10.1 Introduction
Surveyors, in their capacity as ‘the measurers of land’ have long understood the importance of verification processes to confirm the integrity of their work. In more recent times it has become acknowledged that there are many facets of running an organisation which can impact on the quality of the information produced. Issues such as dealing with clients, training and supervision of staff, calibration of measuring equipment, and record systems can, if not consistently addressed, have a major impact on the service we as surveyors provide to the community.

These issues assume greater importance in the current work climate, with its ongoing pressures to provide a high quality service at a minimum cost. Strong management systems are essential to maintain standards, protecting both the surveying firm and its clients. They also avoid duplication of activity, rework due to mistakes, and generally improve the efficiency and professional performance of an organisation.

The wisdom of many thousands of companies, that have demonstrated their ability to maintain ‘best practice’ techniques, has been distilled into the ISO 9000 series of standards for quality management systems. Published by the International Standards Organisation these standards have now been adopted by 120 countries, including Australia.

10.2 What is a management system?
Successful organisations have always relied on ‘management systems’ to ensure they run efficiently, and that clients receive good service in a timely manner. While historically these systems have run on an informal basis, the Standard requires this agreed ‘best practice’ to be documented, in a simple and concise manner, for the use of all staff. This helps to ensure a consistency of approach, especially during periods of high work pressure, when typically problems arise.

ISO 9000 requires that your management system address a range of issues related to company administration and project control. Importantly however it does not describe how you should do this. This leaves the flexibility to develop a system which suits both the nature of your business, its size and management style.

The following is a summary of ISO 9000 requirements as they apply to a surveying practice. Firms that model their management processes on this Standard will:

**Practice Administration**
- Agree and document responsibilities of staff
- Ensure staff have sufficient training, and an appropriate level of supervision, for the tasks they perform.
- Plan and document how outcomes are achieved for critical processes (eg gathering digital terrain data, checking of cadastral surveys)
- Establish a regular program for testing or calibrating measuring equipment
- Establish processes to ensure adequate resources are maintained for projects in hand, and to set and monitor work priorities (eg regular management meetings)
- Maintain project and management record systems (eg project files, equipment records)

**Project Administration**
- Ensure both staff and clients understand the services to be provided (through file notes and written confirmation of instructions for more complex work)
- Ensure staff, clients and third parties are provided with current versions of plans documents and data (through document transmittal records)
- Select suppliers on their ability to consistently provide good service (eg subconsultants)
- Check the quality of information / data at key stages of work (prior to field work, in the field, during processing and prior to final release of data)
- Protect information and data (eg backup and archiving of computer files, virus control)

**System Improvement**
- Verify management and staff comply with system requirements described above (through a simple internal audit process)
• Continually review and improve system performance (through recording problems and staff suggestions and monitoring action on these)

• Ensure regular review of system performance by management

Pitfalls:

While it is difficult to argue with the logic or intent of ISO 9000 the resultant quality systems do not always live up to expectations. Typically this can be due to:

• Over-documentation – preparation of extensive documents which mask the critical aspects of the management system with unnecessary text. In a professional practice it is important not to confuse the issue, or insult the intelligence of staff, with technical instructions which can be considered common knowledge for a trained staff member.

• Over-prescription – too many complicated forms or unrealistic requirements will, if not addressed through system improvement process, result in failure of the system.

• Lack of compliance – if staff continually fail to comply with the firms ‘best practice’ requirements as documented then the system loses credibility and effectiveness

• Lack of responsiveness – while the system is a tool for management is also a vehicle for staff to actively contribute to improving operations of the practice. If the system is not responsive to change it will come to stifle innovation and be rejected by staff and management alike.

• Lack of leadership – it is not uncommon for management to require compliance from staff while believing this requirement for consistency in approach does not apply to them.

All of these problems lie not with the Standard but its poor implementation within an organisation.

10.3 Application of the ISO 9000 standards

There are two standards that could be used in a surveying organisation.

- AS/NZS ISO 9001 – Model for quality assurance in design, development, production, installation and servicing

- AS/NZS ISO 9002 – Model for quality assurance in production, installation and servicing

These standards are identical in both content and clause numbering, with one exception. ISO 9001 includes a clause addressing design and development activities (clause 4.4). Typically this clause could be applied in firms who carry out engineering design work or who are involved in the development of allotment layouts for large land divisions. If your company does not undertake design work it should nominate ISO 9002 as the most appropriate Standard for its management system. It should be stressed that this is not a lesser Standard.

It is not within the scope of this Section to describe how to develop a quality management system. There are a number of texts shown in the bibliography which will provide detailed information on both the general application of ISO 9000 and its use within a surveying practice. However an example is given here of the application of the ‘Contract Review’ requirements of the Standard, to give some feel as to how it can be applied to your business.

Example - ‘Dealing with Clients’ ref: ISO 9001, 4.3

Many complaints regarding Surveyors stem not from technical incompetence but rather a misunderstanding, or poor communication, with clients. ISO 9001 is written from the client’s perspective and is therefore focussed on ensuring the service delivered meets expectations.

A quality system must ensure:

• there is agreement between the surveyor and client on the nature and extent of services to be provided
• there are records available to verify what has been agreed, in the event of a later dispute
• changes to client requirements are adequately transferred through the organisation to staff carrying out the work
• work is only released to clients after authorization by someone with appropriate knowledge, experience and authority to verify client requirements have been satisfied
Clearly here there is an emphasis on agreement and records. Litigation experience shows it is undoubtedly advisable to confirm all unwritten briefs in writing as perceptions of what has been agreed can often differ and undoubtedly vary with time! However this cannot be read into ISO 9001 which simply requires client requirements are adequately defined and documented. Therefore as a minimum all meetings and conversations with the client in relation to a project must be documented and retained on the project file. While not as strong, contemporaneous notes do carry significant weight in court proceedings.

A typical surveyor’s quality system will require:

- completion of a job instruction form for all instructions
- confirmation in writing of major projects (say greater than $500)
- an activity log, or files notes, in each project file recording all client contacts (telephone conversations and meetings)
- retention of all client correspondence on the project file
- on-site instructions to be recorded in a triplicate book (or sometimes on field sheets) and signed by the person requesting this work.

The quality system may also have some very specific requirements for projects the firm believes are potentially a source of problems. For instance its procedure for construction set out may require a sketch plan to be provided to the client where set out points do not directly correspond to those shown on an agreed set out plan, or where instructions are issued on site. All set out plans typically carry a reference to the builders/ architectural plans used (plan number and version) to ensure there is no ambiguity regarding the source data.

If you decide to implement a quality management system within your firm the process is broadly as follows:

- Gather information on systems appropriate to an organisation of your size, or seek advice from others who have gone through the process
- Establish an implementation program which assigns responsibilities and development deadlines
- Involve as many staff as practicable, to ensure ‘ownership’ of the system
- Phase implementation, to trial the approaches adopted and avoid information overload
- Involve a certification company early during system development to benefit from their advice and guidance
- Don’t expect to ‘get it right first time’. Let the system evolve and improve rather than seeking early perfection

### 10.4 Third party certification

Certification is a process whereby an independent authority assesses the operation of a firm’s quality management system to verify:

- the documented management system addresses all relevant clauses of the ISO 9000 standard, and that
- management and staff are consistently complying with its requirements.

If these two criteria are satisfied a certificate will be issued which can be offered as independent evidence to clients and government authorities to confirm that your firm maintains an effective management system. Certification can also be used as an effective marketing tool.

Up to early 1999, 20 companies were accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) to carry out quality system assessments. The surveying profession is unique in that the industry association has established their own JAZ-ANZ accredited specialist body to provide this service (CSQC Certification Pty Ltd).
However most of the other accredited companies offer a certification service to surveying firms.

The first phase in the assessment is a review of the firm's quality system documents against requirements of the nominated Standard – a desk top review. The intent of this review is to initially establish whether the system structure and content addresses the requirements of ISO 9000.

Once this initial review has been completed, and the management system has been operating for a trial period (typically two to three months), the certification company can undertake an on-site quality system assessment. The assessor(s) will talk to staff, and review documents and records relating to the quality management system. To further assist clients they may also discuss aspects of the system, which appear inefficient or impractical.

Once the certification company is satisfied that all requirements of ISO 9000 have been satisfactorily implemented (and this may involve exchanging further information after the assessment) a certificate of compliance will be issued. Certificates have a life of three years. During this period regular maintenance audits will be undertaken (at least annually) to confirm ongoing compliance with the Standard.

Companies with a certified quality system have the right to display the certification company's certification mark on stationery and promotional material.

Typically evidence of QA certification is sought by government purchasing authorities and larger client organizations. Some of these bodies use this a pre-qualifying requirement for firms they engage, whilst others consider it as one factor in evaluating tender applications. Certainly other criteria such as the experience of personnel and the availability of resources are also recognized as important factors in ensuring good service is received.

10.6 Reference documents

A/ NZS ISO 9001 – Model for quality assurance in design, development, production, installation and servicing

A/ NZS ISO 9002 – Model for quality assurance in production, installation and servicing

A/ NZS ISO 9004.2 – Quality management and quality system elements. Guidelines for services.


Association of Consulting Surveyors Australia – Model Quality System for Surveyors

Acknowledgement

This chapter was prepared by CSQC Certification Pty Ltd. CSQC is a JAS-ANZ accredited body that provides assessment and certification services to companies in the land development, building and construction industries. Typically these are consultants such as surveyors, engineers, architects and planners. Through its specialist experience CSQC personnel can offer a practical and supportive assessment service.

CSQC is owned by surveying industry professional associations (ACSA and CSNZ) and as such is the chosen certification body of most surveying organisations in Australia.

If you require further information on quality management systems, or quality system certification, please contact the CSQC Program Manager at the following address:

CSQC Certification Pty Ltd
9 Vale Road
HAWTHORN DENE S.A. 5051
Telephone 08 8278 3600
Fax: 08 8278 4479
Email: cscq@bigpond.com