BUILDING QUALITY

NATSPEC is owned by the following organisations:

- Air Conditioning and Mechanical Contractors Association of Australia
- Australian Elevator Association
- Australian Institute of Architects
- Australian Institute of Building
- Australian Institute of Building Surveyors
- Australian Institute of Quantity Surveyors
- Construction Industry Engineering Services Group
- Consult Australia
- Department of Housing and Public Works (QLD)
- Department for Infrastructure and Transport (SA)
- Department of Finance (Federal)
- Department of Finance (WA)
- Department of Logistics and Infrastructure (NT)
- Department of Treasury and Finance (TAS)
- Department of Treasury and Finance (VIC)
- Engineers Australia
- Infrastructure Canberra
- Master Builders Australia
- Public Works Advisory (NSW)
- Standards Australia

NATSPEC is a national not-for-profit organisation owned by the design, build, construct, and property industry through professional associations and Government property groups. NATSPEC's objective is to improve the construction quality and productivity of the sustainable built environment through leadership of information.

NATSPEC is a national not-for-profit organisation, owned by Government and industry, whose objective is to improve the construction quality and productivity of the sustainable built environment through leadership of information. It is impartial and is not involved in advocacy or policy development.

NATSPEC's main service is to maintain the National Building Specification for Australia. Construction specifications are the only contractual way to define the required level of quality, and which technical standards need to be achieved. An up-to-date and comprehensive specification that supports your contract and drawings is required to deliver a project with reduced risk of litigation.

NATSPEC provides an economy of scale for the industry, by the industry. Government clients and industry practitioners provide feedback so that NATSPEC reflects the latest Australian good practices.

Through leadership of information and a well-resourced team, NATSPEC keeps up to date with the latest national regulations and building standards to make it easier for you to define the level of quality needed for your projects.

Bryce Mortlock

"The level of quality that can be policed in the construction stage cannot be higher than that which is spelt out in the contract. If the building contract documents permit a sow's ear then all the quality control in the world cannot demand a silk purse. True quality control starts with the documentation for a project and in the project specification in particular."

Bryce Mortlock
Father of NATSPEC
RAIA Gold Medallist
Sir John Sulman Medal

"...Hence the courts and others often look to the specification in particular to determine the message conveyed by the contract documents to those who work with them."

AIA Practice Note AN04.101

A Specification is...

- A written record of design decisions.
- A document demonstrating compliance with statutory requirements.
- An estimating document.
- A tendering document.
- A legal document.
- A contractual document.
- An on-site working document.
- A dispute settlement document.
- A project management document.

Kathlyn Loseby
CEO, Architects
Accreditation Council
of Australia

"Specifications and access to reference information help architects to achieve their main goal of producing quality outcomes for clients and the community. Master specifications always need to reflect the latest regulations, standards and other key references. This not only makes it easier to ensure compliance, but also improves communication during all stages of design and construction. For these reasons, documentation including specification writing are core skills for the professional architect."

Specifying Quality

A specification is part of the contract documentation of a building project. It complements the drawings, schedules and conditions of contract.

The specification is a multi-purpose document. Its primary function is to define precisely and succinctly the levels of quality required and the processes necessary to achieve them. Its role includes, but extends beyond, the selection of materials by providing the criteria for acceptable quality of construction. The level of quality that can be demanded during construction cannot be higher than that which is specified in the contract documentation without incurring additional costs.

Factors that influence the desired level of quality include:

- Anticipated lifetime – long-term durability or short-term use.
- The purpose of the building – prestige or utility, flexibility or permanence.
- Required functional performance – design repetition, one-offs, environmental.
- User perception – convenience, comfort, ease of maintenance and repair.

Quality cannot be managed if it is not defined. Construction specifications are the most reliable way to define the required level of quality and meet technical standards. An up-to-date and comprehensive specification supporting your contract and drawings is required to deliver a project with reduced risk of litigation.

NATSPEC is the only comprehensive Australian national specification system that is regularly updated to reflect the latest changes in regulations, standards and industry practices. NATSPEC provides specification templates for architects, building designers, interior designers, landscape architects, structural and civil engineers and building services engineers.

NATSPEC is independent and does not favour one party over another.

Specifications are your design decisions in written form. Together with your drawings they create an efficient working document for your project. Practitioners of all disciplines are required to use up-to-date specifications on their projects.

Why Government and Quality Projects use NATSPEC

NATSPEC specifications are:

- **Australian:** Australia has very specific climatic and ecological conditions, and pests and insects. Be aware that some proprietary product specifications should be used with caution as their quality requirements may not apply to Australia.
- **Up to date:** NATSPEC has a team of 20 tracking over 2000 documents relating to buildings. As a not-for-profit organisation, NATSPEC receives regular feedback from Government and industry organisations, as well as from subscribers and manufacturers.
- **Relevant:** Many issues covered by NATSPEC specification templates have protected architects and their clients from litigation. There is no obligation to construct to Australian Standards unless the standard is referenced in the National Construction Code (NCC) or the construction specification.
- **Clear and unambiguous:** If quality is not defined, any corrective work will be at an additional cost. The specification is a quality control document for your project. Many schedules that claim to be specifications do not adequately define the required project quality.
- **Easy to use:** The NATSPEC National Building Specification has been developed and maintained since 1975 by the industry, for the industry. It is used by over 1800 companies.
- **Stipulating conformance:** Recent examples of non-conforming building products have highlighted the need for quality documentation. Products that do not conform to documented standards can be rejected or rectified at no additional cost to the client.

Richard Choy
CEO, NATSPEC

"The Australian Institute of Architects is proud to be a founder and owner of NATSPEC and continues to endorse the NATSPEC National Building Specification. NATSPEC, a not-for-profit organisation, maintains the national and comprehensive master specification on behalf of the Australian industry, with input from many of the Institute's members, and reflects the latest national regulations and standards. NATSPEC's regularly updated information reduces the risk of expensive litigation for designers and improves the communication with builders."

Australian Institute of Architects

Richard Choy
CEO, NATSPEC

Jonathan Cartledge
CEO, Consult Australia

"NATSPEC fulfils an important role in the building and construction industry.

"NATSPEC not only assists those in the supply chain to conduct their day-to-day activities, but also contributes to the standardisation of practices across the industry to produce better building quality outcomes. Consult Australia is proud of our founding membership of NATSPEC and highly recommends NATSPEC documents to our industry."

Quality Saves Money

According to Engineers Australia, poor documentation can increase project costs by an estimated 10-15%.

A specification that lacks clarity, includes out-of-date standards or other information, or is incomplete increases costs due to:

- Additional requests for information (RFIs) from the builder, leading to extended construction time.
- Rework, redesign, and variations.
- Repair or replacement of low-quality components selected by the builder.
- Potential lengthy and expensive litigation arising from disputes.

A crooked wall costs more to construct than a straight one. If you don't specify the quality of construction and finish, the client will be paying for the rectification, variation, extended time and increased maintenance.

Up To Standard

It is essential that the specification define the project requirements, as blanket references to standards are unlikely to achieve the desired quality.

Australian Standards become a contractual obligation when they are referenced in the NCC or in the specification. The specification is part of the project contract documentation.

The worksection *Templates* are customisable to suit the quality requirements agreed for each individual project and its components.

NATSPEC keeps track of changes to regulations, standards and industry practices to ensure that subscribers are working with high-quality, up-to-date documentation.

- NATSPEC monitors and references changes to Australian and international standards.
- Each month, NATSPEC publishes revised standards on the Technical Resources page at www.natspec.com.au.
- Every three months, NATSPEC publishes SPECnotes, which lists the most important of these revised standards.
- In April and October, NATSPEC issues updated specification material to its subscribers via SPECbuilder.

Romilly Madew AO FTSE HonFIEAust
CEO, Engineers Australia

"NATSPEC provides our structural, services and local government engineers with up-to-date national information to prepare their documentation for construction. NATSPEC's information is enhanced by feedback from Engineers Australia's members."

National Harmonisation

Inconsistent regulations across levels of Government create barriers to competition, increase costs of resources, and lower productivity. National harmonisation provides much-needed consistency.

The NCC, first published in 2011, is one major example of national harmonisation. Another is NATSPEC. The NATSPEC National Building Specification and AUS-SPEC local government specifications both achieve national consistency.

In its twice-yearly updates, NATSPEC always incorporates feedback from many sources to ensure its specifications and other publications, such as the National BIM Guide, are relevant to projects across Australia.

NATSPEC supports the industry to achieve better efficiency and productivity through harmonisation.

A National Classification System

NATSPEC worksections are classified and sequenced in a logical order with respect for the common local construction industry sequence. Locations are allocated for specification material provided by the various specialist designers and consultants.

The National Classification System provides locations for specification material produced by the architect, landscape architect, interior designer, civil and structural engineers, and mechanical, hydraulic, electrical and fire engineers.

By adopting a common classification system, working on multiple different projects becomes easier to manage. This classification system is freely available at www.natspec.com.au.

Denita Wawn
CEO, Master Builders Australia

"The quality and productivity of the building and construction industry is enhanced by NATSPEC's work.

"NATSPEC is highly regarded by industry stakeholders in both the private and public sectors and is strongly supported by Master Builders Australia."

Mario Macri
Lendlease

"Using good design documentation, you protect your reputation, you reduce defects, you produce high quality, you reduce costs, and most importantly, you deliver on time. And without good documentation you can't achieve these objectives.

"*Clearly defined quality requirements reduce construction cost blowouts that result in rework, redesign, variations and disputes. Good quality construction increases asset value due to longer asset life.*"

NATSPEC Adds Value

Scott Williams
CEO, Air Conditioning and Mechanical Contractors Association

"*The Air Conditioning and Mechanical Contractors Association of Australia has long supported NATSPEC's vision to improve the construction quality and productivity of the built environment through leadership and consistency of quality information. The National Building Specification and other information resources available through this not-for-profit organisation are extensive and up to date. We congratulate NATSPEC and its industry supporters for its work and strongly recommend services engineers use NATSPEC.*"

Government departments and clients prefer NATSPEC-based specifications so that they are assured of a baseline level of project quality. For over 45 years, NATSPEC has been trusted to deliver quality results.

Contractors want to compete on an equal footing, and a NATSPEC specification that clearly defines the required quality means that the job will not be lost to someone who will cut the quality of construction. NATSPEC is independent and does not favour one party over another.

Consultants know that NATSPEC is comprehensive and provides a clear outline of the quality of materials and tolerance of construction required. NATSPEC specifications reduce the risk of litigation and support the team in completing successful projects. NATSPEC provides economies of scale to keep consultants up to date.

Project managers do not waste time clarifying project requirements as NATSPEC specifications are written in simple and plain English, without duplication or contradiction.

The Architects Accreditation Council of Australia highlights the need for an understanding of specifications and schedules in order to register as an architect.

> *"Specifications are written descriptions of a technical nature for material, equipment standard, and quality, and are used by architects to communicate the project requirements to the contractor."*
>
> (AIA Practice Note – AN04.02.101)

NATSPEC for Government Projects

NATSPEC assists Government departments to develop and maintain their construction specifications.

Government departments are major clients of the building and construction industry. It is particularly important for Government departments to meet both client and public expectations when delivering projects.

This includes delivering projects on time and within budget, meeting the end users' objectives, and appropriate management from beginning to end. For best possible results, Government departments must be well-informed clients making well-informed decisions to achieve appropriate quality and obtain value for money.

Being well-informed improves construction quality, promotes fair competition, increases productivity, and creates economies of scale.

This can be achieved through the use of an up-to-date construction specification, a focus on life cycle costing, and a nationally harmonised specification system.

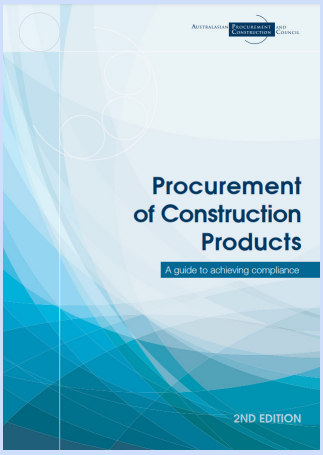
Tony Kemeny
Director, GRAN
Associates Australia

"An architectural practice should have, amongst other things, three fundamental project control documents: its Integrated Management Manual, the National Construction Code and NATSPEC."

Economic Benefits of NATSPEC

- Good documentation reduces project costs and allows for more accurate cost estimations.
- Clearly defined quality requirements reduce the likelihood of costly rework, redesign, variations and disputes.
- NATSPEC's clear and concise specifications improve communication between all parties.
- Good quality construction increases asset value by extending asset life.
- Construction specifications reduce the risk of lengthy and expensive litigation as they are a clear record of the quality required for the project.
- As a quality control tool, NATSPEC helps minimise life cycle costs.
- NATSPEC specifications support open market competitive pricing.
- NATSPEC is updated twice yearly to best reflect changes to standards, regulations and industry practices.
- As a risk management tool, NATSPEC reduces the additional costs associated with non-compliance.
- As a comprehensive Australian national specification system, NATSPEC supports national harmonisation.

APCC Principles for Procurement and Conformance of Construction Products



Procurement of Construction Products: A guide to achieving compliance

Australasian Procurement and Construction Council

David Hillam
Principal, Hillam Architects

"NATSPEC is an integral part of my practice's construction documentation process and one that we trust to achieve the quality we require."

NATSPEC specifications facilitate the implementation of the APCC's 12 principles for procurement and conformance of construction products.

1. All relevant legislation must be complied with including, but not limited to, building, workplace health and safety, and consumer laws.

2. Contract documentation should clearly specify product standards and the required evidence of conformity. Product standards should refer to relevant Australian Standards. Where there are no relevant Australian Standards, relevant international standards or authoritative industry sources should be utilised.

3. All construction products procured should conform to the requirements in the contract documentation.

4. The selection of the required evidence of conformity should be based on the intended use and risk exposure (likelihood and consequence of failure) of each construction product.

5. Construction product conformity requirements should refer to relevant Australian Standards. Where there are no relevant Australian Standards, appropriate international standards or authoritative industry sources should be utilised.

6. Evidence of construction products meeting specified standards should be demonstrated by conformity assessment including, but not limited to, product certification, testing or inspection, as set out in the contract documents.

7. Evidence of the source of construction products and their authenticity should be obtained and retained.

8. Project managers should obtain and retain contemporary and credible documentary evidence to demonstrate conformity of all construction products.

9. Responsibility for managing conformity assessment outcomes at each stage of the project should be appropriately allocated in the contract documentation.

10. Where third party conformity assessment bodies are relied upon to provide evidence of conformity, they should be accredited by:

    - Joint Accreditation System of Australia and New Zealand (JAS-ANZ) – for product certification, management systems, certification and inspection bodies.
    - National Association of Testing Authorities, Australia (NATA) – for testing and calibration laboratories and inspection bodies.
    - Accreditation bodies that are signatories to relevant international multilateral/mutual recognition arrangements and have the relevant scope associated with the conformity assessment activity.

11. Where construction products are supplied without required evidence of conformity, or where doubt exists about product conformity, product testing to an appropriate level may assist in ascertaining construction product quality.

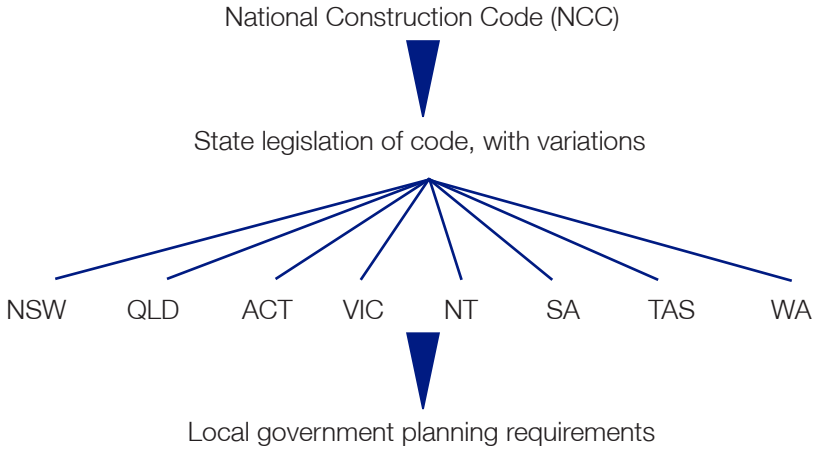
12. Without adequate evidence of product conformity, the product should not be used in construction.

Conformance and Compliance

Conformance: The fulfilment of specifed requirements relating to a product, system, person or body.

Compliance: The action of obeying an order, rule or request.

Products conform, people comply.



The NCC sets out the minimum technical requirements for the construction of new buildings and new building work. Compliance with the NCC is a legal requirement. However, the performance-based nature of the NCC allows for a choice of compliance options.

There are three ways to comply with the NCC:

- Performance Solution: This is unique to each individual situation. A Performance Solution directly addresses the Performance Requirements by using one or more of the four Assessment Methods provided in the NCC.
- Deemed-to-Satisfy (DTS) Solution: This defines the materials, components, design factors and construction methods that, if used, the NCC deems meet the Performance Requirements.
- Combination of Performance and DTS Solutions.

The project documentation details the ways in which a project achieves conformance and compliance. High-quality documentation is a must.

The National Construction Product Register (NCPR) is a free online searchable database of construction products with verified evidence of conformity.

Search the NCPR here: www.ncpr.com.au.

Troy Olds
President, Australian Institute of Building Surveyors

"Building surveyors gain significant confidence when a project has utilised the National Building Specification, published by NATSPEC. In the current environment of product uncertainty and complexity of design, it is reassuring to see a clear and thorough approach to specification of buildings. The benefits of this are a smoother assessment process and greater certainty through inspections. The end result is that building surveyors operating in statutory roles throughout Australia are better able to deliver on their responsibilities to the public and their clients.

"AIBS continues to fully support the National Building Specification from NATSPEC."

Sustainability and Resilience in Design

Grant Warner
CEO, Australian Institute of Quantity Surveyors

"Quality documentation is one of the most important aspects for ensuring a project finishes on time, on budget, and meets the client's expectations of quality. Without the guidance of NATSPEC and the inclusion of quality project specifications, there is an increased risk that projects will not achieve positive outcomes in terms of cost, quality, effectiveness, and timeliness of construction."

NATSPEC TECHreport *TR 01 Specifying ESD*

Resilience: A design attribute that, when applied to buildings, infrastructure and communities, defines their ability to absorb and minimise damage without suffering complete failure.

Sustainability: Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

NATSPEC supports ecologically sustainable development (ESD) and recognises that buildings need to be resilient in order to stand the test of time and therefore be truly sustainable. As stated by architect Carl Elefante, "the greenest building is one that is already built."

Much existing infrastructure was originally designed, built and maintained on the assumption that future climate conditions would remain relatively unchanged. Smart adaptive measures are now required to promote sustainability and minimise impacts of climate change on human life, structures, habitats and the economy.

The two main goals of ESD are:

- To improve environmental quality today.
- To act so that future generations enjoy an improved environmental quality.

This focus on the future ties in with resilient design. The design and construction industry must not only design for today by meeting current standards, but must expect environmental extremes to occur – or keep occurring – in the future.

When considering resilience, designers should address three main categories of events:

- Storm and coastal inundation.
- Heat and bushfires.
- Rainfall and flooding.

Specifications put design decisions into effect. Therefore, when designing for sustainability and resilience, a clear, high-quality specification is essential. NATSPEC provides the design, construct, build and property industry with a specification system that is customisable for various types of sustainable building procurement.

Since 2021, NATSPEC has collaborated with the Green Building Council of Australia (GBCA) to further encourage sustainable design. The GBCA maintains the Green Star sustainability rating system, including Green Star Buildings. The GBCA's publication *Specifying for Green Star Buildings using NATSPEC* lists each Green Star Buildings credit with the NATSPEC worksection classification number, clause number and title where it is covered in the National Building Specification. This saves specifiers time and energy, encouraging them to stipulate sustainable development in project documentation.

With specifications, designers can:

- Give effect to ESD decisions that are not shown on the drawings.
- Specify ESD-appropriate materials and methods of construction.
- Specify components and products that permit the implementation of ESD.

In the context of resilience and sustainability, the role of the specification is to enable the full ESD potential of the design to be achieved.

Liveability and Universal Design

Universal design is the design of buildings, products and environments to make them accessible and usable to all people of different ages and abilities over time, without the need for further adaptations or specialised design. This promotes liveability, housing longevity and social inclusion.

There are many factors that influence how people interact with the built environment. Such factors change from day to day, as well as over longer periods of time.

This includes:

- Speed
- Method of movement
- Familiarity with the space
- Energy levels
- Visual perception
- Auditory perception

People experiencing temporary changes in ability, for example due to illness or injury, as well as elderly people, young children, and people with disabilities or chronic health conditions benefit from universal design as it ensures they can move safely around their own home.

Universal design is often introduced through home modifications, such as levelling doorsteps or renovating bathrooms. However, these modifications are far more difficult and more expensive to introduce after the initial design and construction process is complete. Documenting universal design elements in specifications from the very beginning of a project not only reduces cost but also allows a much greater number of people to use the final construction.

Small decisions made in the initial design process can have a significant positive impact on the final construction. For example, specifying floor finishes, product colours, the type of door handles, and the height of handles and switches can help more people access and use a building in a comfortable, independent way.

People with disabilities or mobility restrictions are rarely considered to be part of the mainstream housing market. However, the vast majority of the population will benefit from universal design at some point in their lives. Universal design helps make housing inclusive for visitors, tenants and owners of all abilities.

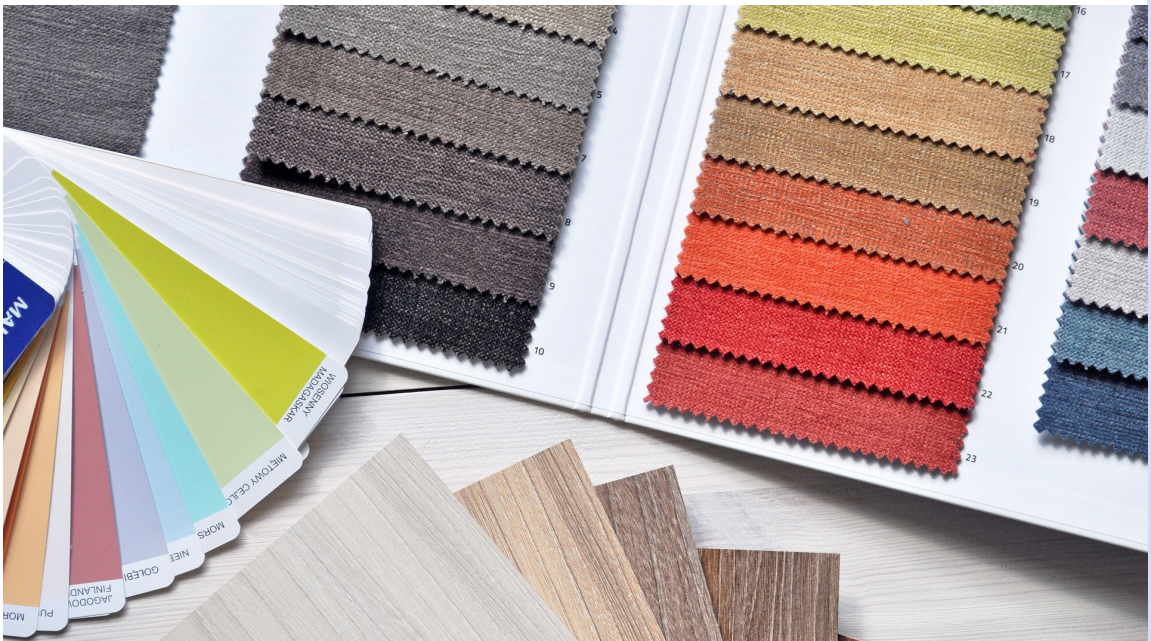
Adrian O'Connell
CEO, Standards Australia

"Standards Australia endeavours to shape a safer and efficient Australia, cementing our role within the building and construction sector. Sharing the same values as NATSPEC, Standards Australia are proud to be key partners."

The following NATSPEC TECHnotes provide further information:

- *DES 038 Universal Design – Introduction*
- *DES 039 Universal Design – Slip resistance*
- *DES 040 Universal Design – Trip avoidance*
- *DES 042 Universal Design – Lighting*
- *DES 043 Universal Design – Wayfinding*
- *DES 046 Universal Design – Acoustics*

Visit www.natspec.com.au.



NATSPEC Subscriber Advantages

SPECnotes
SPECnotes is NATSPEC's quarterly newsletter on standards and regulatory changes. Included in each issue is an outline of the latest standards changes, as well as additional relevant industry information.

SPECbuilder
SPECbuilder is NATSPEC's online specification compilation program. It allows the design team to easily compile worksections into a draft project specification.

Economies of scale
NATSPEC is a not-for-profit organisation owned by you through Government and industry. Our team of 20 track and incorporate the latest changes to regulations, standards, and industry practices. We are indebted to the many organisations and individuals who generously provide their time in the development and review of worksections.

Up to date
NATSPEC's greatest value is in its update service. The worksections are updated twice a year, in April and October, to reflect changes to Australian Standards, with the April update also reflecting applicable changes to the NCC.

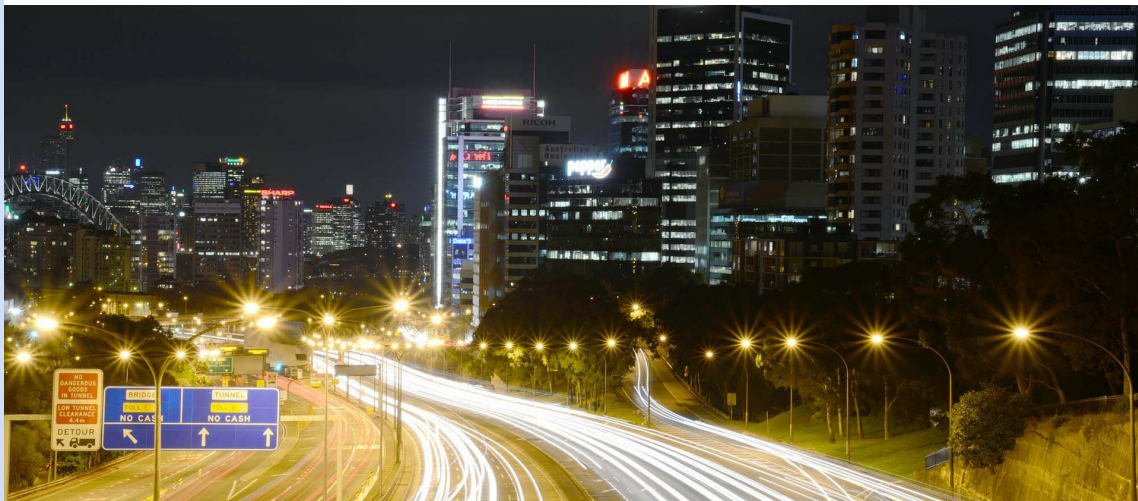
National focus
NATSPEC is a truly national Australian specification system. It incorporates feedback from multiple sources nationwide across Government and industry, which enables this single specification system to be relevant to different projects all over Australia. NATSPEC is by far the most-used Australian national specification system.

Contractually tight
Tight specifications produce quality projects and minimise the risk of variations. NATSPEC produces contractually tight specifications by eliminating such risks as vague and contractually empty phrases, unnecessary duplication, and reliance on out-of-date standards and reference documents.

Integrated
A project that uses NATSPEC's integrated specification system, rather than other specifications created by combining material from disparate sources, can eliminate gaps and duplication. This minimises the risk of contract variations and reduces the cost of coordination.

"The Civil Contractors Federation supports harmonisation and mutual recognition in principle, as we support a competitive market where all parties can compete equally."

Civil Contractors Federation



NATSPEC Online Resources

NATsource
NATsource is the definitive reference document for standards and other reference documents relating to the building industry. It includes all NATSPEC-cited standards and their abstracts to allow you to determine each publication's relevance to your project.

The PDF document is searchable and advises designers where they may purchase the standards and reference documents. NATsource is provided to subscribers as part of their subscription package, and is also available for individual purchase.

"NATSPEC is a comprehensive classification system and an indispensable architectural design and documentation tool. The system provides a foundation of information, which is reflective of current industry standards."

Silver Thomas Hanley

TECHnotes
TECHnotes complement NATSPEC worksection *Guidance* text and cover a wide range of topics relevant to specification writers. They are brief and general in nature, providing guidance that either relates to several worksections, or does not fit into a generic worksection.

TECHnote numbering and classification is based on the categories used for the AIA Environment Design Guide: GEN – General issues and miscellaneous, DES – Design strategies, and PRO – Products and materials.

NATSPEC worksections identify any relevant TECHnotes in *Guidance* text. A TECHnote will be reissued if it has been significantly revised, and the footer will reflect the date of reissue. The TECHnote Index lists all NATSPEC TECHnotes, which are freely available at www.natspec.com.au.

"Since the establishment of our practice in 1996, we have found NATSPEC to be a reliable resource with its specific worksections that are customisable according to the specific project requirements."

Kent Lyon Architect

TECHreports
TECHreports are detailed reference documents providing a deeper understanding of particular construction-related topics than what is offered by the brief NATSPEC TECHnotes. TECHreports are cited within NATSPEC worksection *Guidance* text where appropriate, but may also be read for general interest. Each TECHreport is researched and written by the NATSPEC editors and is externally reviewed.

The NATSPEC editorial team maintains currency by regularly updating TECHreports. Without funding from the Government, NATSPEC independently invests in industry research to produce useful resources and gather information for the industry. This knowledge is shared with the industry, assisting development and increasing productivity.

"Having dedicated resources to maintain, update and disseminate this information can be challenging. NATSPEC dramatically reduces the risk of missing important updates to standards and manufacturer-specific updates."

Gray Puksand

All of these resources and more can be found here:
www.natspec.com.au

SPECIFICATIONS

WHY HAVE A SPECIFICATION?

The primary function of the drawings and specification is to give effect to design decisions. Many design decisions cannot be expressed in graphic form and therefore rely on words for their expression. Other decisions would be too tedious or impractical to be conveyed in graphic form. The drawings and specification complement each other.

THE IMPORTANCE OF A SPECIFICATION?

The quality of a building project is dependent on the documentation provided. The contract documentation includes the conditions of contract, the drawings, the schedules and the specification. Whilst the specification is a multi-purpose document, its primary function is to define precisely and succinctly the quality required and the processes necessary for achieving it. Its role includes, but extends beyond, the selection of materials by providing the criteria for acceptable quality of construction.

THE ROLES OF THE SPECIFICATION

The specification has many roles including being:

- a document embodying design decisions.
- a document demonstrating compliance with statutory requirements.
- an estimating document.
- a tendering document.
- a legal (contractual) document.
- an on-site working document.
- a dispute settlement document.
- a project management tool.

THE FORM OF A SPECIFICATION

NATSPEC specification worksections are classified, numbered and sequenced in a logical order, which responds to the Australian construction industry. There are recognised methods of specification writing. These include specifying by:

- **Reference:** Where an identifiable printed and published document is incorporated by reference to it. These may be Australian Standards or manufacturer's technical manuals.
- **Performance:** That is, by stating a desired end result and the criteria by which the result will be judged for its acceptability.
- **Description:** Detailing the materials, workmanship and installation procedures to be used.
- **Direct/Proprietary:** Specification stating a proprietary trade name product.

Typically, each NATSPEC worksection is divided into General, Products, Execution and Selections:

- **General** includes cross referencing, standards, interpretation, tolerances, submissions and inspection requirements.
- **Products** includes details of materials and components.
- **Execution** deals with the fabrication, installation, erection and completion as part of a project.
- **Selections** may be made within the text, in schedules within the worksections or provided separately. With simple projects, all selections may be on the drawings.

NATSPEC is the trading name of Construction Information Systems Limited, ABN 20 117 574 606.

NATSPEC, founded in 1975, is a not-for-profit organisation that is owned by the design, build, construct and property industry through professional associations and government property groups. It is impartial and is not involved in advocacy or policy development.

NATSPEC's major service is the provision of the comprehensive national specification systems endorsed by government and professional bodies. NATSPEC, the National Building Specification, is for all building structures, with specialist packages for architects, interior designers, landscape architects, structural engineers, service engineers and domestic owners. AUS-SPEC is the Local Government specification system for the life-cycle management of assets. Packages include Urban and Open Spaces, Roadworks and Bridges, Public Utilities, and Maintenance.

NATSPEC's objective is to improve the quality of construction in Australia through its updating services and via the provision of information, tools, products and other services.

Stakeholders

- Air Conditioning and Mechanical Contractors' Association of Australia
- Australian Elevator Association
- Australian Institute of Architects
- Australian Institute of Building
- Australian Institute of Building Surveyors
- Australian Institute of Quantity Surveyors
- Construction Industry Engineering Services Group
- Consult Australia
- Dept for Infrastructure and Transport (SA)
- Dept of Energy and Public Works (QLD)
- Dept of Finance (Federal)
- Dept of Finance (WA)
- Dept of Infrastructure, Planning and Logistics (NT)
- Dept of Treasury and Finance (TAS)
- Dept of Treasury and Finance (VIC)
- Engineers Australia
- Major Projects Canberra
- Master Builders Australia
- Public Works Advisory (NSW)
- Standards Australia

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SPECIFYING QUALITY

INTRODUCTION

Communicating the requirements for quality is the main technical function of the specification. This TECHnote outlines how the NATSPEC specification system may be used to promote quality in construction projects.

DEFINING QUALITY

Quality must be defined; it cannot be managed if it is not defined. Quality can have different meanings for different people in different situations. In construction this problem is amplified because the responsibility for a project is divided between many different people, within many organisations. Therefore, agreement on a defined quality level between all parties, and how it is to be measured, is key to achieving the desired quality to the satisfaction of the principal.

QUALITY LEVEL

Several factors drive the desired quality level of a project and its components; the main factor being anticipated life. It would be a false economy to poorly construct something which must last for many years or over-design something which may only be required to last a number of weeks.

Other factors that influence the desired quality level include:

- The purpose of the building - Prestige or utility, flexibility or permanence.
- Required functional performance - Design repetition or one-offs, environmental.
- User perception - Convenience, comfort, ease of maintenance and repair.

WHEN CAN QUALITY BE ACHIEVED?

There is a common misconception that the quality of a project can be completely controlled during the construction stage. However, the level of quality that can be demanded during construction cannot be higher than that which is specified in the contract documentation, without additional cost.

The quality of a project is therefore dependent on documentation and supervision. The contract documentation includes the conditions of contract, the specification, the drawings and the schedules.

To achieve quality, care must be taken in material selection, documentation, workmanship and supervision. This does not necessarily increase time and cost, however these factors must be considered and balanced when defining the quality level required. Failure to take care may lead to poor quality and increased costs with greater rework, repair and maintenance required.

ROLE OF THE SPECIFICATION

Whilst the specification is a multi-purpose document, its primary role is to define precisely and succinctly the quality required and the processes necessary for achieving it. This also includes, but is not limited to, defining clear acceptance criteria for any item of work.

If specified acceptance criteria match the agreed defined quality level, then ultimately, conformance with the specification will achieve quality.

USING NATSPEC TO ACHIEVE QUALITY

The NATSPEC worksection *Templates* include the construction processes required for each particular item of work and also define clear industry standard acceptance criteria in the form of tolerances, performance requirements and testing and certification requirements. All can be modified if necessary, to suit the defined quality levels agreed for each individual project and its components.

NATSPEC promotes the achievement of quality through coordination of the contract documents. Guidance text discourages duplication of information included on the drawings or within the specification, to avoid potential discrepancies and ambiguity. Duplication of information within the specification is minimised by reference to relevant worksections.

NATSPEC references and monitors updates to relevant Australian and International standards, including those cited within the NCC. Where standards define alternative levels of service, NATSPEC provides prompts to be completed by the specifier. It is essential that the specification defines the requirement, as blanket references to standards may not achieve the desired quality.

NATSPEC and AUS-SPEC also cover the requirements for project Quality Management Systems based on AS/NZS ISO 9001 and the provision of project Quality Plans in the **Relevant worksections** listed in the sidebar.

Poor quality timber construction – Split base-plate used.

"….If the building contract documents permit a sow's ear then all the quality control in the world cannot demand a silk purse……"

Inspection to confirm quality level achieved.

Poor quality concrete – Honeycombing and timber.

Relevant worksections

0010 Quality requirements for design (AUS-SPEC).
0121 Tendering
0160 Quality.
0161 Quality management (Construction) (AUS-SPEC).
0162 Quality (Supply) (AUS-SPEC).
0163 Quality (Delivery) (AUS-SPEC).

your NATSPEC

David Sutherland
Fender Katsalidis Architects

"It's incredibly important to manage processes, it's incredibly important to manage information – to know what information is correct, what information is out of date, and what is the current information.

"NATSPEC is very important because it is a common language and it creates a whole specification database for the elements we're proposing to build. Essentially, working through NATSPEC provides you with a full gamut of opportunities that you can potentially face, so it acts as an aide-mémoire as well as documentation."

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