SCOPE AND USE OF AUS-SPEC

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Summary

AUS-SPEC is the Local Government Specification covering minor civil works developed by IPWEA and updated by NATSPEC, a not-for-profit organisation owned by Government and industry bodies. NATSPEC's major service is providing a national master specification to the construction industry.

The partnership between IPWEA and NATSPEC has been built on NATSPEC's 35 year history and specialised expertise in the specification field. AUS-SPEC has been restructured into the national classification system. Specifications can now be compiled more quickly and easily using a NATSPEC developed online software program called SPECbuilder. NATSPEC *Basic* and *Landscape* (*Site)* packages have been added to AUS-SPEC to strengthen the existing packages.

Introduction

AUS-SPEC has been in use by Local Government for more than 15 years and many major projects have been documented and built using this specification system. AUS-SPEC's foundation is the collective wisdom of many Local Councils with input from industry bodies including Austroads and the Australian Asphalt Pavement Association (AAPA). The information is updated annually to reflect changes in regulations and standards as well as to incorporate new technologies and current experience from Local Council projects.

Councils using AUS-SPEC have achieved reduced claims and expenditure and increased efficiency. A particular advantage of the AUS-SPEC system is its consistency between Councils.

National master specification system

National master specification systems such as NATSPEC and AUS-SPEC are desirable and economical because it is not feasible for each professional practice or local council to monitor all the changes in regulations, and standards and in product/technology improvement. Rather than each council developing their own material and 'reinventing the wheel', AUS-SPEC represents the collective experience of all subscribers and other industry contributors. Further, there are huge efficiency gains when the national master specification is commonly used. In Australia, a national system is appropriate because the construction industry is national with common materials, construction techniques and procurement strategies.

The International Construction Information Society (ICIS) is an association of organisations that provide national master specification systems. Countries represented include Australia, Belgium, Canada, Czech Republic, Finland, Germany, Japan, Netherlands, New Zealand, Norway, South Africa, Switzerland, UK and USA. It exists because it is internationally recognized that national master specifications add value to their nations as a whole and that in the long-term there is value in moving towards international harmonisation. NATSPEC is a member of ICIS and meets with member organizations on a regular basis.

Quality

Quality is a subjective matter meaning different things to different people depending on perceived priorities. People's ability and

willingness to pay for a particular level of quality is also varied.

A quality specification must clearly define the desired level of quality and demonstrate compliance with legislation and the requirements of relevant authorities.
AUS-SPEC identifies these issues and now offers guidance notes to assist the writer in developing a project specific specification. The level of quality set by legislation is built upon by the incorporation of Australian Standards and feedback from industry.

Specifications - Defining what is to be procured

The specification is an essential contract management document used to outline what is required of the contractor. Preparing a specification is a core process in tendering and contracting.
Generally specifications may include:

- Functional specifications which define the function to be performed.
- Performance specifications which define the physical performance expected which can be reliably measured and evaluated.
- Technical specifications which define the technical and physical characteristics.

Using a well prepared specification system like AUS-SPEC leads to consistencies and efficiencies across the industry.

AUS-SPEC Benefits

AUS-SPEC is a specification system. It is not a project specification. It provides a point of reference for good construction practice. It is not an Australian Standard or a governmental regulation. No one is compelled to adopt AUS-SPEC but many in the industry believe that it is in the industry's best interest to do so.

The benefits of using AUS-SPEC for Council contract documentation are:

- It reduces uncertainty by providing a predictable structure with consistent content.
- It provides a clear, simple and common language between all the parties, professional consultants and contractors during the design, construction and maintenance process.
- Its material is current, thereby facilitating the preparation of quality specifications saving time, heartache, confusion, frustration, money, and, occasionally court proceedings.
- It reflects current practice in the industry in Australia.
- It is economical. It is produced by a centralised agency monitoring construction industry developments and, as a not-for-profit organisation the benefits of this are transferred to subscribers and the industry as a whole.
- It is part of a coordinated specification system that covers the whole of the project, not just part of it.
- It is easy and efficient to use with the specification compiler, SPECbuilder and the facility for office-edited worksections and branded worksections.
- It is aimed at producing a quality built result at a competitive price.

Clients prefer NATSPEC and AUS-SPEC specifications because they provide assurance of a baseline level of project quality.

AUS-SPEC and Asset management

AUS-SPEC is the Local Government specification system for the life cycle management of assets. Asset life cycle activities start with planning and end with disposal of an asset. The AUS-SPEC documents have been developed following the principles of the International Infrastructure Management Manual (IIMM). In order to maintain a physical asset during its entire life cycle, asset management, life cycle strategies, financial planning and forecasting is carried out for an asset. Asset management advances the sustainability of infrastructure services.

IPWEA/NAMS.AU provides tools and templates to assist Local Government councils to develop integrated asset management systems and practices to keep a record of existing assets, integrate asset management with Council corporate and financial planning.
The development of standard processes and information documentation, such as

AUS-SPEC, creates efficiencies and effectiveness. AUS-SPEC focuses on the engineering and technical aspects and processes of 'how to' plan, design and construct new assets and maintain existing assets. AUS-SPEC also provides sample contract documents for different type of projects.

Figure 1: Asset Lifecycle Activities
(Source: IIMM)

Figure 1 from IIMM, presents the asset life cycle activities. AUS-SPEC can be used for the following IIMM defined life cycle activities:

- Asset planning
- Asset creation
- Operations and maintenance
- Asset monitoring
- Renewal and rehabilitation.

AUS-SPEC cites the Australian Infrastructure Financial Management Guidelines (AIFM) in the TECHguides to raise awareness of the financial aspects of Local government assets. This is in line with the Local Government and Planning Minister's Council's (LGPMC) national consistency frameworks on Local Government asset and financial management, an initiative to assist Councils to improve their asset management performance and financial sustainability.

Key Improvements to AUS-SPEC

A National Classification system

AUS-SPEC worksections are now classified and sequenced in a logical order as shown in Figure 2, which corresponds to the Australian construction industry sequence and type of works.

The classification system provides a consistency of structure. Benefits of a classification system are:

- Users know where to find the required information. Specifiers know where to find existing worksections and where to put new information.
- Contractors can confidently break up specifications, including all relevant parts in a work package, because the classification system means that worksections are consistently located.
- Head and sub-consultants can easily locate information within the worksections thereby avoiding duplication or omission.
- Contractors can potentially reduce margins because the predictability of the classification system makes for less uncertainty.

SPECbuilder:

SPECbuilder is a specification compilation software program that enables subscribers to create new specifications using AUS-SPEC, NATSPEC and office-edited worksections.

Updating Service

The number of regulations that change each year continues to increase. NATSPEC provides the economies of scale to track changes and to keep consultants up-to-date. The end result is better documentation that gives clients a more reliable basis for assessing tenders and construction.

The regular development and updating of the specification system responds to user and industry feedback.

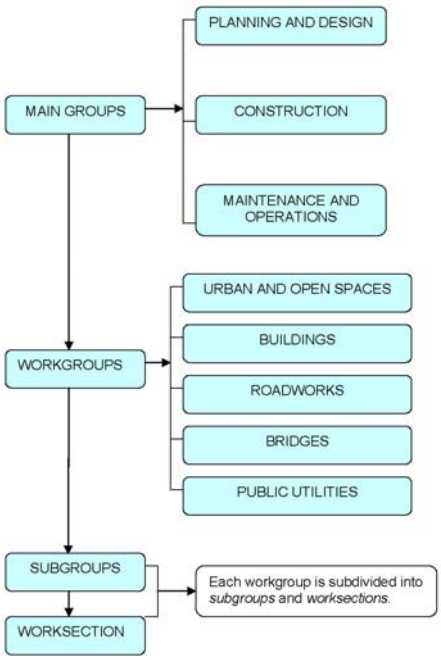


Figure 2: National Classification Structure

As part of the AUS-SPEC annual updating service, every October a list of the updated worksections is released. In summary, since 2007 we have updated the following:

- 2007 – Alignment to National Classification Structure.
- 2008 – *Buildings* Package including the release of the new *NATSPEC Maintenance Reference.*
- 2009 – All *Roadworks* design and construction worksections.
- 2010 – *Public Utilities* (including design and construction worksections of stormwater drainage, water supply & sewerage).
- 2011 – *Contracts* package.

Information for previous users

Comparison table: For the previous users of AUS-SPEC a comparison table is available on www.natspec.com.au, which shows the comparison of the old AUS-SPEC specification numbers and activity titles with the new classification numbers and their location in new packages.

Update Process

Keeping AUS-SPEC current is a paramount NATSPEC obligation. The update process takes into account advances in material development, construction efficiency and ability, and cost.

The evolution of specifications relies on many sources including:

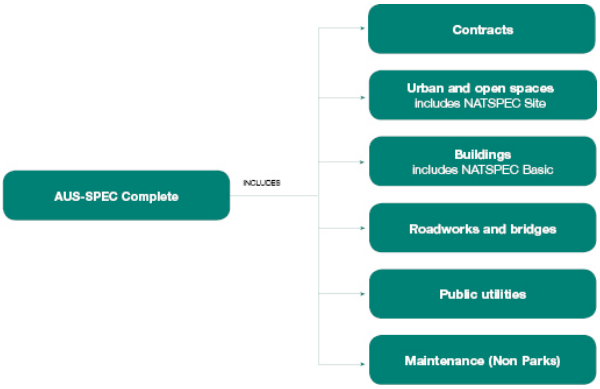
- Amendments to regulations and Standards.
- Subscriber/user feedback.
- Stakeholder feedback.
- Collaboration with global master specification providers, State road authorities, utility authorities and IPWEA.
- Editorial team experience, knowledge and input.
- External reviews by Local Government Councils, State road authorities and industry organizations like WSAA, CPAA, PIPA, IPWEA state divisions, Roads Directorate, Water Directorate and NAMS.AU.

By these means NATSPEC accumulates and maintains quality information. The result is quality practice within realistic cost constraints.

Subscription Service

Previously AUS-SPEC was sold as an expensive package with limited updating and development. AUS-SPEC is now available by subscription only with an annual updating service at less than one-tenth of the original package cost.

AUS-SPEC has seven specification packages. Subscribers can select from the following AUS-SPEC packages to best suit their projects:



AUS-SPEC Complete covers planning and design, tendering, contract preliminaries, construction, maintenance and operations of open and urban spaces, buildings, minor roads, minor bridges for vehicle and pedestrian use, and public utilities. This package satisfies most local councils' needs

and is used by the design, maintenance and operational personnel.

AUS-SPEC Contracts covers tendering, contract preliminaries, quality checklists and quality requirements for the supply of projects and services. It includes sample documents which provide guidelines for completing the tender and contract documentation, maintenance management plans and contract schedules for a maintenance contract. This package is for Contract, Supply, Asset and Works Managers, Purchasing and Legal Officers.

AUS-SPEC Urban and open spaces covers planning and design, tendering and contract preliminaries, construction, maintenance and operations of urban and open spaces (landscaping, pathways and retaining walls). It provides the concepts of Park Maintenance Plan (PMP) to organize and ensure quality maintenance and Activity Contract Requirements (ACR) covering horticultural and built items, cleaning operations and miscellaneous activities such as storm damage response. It also includes the NATSPEC *Building Landscape (Site)* package for site preparation works and all works external to the building but within the site boundary together with mechanical, hydraulic and electrical services design and installation work. This package is for Environmental Services, Recreation and Maintenance Managers and Park Superintendents.

AUS-SPEC Buildings covers planning and design, tendering and contract preliminaries, maintenance and operation of buildings and its associated services. A Building and Facilities Maintenance Plan (BFMP) is provided to ensure better coordination of quality management and performance requirements covering security, emergency call out, storm damage response and cleaning. It also includes the NATSPEC *Building Basic* package for simple building projects where brevity is a priority. It covers site, structural, architectural, interiors, landscaping and mechanical, hydraulic and electrical services design and installation work. This package is for Building, Asset, Property Services and Engineering Services Managers.

AUS-SPEC Roadworks and bridges covers planning and design, tendering and contract preliminaries, construction, maintenance and operations of minor roads and minor bridges for vehicle and pedestrian use. It provides the concepts of Maintenance Management Plan (MMP) to organize and ensure quality maintenance processes and Activity Contract Requirements (ACR) covering road pavement and shoulder, drainage, roadside, traffic facilities and miscellaneous activities such as emergency call out. This package is for Design and Development, Contracts, Asset, Maintenance Business Unit and Strategic Planning Managers.

AUS-SPEC Public utilities covers planning and design, tendering and contract preliminaries, construction, maintenance and operations of public utilities (water supply, water cycle management, sewerage systems and cleaning and waste management). It provides the concepts of Maintenance Management Plan (MMP) to organize and ensure quality maintenance and Activity Contract Requirement (ACR) for various activities. This package is for Engineering Services, Environmental Services and Maintenance Managers.

AUS-SPEC Maintenance (Non Parks) covers tendering and contract preliminaries, maintenance and operations buildings, roadworks, minor bridges for vehicle and pedestrian use and public utilities. It introduces the concepts of Maintenance Management Plan (MMP) to organize and ensure quality maintenance and Activity Contract Requirements (ACR) for various activities. This package is for Engineering Services, Environmental Services, Asset and Maintenance Managers.

Additional publications provided with AUS-SPEC

QUICKstart: A brief guide to the installation and use of NATSPEC and AUS-SPEC packages and SPECbuilder (compilation software). It is reissued at each update.

National worksection matrix: A matrix that may be used to check or select the appropriate NATSPEC and AUS-SPEC specification package. It also lists the number of worksections included as part of each package.

TECHguides: Provide roadmaps and examples for compiling the documentation required for Local Government projects. They include information on contracts, technical specifications and tender submission requirements. They should be read prior to commencing a project. They are included in the reference documents section of SPECbuilder in pdf format.

TECHnotes: A one or two page note prepared by NATSPEC providing professional knowledge to the subscriber on current issues in the building industry and the related provisions made by NATSPEC. TECHnotes contain guidance of a general nature that either relates to several worksections or does not fit into a generic worksection. TECHnotes are grouped into three categories: General (GEN), Design (DES) and Products (PRO). These are also used by the Australian Institute of Architects for their Continuing Education program and, other organizations including, Engineers Australia, Australian Institute of Quantity Surveyors and the Australian Institute of Building.

Specifying ESD TECHreport: This TECHreport outlines the principles of Ecologically Sustainable Development (ESD) and their application to building specifications. ESD-related items included in NATSPEC worksections are listed and cross referenced to BCA, NABERS and Green Star requirements.

NATSource: A listing of all sources of citations in NATSPEC and AUS-SPEC worksections. This is updated and issued annually.

NATSPEC Maintenance Reference: A quality statement for maintenance and repairs only. *NATSPEC Maintenance Reference* is derived from the NATSPEC worksection *Template* text. Documentation for maintenance contracts will require additional information to cover the selection of products and materials to match existing work and to fulfill slip resistance obligations.

SPECnotes: A quarterly newsletter produced for NATSPEC and AUS-SPEC subscribers to explain and describe NATSPEC content, revisions and proposals as well as administrative and subscription matters. It includes reviews of relevant new Australian standards and code updates as well as providing key industry information.

Standards revising NATSPEC: A cumulative listing of all new and revised standards over the year which relate to NATSPEC worksections. It is updated on a monthly basis and made available to subscribers on the NATSPEC website.

STYLEguide: An alphabetical reference to the style rules, including preferred spelling, grammar, punctuation, hyphenation, forms of expression, and method of citation and cross referencing.

Defined terms in NATSPEC: An alphabetical listing of the defined terms and their meanings as given in the worksections.

Product Partner worksections: Worksections produced in NATSPEC format in conjunction with a **Product Partner** which provide specifiers with an alternative to the generic worksection where a particular product has been selected at design stage. NATSPEC currently has 70 branded worksections.

Building Information Modelling (BIM)
NATSPEC released the *National BIM Guide* and *Project brief* in 2011 and *BIM Management plan* in 2012. BIM has the potential to provide a platform for integrated project delivery; improve sustainability outcomes through modelling; increase productivity through decreasing variations during construction; and provide a tool for facilities and asset management. For further information on BIM projects visit www.natspec.com.au and click on the BIM logo.

Conclusion

A well maintained purpose-built technical specification system is a key component in producing quality documentation. The benefits of quality documentation include reduced project ambiguities, variations and re-work and a reduced likelihood of legal action due to contractual disputes. It is only

through quality documentation that clients can be assured of a quality result.

Quality is reliant on good documentation and good documentation is incomplete without a good specification.

The development of standard processes through AUS-SPEC documentation creates efficiencies and effectiveness in managing and upgrading infrastructure assets.
AUS-SPEC is the collective experience of the subscribers and other related industry organizations to provide tools and templates for the life cycle management of assets.

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Author Biography

Richard Choy is the Chief Executive Officer of NATSPEC, publisher of the National building specification of Australia. An engineer by profession, he has been involved in the design and construction industry for over 30 years. Richard has been involved with most building types and building materials from both a design and construction supervision perspective. He was the inaugural Executive Director of the Steel Reinforcement Institute of Australia, Federal President of the Concrete Institute of Australia and Vice-President of the Building Science Forum of Australia. He has participated on MBA and Standards Australia Committees and has presented on a wide range of subjects both domestically and internationally.
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Nandini Mehta is the AUS-SPEC Manager at NATSPEC, publisher of the National building specification of Australia. She has been responsible for the integration of AUS-SPEC specifications into the National Classification Structure. A civil/structural engineer by profession, she has been involved in the design and construction industry for over 15 years. Nandini joined NATSPEC as a Senior Engineer 7 years ago and has worked on various NATSPEC publications including TECHguides, TECHnotes, TECHreports and has developed a number of new specification worksections. Prior to joining NATSPEC she was a Design Engineer working in the Middle East on several prestigious projects in the UAE with many international organizations including Multiplex, Murray & Roberts, WS Atkins etc. She has a wide range of expertise in the construction of high rise buildings and civil works.
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