using Review/Analysis procedure documents.

# Appendix 2: Risk Management Documentation

## 1. Preamble

Throughout the Risk Management Strategies Guide, processes have been discussed and particular risks identified with suggested strategies for their management. In order to demonstrate any particular organisation's risk management capability, the following may be considered as the fundamental documentation which would be deemed to comply with the risk management requirements of the ESTPSS.

These outline documents are provided as examples for organisations contemplating installing a risk management process and are not intended to represent the best or the only means of demonstrating risk management capability. However, the issues dealt with in these documents ought to be dealt with in any organisational risk management structure. How they are documented in any particular case will depend on the particular organisation in question.

## 2. Risk Management and Documentation

In this Appendix, the risk management documentation has been gathered into four general documents or classes of document:

- ▶ job acceptance protocol;
- ▶ terms of engagement;
- ▶ work procedures; and
- ▶ business plan.

An outline of the contents of these various documents is as follows:

### **Job acceptance protocol**

This document should explain an organisation's client and project acceptance procedures to:

- a. Check the client's substance and capacity to deliver the project. (This is a due diligence program which ought to consider the client's substance, history and even such things as key personnel.)
- b. Check for possible conflicts of interest.
- c. Check that the job type is within the compass of the organisation's business plan.
- d. Check that the particular job on offer:
  - i. is within the organisation's competence;
  - ii. is within the organisation's limits on size of job;
  - iii. is within the organisation's insurance policy terms; and
  - iv. shows an acceptable cash flow/cost/benefit to the organisation;
  - v. satisfies the risk assessment process outlined in "Work Procedures".

### Terms of engagement

A number of precedent Terms of Engagement are available in the market. For example, there are precedent documents promulgated by Engineers Australia, the Association of Consulting Engineers Australia (ACEA) and Standards Australia.

For risk management purposes, the terms of engagement should at least:

- e. clarify the client's expectations;
- f. clarify the scope of work required of the organisation;
- g. clarify the fee payment procedures and amounts;
- h. deal with variations to the commission;
- i. provide for an insurance sign off (which may be a check list against guidelines from the insurer); and
- j. include limitation of liability and indemnities as appropriate.

### Work procedures

Work procedures may be detailed or in summary form and should cover the multifarious aspects of the organisation's work (for example, design, project management, superintendence, feasibility etc).

Typically, work procedures should be working documents dealing particularly with:

- k. quality assurance processes for designs/documentation/superintendence or other activities (including checking, third party involvements and audit);
- l. design processes and reviews;
- m. project management processes and improvement;
- n. feasibility processes;
- o. other business activities;
- p. responses to change in the environment; and
- q. responses to crises.

In each of the work procedures documents, from a risk assessment/management point of view, particular attention should be paid to:

- r. program control to manage timing, resources and client expectations;
- s. pre-qualification of associated entities (e.g. sub-consultants);
- t. the process for prioritising an hierarchy of risks;
- u. proformas for contracts, commercial documentation (for example, notices under contracts, reports, and management processes including record keeping, extension of time management, variation management and defect management).

**Business plan**

A business plan is a useful document for dealing with some of the higher level issues like the market in which the organisation wishes to function. There will clearly be overlap in the business plan with the other documents referred to in Risk Management Strategy Documentation. However, for general risk management purposes the business plan should contain at least:

- v. a clear statement of the organisation's business objectives in the short and medium term;
- w. a statement of expectations for growth both in the organisation's activities and in the clients and projects the organisation might become involved with now and in the future;
- x. consideration to "alternative futures" which might arise if the assumptions upon which the organisation's business plan are based reveal themselves in time to be inaccurate or incorrect;
- y. processes for dealing with changes in the environment in the short- to medium-term;
- z. provisions for maintaining current awareness and enhancing competence through CPD or other activities.