

2.1.2.1 Contractor's Quality Management System

The *preliminary* section of the technical specification often includes requirements for the contractor to establish and have certified a quality management system.

Quality is often defined as:

- an attribute
- a characteristic
- a property
- a degree of excellence
- a rank.



Most Standards covering **general commercial conditions** of the contract, like AS2124—1992, do **not** require contractors to establish a quality management system. They usually detail that the contractor shall follow a formal quality system **only** if stated else where in the contract.



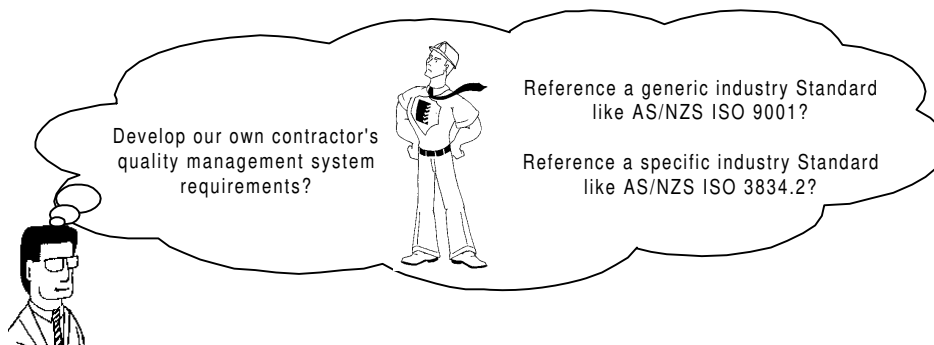
Chapter 1.5 describes the common requirements for contractor quality management systems included in the commercial conditions section of the contract.



It is important to distinguish between quality management system certification and product certification. The first is about assuring the quality of the management process and the second is about assuring the quality of a product.

Normally, clients either:

- develop their own contractor's quality management system requirements or
- reference a generic industry Standard, like AS/NZS ISO 9001 or
- reference a specific industry Standard, like AS/NZS ISO 3834.

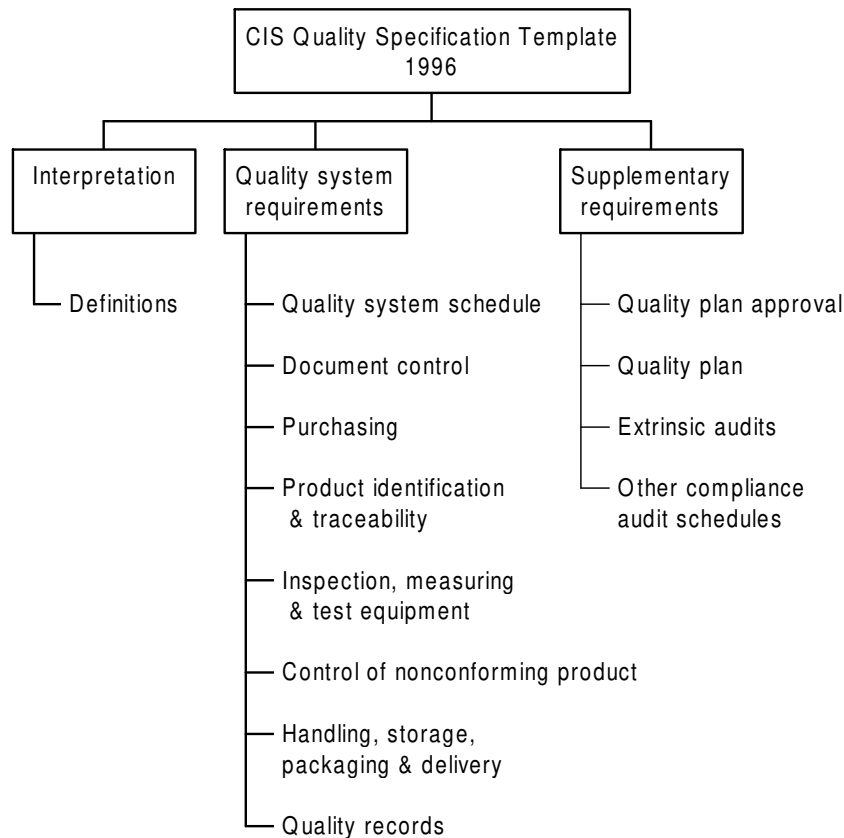


Generic industry Standards are designed so that they can be applied to any customer/supplier relationship. Specific industry Standards, however, are designed to provide assurance of a particular type service or product.



Clients often model their requirements for contractor's quality management system on the Specification Template developed by Construction Information Systems (CIS) called "Quality conditions for a building construction contract". Figure 6 details the contents of this Specification Template. This template references the generic industry Standard AS/NZS ISO 9002:1994.

Figure 6



AS/NZS ISO 9000 is commonly known as a family of generic industry quality management systems Standards. Since their initial publication in 1987, they have earned a global reputation as the benchmark for quality management systems.

Three of the Standards issued in 1994, ISO 9001, 9002 and 9003, have been used extensively used as the basis for independent (third party) certification. This has resulted in the certification of over 200, 000 organisations world-wide, with many more in the process of setting up and implementing their systems.

Table 3 lists the contents of the 1994 version of AS/NZS ISO 9001. It is important to be aware of its contents because it has been used to model many other requirements of the construction contracting industry; such as:

- *contractor tendering pre-qualification criteria*
- *health and safety management and*
- *education and training programs*

The 1994 family of Standards (9001, 9002 and 9003) was replaced by a single quality management systems Standard in 2000. It is known as AS/NZS ISO 9001 (Int):2000 Quality management systems - Requirements.

AS/NZS ISO 9001 (Int):2000 is applicable to all organisations, products and services. In particular, it covers:

- *management responsibility*
- *resource management*
- *product realisation*
- *measurement, analysis and improvement*

Figure 7 summarises the core requirements of AS/NZS ISO 9001(Int):2000.



This new version is supported by:

- *AS/NZS ISO 9004:2000, Quality management systems – Guidelines for performance improvement. It is designed to go beyond AS/NZS ISO 9001:2000 to include requirements for improvement of the organisations performance and*
- *the auditing Standard ISO 10011 (This Standard is in the process of revision, and will be consolidated with the ISO 14010, ISO14011 and ISO 14012 environmental auditing Standards)*



TOOL 2 includes a reference wallchart that graphically displays the core requirements of AS/NZS ISO 9001(Int):2000 Quality management systems – Requirements.



- *AS 3911.1—1992 provides guidelines for verifying the existence of elements of a quality management system. It is sufficiently general in nature to permit it to be applicable or adaptable to different kinds of industries and organisations.*
- *AS 3911.3—1992 gives basic guidelines for managing quality systems audit programs; such as:*
 - *qualification of staff*
 - *suitability of team members*
 - *monitoring and maintenance of auditor performance*
 - *operational factors*
 - *commitment of resources*
 - *planning and scheduling*
 - *reporting*
 - *corrective action follow-up*
 - *confidentiality*
 - *joint audits*
 - *audit program improvement.*
- *HB18.62:1996 provides requirements that ensure certification bodies operate third-party certification/registration systems in a consistent and reliable manner.*

Table 3
 Contents of the *generic* industry quality management system Standard
 AS/NZS ISO 9001:1994

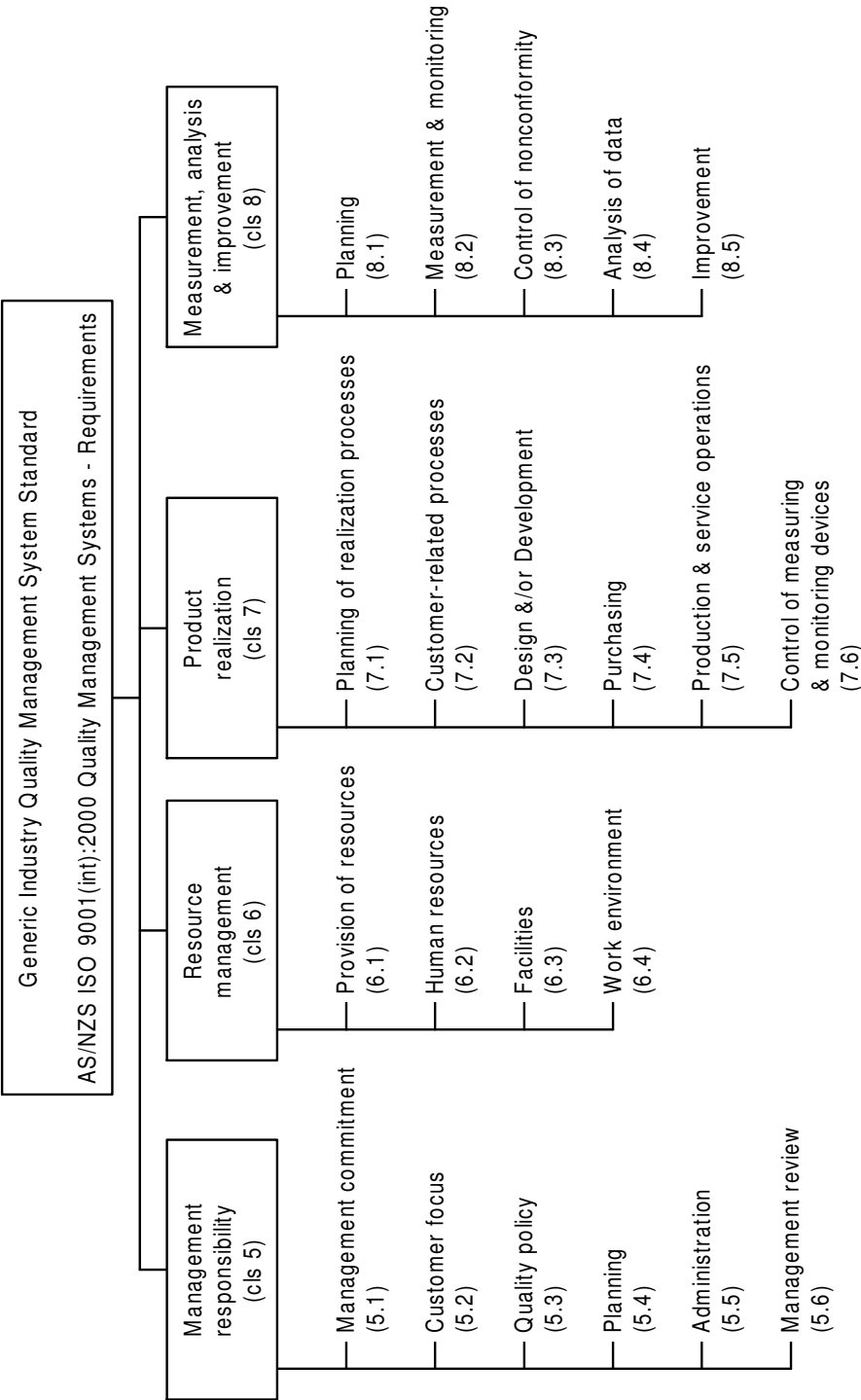
<ul style="list-style-type: none"> • management responsibility <ul style="list-style-type: none"> □ Quality policy □ organisation <ul style="list-style-type: none"> – responsibility and authority – resources – management representative □ management review • quality system <ul style="list-style-type: none"> □ quality system procedures □ quality planning • contract review <ul style="list-style-type: none"> □ review □ amendment to a contract □ records • design control <ul style="list-style-type: none"> □ design and development planning □ organisational and technical interfaces □ design input □ design output □ design review □ design verification □ design validation □ design changes • document and data control <ul style="list-style-type: none"> □ document and data approval and use □ document and data changes • purchasing <ul style="list-style-type: none"> □ evaluation of subcontractors □ purchasing data □ verification of purchased product □ customer verification of subcontracted product • control of customer supplied product 	<ul style="list-style-type: none"> • product identification and traceability • process control • inspection and testing <ul style="list-style-type: none"> □ receiving inspection and testing □ in-process inspection and testing □ final inspection and testing □ inspection and test records • control of inspection, measuring and test equipment <ul style="list-style-type: none"> □ control procedure • inspection and test status • control of non-conforming product <ul style="list-style-type: none"> □ review and disposition of nonconforming product • corrective and preventative action • handling, storage, packaging, preservation and delivery • control of quality records • internal quality audits • training • servicing • statistical techniques <ul style="list-style-type: none"> □ identification of need □ procedures
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- *AS/NZS 3905.2:1993 provides guidance on the application of AS/NZS ISO 9001, 2 and 3 (1994 version) to the construction industry.*
- *AS/NZS 3905.4:1995 provides guidance to the pressure equipment industry on the application of AS/NZS ISO 9001:1994.*



Figure 7





An example of a specific industry quality management system standard is the AS/NZS ISO 3834 family. They describe quality requirements suitable for application by manufacturers using welding as a means of fabrication.

They have been designed to either work:

- with AS/NZS ISO 9001 (Int):2000 **or**
- as a stand-alone quality management system.

The AS/NZS ISO 9000 family is intended to cover all industries; whereas AS/NZS ISO 3834 is specially aimed at assuring the quality of fusion welded products. It is important to not that AS/NZS ISO 3834 only covers fabrication and not design, like ISO 9001 does.

AS/NZS ISO 3834.2:1999 contains conditions for:

- contract and design review
- subcontracting
- welding personnel
- inspection, testing and examination personnel
- equipment
- welding activities
 - production plan
 - welding procedure specification
 - welding procedure approval
 - work instructions
 - documentation
- welding consumables
 - batch testing
 - storage and handling
- storage of parent materials
- post-weld heat treatment
- welding-related inspection and testing
 - before welding
 - during welding
 - after welding
- nonconformance and corrective action
- calibration
- identification and traceability
- quality records



2.1.2.2 Contractor's Occupational Health and Safety Management System

The *preliminary* section of the technical specification often includes requirements for the contractor to establish and have certified an occupational health and safety management system. Some also require management of the rehabilitation of injured employees.

The purpose of this management system is to help reduce:

- occupational/workplace illness and injury
- the costs associated with workplace accidents
 - first aid and emergency response
 - rehabilitation
 - lost production
- the likelihood of prosecution for breaches of the occupational health and safety requirements in government legislation.

Normally, clients either:

- develop their own contractor's occupational health and safety management system requirements or
- reference a generic industry Standard, like AS 4801.



For **large** projects, government departments often require their contractors to:

- establish and have certified a occupational health, safety and rehabilitation management system.
- develop site-specific safety management plans
- develop safe work statements

A **large** project is often defined as one:

- having a value over \$3 million, or
- where the work is of high risk.

For contracts of less cost and risk, the contractor is usually required to prepare and submit a site-specific safety management plan and/or safe work method statement.

Figure 8 summarises the common requirements for such systems, plans and statements.

A contractor's occupational health, safety and rehabilitation management system will be certified if they meet one of the following requirements:

- *it has been assessed and accepted by the relevant government department as complying with their requirements or*
- *it has been certified by an appropriately recognised third party body as complying with AS 4801—2000 and the contractor can also demonstrate that their system addresses the department's additional requirements, like rehabilitation of injured employees.*

This certification is usually transferable to other government departments.



AS 4801—2000 is a generic industry Standard that establishes the requirements for the contractor's occupational health and safety management system. Figure 9 details the contents of this Standard. It is important to note that it does not cover rehabilitation of injured employees like government departments require.



- *AS/NZS 4804:1997 provides guidance on the development and implementation of occupational health and safety management systems (OHSMS). Figure 10 details the contents of this Standard.*
- *CIDA 06—1993 Occupational Health and Safety Performance Manual (available from Standards Australia) provides information to assist contractors measure its occupational health and safety performance against the Australian Construction Industry Tendering Pre-Qualification Criteria.*
- *AS 1885.1—1990 helps contractors measure their occupational health and safety performance. It deals with the recording of workplace injury and disease. It includes:*
 - *an explanation of the data items which are required to be recorded (such as incident rate, frequency rate and average time lost rate)*
 - *a time series analysis and cross tabulations and*
 - *a section dealing with the interpretation and analysis of the recorded information.*
- *HB 53—1994 is a handbook that deals with the application of a systems approach to occupational health, safety and rehabilitation activities within the construction industry. It provides guidance which will assist organisations to develop and maintain an effective system.*



Figure 8

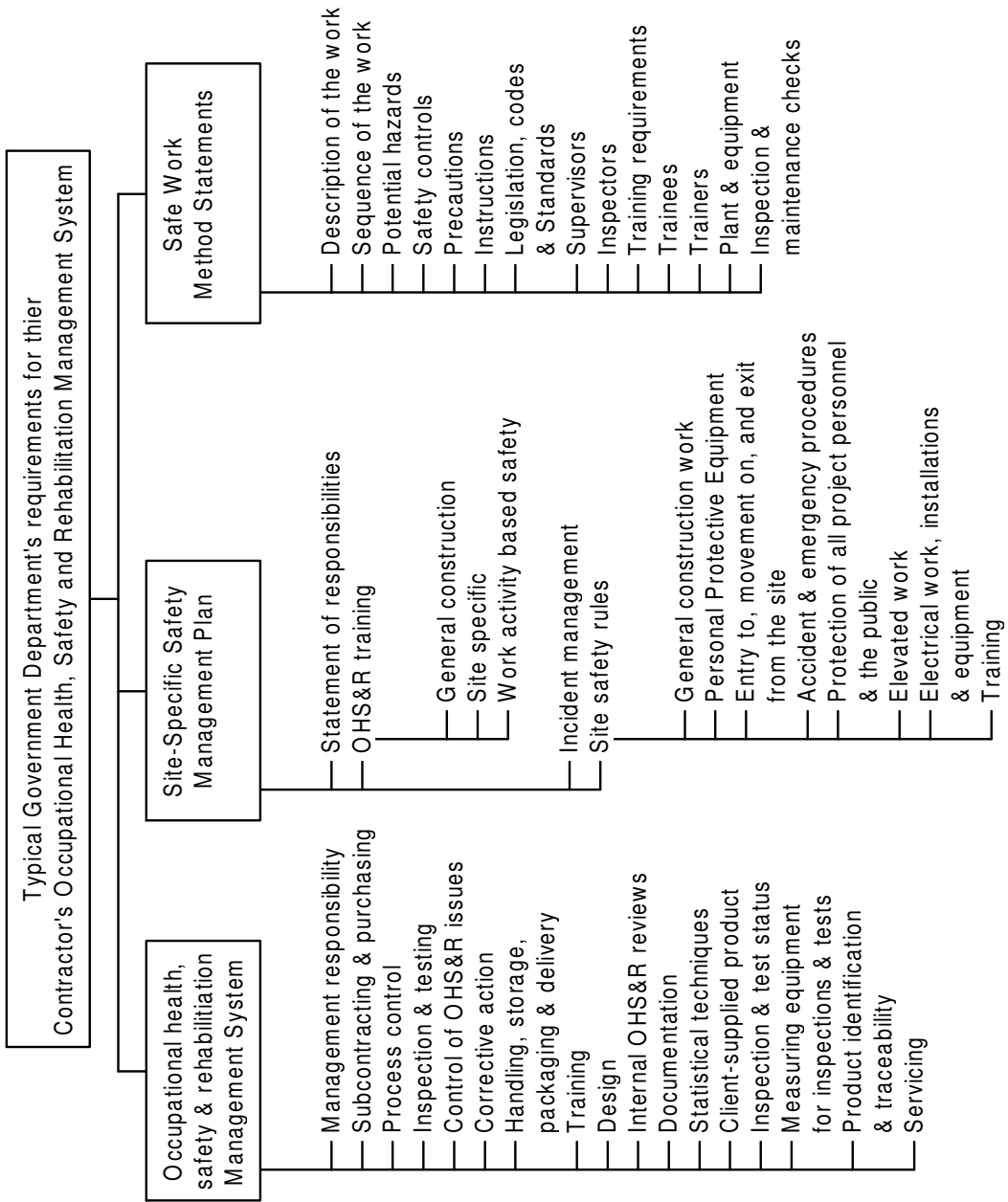


Figure 9

