

SOME REFERENCE PUBLICATIONS

(1) INTRODUCTION

This document provides a listing of the main legislation, standards, codes and guidelines which are considered to be relevant to the reuse of waste water for HCAC&R (heating, ventilating, air-conditioning and refrigerating) systems as used in buildings in NSW. Many of the publications listed are referenced in legislation and/or represent minimum best practice.

Users of this document will need to exercise their own professional judgement when deciding to abide by it or to depart from any non-mandatory requirements.

A separate document covers some typical applications.

(2) MAIN LEGISLATION EFFECTIVE IN NSW

Available at www.austlii.edu.au
 Other legislation may also apply.

ADMINISTERED BY	TITLE OF LEGISLATION	
	Principal	Secondary
Commonwealth Government		
Department of Health and Ageing, Canberra.	Industrial Chemicals (Notification and Assessment) Act 1989.	Industrial Chemicals (Notification and Assessment) Regulations 1990, as amended.
National Water Commission, Canberra.	National Water Commission Act 2004	-
Trade Practices Commission, Canberra.	Trade Practices Act 1974.	Trade Practices Regulation 1974, as amended.
NSW Government		
Department of Water and Energy, Sydney.	Electricity Supply Act 1995	Electricity Supply (General) Regulation 2001
	Water Industry Competition Act 2006	Water Industry Competition (General) Regulation 2008, as amended.

Department of Environment and Climate Change, Sydney.	Environmentally Hazardous Chemicals Act 1985	Environmentally Hazardous Chemicals Regulation 1999, as amended.
	Protection of the Environment Operations Act 1997.	Protection of the Environment Operations (General) Regulation 1998, as amended.
Department of Health, Sydney and Local Councils	Public Health Act 1991	Public Health (Microbial Control) Regulation 2000, as amended.
Department of Health, Sydney.	Poisons and Therapeutic Goods Act 1966	Poisons and Therapeutic Goods Regulation 2002, as amended.
Department of Local Government, Nowra and Local Councils	Local Government Act 1993.	Local Government (General) Regulation 2005, as amended.
Department of Planning, Sydney and Local Councils	Environmental Planning and Assessment Act 1979.	Environmental Planning and Assessment Regulation 2000, as amended.
Hunter Water Corporation, Newcastle.	Hunter Water Act 1991.	Hunter Water (General) Regulation 2005, as amended.
Sydney Water Corporation, Sydney.	Sydney Water Act 1994.	Sydney Water Regulation 2006, as amended.
Other Water Supply Authorities in NSW	Water Management Act 2000.	Water Management (Water Supply Authorities) Regulation 2004, as amended.
WorkCover Authority of NSW, Gosford.	Occupational Health and Safety Act 2000.	Occupational Health and Safety Regulation 2001, as amended.

(3) NATIONAL STANDARDS

Other Standards may also apply.

Australian/New Zealand Standards/Handbooks

For further particulars, refer to Website www.standards.org.au
Some standards are referenced in legislation.

Management Services.

- ❑ AS 3806 : Compliance programs.
- ❑ AS/NZS 3906 : Quality of service - Guide to customer expectations.
- ❑ AS 3930 : Reliability and maintainability-Introductory guide.
- ❑ AS3960 : Guide to reliability and maintainability program management.
- ❑ AS/NZS 4183 : Value management.
- ❑ AS 4269 : Complaints handling.
- ❑ AS/NZS 4360 : Risk management.
- ❑ AS/NZS 4536 : Life cycle costing-An application guide.
- ❑ AS/NZS 4581 : Management system integration-Guidance to business, government and community organizations.
- ❑ AS/NZS ISO 9001 : Quality management systems -Requirements.
- ❑ AS ISO 10002 : Customer satisfaction - Guidelines for complaints handling in organizations,
- ❑ AS/NZS ISO 14001 : Environmental management systems - Requirements with guidance for use.
- ❑ AS/NZS 14040 : Environment management - Life cycle assessment - Principles and framework.
- ❑ SAA HB18 :Guidelines for third-party certification and accreditation.
- ❑ SAA HB107 : Understanding Standards.
- ❑ SAA HB133 : A guide to compliance programs.
- ❑ SAA HB142 : A basic introduction to managing risk.
- ❑ SAA HB162 : Rules for the structure and drafting of Standards.
- ❑ SAA HB203 : Environmental risk management-Principles and process.
- ❑ SAA HB240 : Guidelines for managing risk in outsourcing.
- ❑ SAA HB251 : Customer satisfaction measurement.
- ❑ SAA HB296 : Legal risk management.
- ❑ SAA MP15 : Standards Australia Style Manual.

Mechanical Services

- ❑ AS 1668: The use of mechanical ventilation and air-conditioning in buildings.
- ❑ AS 3873 : Pressure equipment - Operation and maintenance.

Electrical Services

- ❑ AS 1543 : Electrical equipment of industrial machines.
- ❑ AS 1768 : Lightning protection.
- ❑ AS 2467 : Maintenance of electrical switchgear.
- ❑ AS/NZS 3000 : Australia/New Zealand Wiring Rules.
- ❑ AS/NZS 4382 : Preparation of function charts for control systems.
- ❑ AS 4383: Preparation of documents used in electrotechnology.
- ❑ AS/NZS 4417 : Marking of electrical products to indicate compliance with regulations.
- ❑ AS ISO/IEC 17050 : Conformity assessment -Supplier's declaration of conformity.
- ❑ AS/NZS 61000 : Electromagnetic compatability (EMC).

Hydraulic Services

- ❑ AS 1631 : Cast grey and ductile iron, non-pressure pipes and fittings.
- ❑ AS 1910 : Water supply - Float control valves.
- ❑ AS 2129 : Flanges for pipes, valves and fittings.
- ❑ AS 2638: Sluice valves for waterworks purposes.
- ❑ AS/NZS 2845 : Water supply - Backflow prevention devices.
- ❑ AS/NZS 3500 : Plumbing and drainage.
- ❑ AS 3578: Cast iron non-return valves for general purposes.
- ❑ AS 3579 : Cast iron wedge gate valves for general purposes.
- ❑ AS/NZS 4020 : Products for use in contact with drinking water.
- ❑ AS 4087: Metallic flanges for waterworks purposes.
- ❑ AS/NZS 4158: Thermal bonded polymeric coatings on valves and fittings for water industry purposes.
- ❑ AS 5200 : Technical specification for plumbing and drainage products.
- ❑ SAA HB 233 : Fire protection systems testing - Water conservation Handbook
- ❑ WSA 02 : Sewerage Code of Australia.

Wastewater Engineering Services

- ❑ AS/NZS 4494 : Discharge of commercial and industrial liquid waste to sewer - General performance requirements.

Building Services

- ❑ AS 1657 : Fixed platforms, stairways and ladders-Design, construction and installation.

Civil/Structural Engineering Services

- ❑ AS 3735 : Concrete structures for retaining liquids.

Scientific Services

- ❑ AS 2850 : Chemical analysis - Interlaboratory test programs-For determining precision of analytical method(s)-Guide to the planning and conduct.
- ❑ AS 3550 : Methods for the analysis of waters.
- ❑ AS/NZS 3896 : Waters-Examination for Legionellae including *Legionella pneumophila*.
- ❑ AS/NZS 4276 : Water microbiology.
- ❑ AS ISO/IEC 17025 : General requirements for the competence of testing and calibration laboratories.

Water Treatment Services

- ❑ AS/NZS 2031 : Selection of containers and preservation of water samples for microbiological examination.
- ❑ AS 2239 : Galvanic (Sacrificial) anodes for cathodic protection.
- ❑ AS 2832 : Cathodic protection of metals.
- ❑ AS/NZS 3666 : Air-handling and water systems of buildings- Microbial control.
- ❑ AS 3905 : Guidelines to AS 3901/NZS 3901/ISO 9001 for chemical and allied industries.
- ❑ AS/NZS 4352: Tests for coating resistance to cathodic disbanding.
- ❑ AS 5059 : Power station cooling tower water systems - Management of Legionnaires' disease health risk.
- ❑ AS/NZS 5667 : Water quality- Sampling.
- ❑ SAA/SNZ HB32 : Control of microbial growth in air-handling and water systems of buildings.

Safety

- AS 1319 : Safety signs for the occupational environment.
- AS 1345 : Identification of the contents of piping, conduit and ducts.
- AS 1470 : Health and safety at work-Principles and practices.
- AS/NZS 2865 : Safe working in a confined space.
- AS 4452: The storage and handling of toxic substances.
- AS/NZS 4801 : Occupational health and safety management systems - Requirements with guidance for use
- SAA HB213 : Guidelines for working in a confined space.

British Standards

For further particulars, refer to Website www.bsi-global.com

- ❑ BS 1170 : Recommendations for the treatment of water for marine boilers.
- ❑ BS 1427 : Field and on-site test methods for the analysis of waters.

- BS 2455 : Sampling and examining deposits from boilers and associated industrial plant.
- BS 2486 : Recommendations for the treatment of water for steam boilers and water heaters.
- BS 7593 : Code of practice for treatment of water for domestic hot water central heating systems.

American Standards

ASTM International (American Society for Testing and Materials)

For further particulars, refer to Website www.astm.org

- ASTM D2688 : Standard test methods for corrosivity of water in the absence of heat transfer (Weight loss methods).
- ASTM E645 : Standard test methods for efficacy of microbiocides used in cooling systems.
- ASTM E1427 : Standard guide for selecting test methods to determine the effectiveness of antimicrobial agents and other chemicals for the prevention, inactivation and removal of biofilm.

National Sanitation Foundation/American National Standards Institute

For further particulars, refer to Website www.nsf.org

- NSF/ANSI 55 : Ultraviolet water treatment systems

German Standards

For further particulars, refer to Website www.din.de

- DIN 19627 : Ozone plants for water treatment.

(4) CODES AND GUIDELINES

The listing is not exhaustive.
Some guidelines are referenced in local legislation.

National

Australian Building Codes Board, Canberra

For further particulars, refer to Website www.abcb.gov.au

- Building Code of Australia.

National Health and Medical Research Council of Australia, Canberra.

For further particulars, refer to Website www.nhmrc.gov.au

- Guideline for Drinking Water.

National Plumbing Regulators Forum, Melbourne

For further particulars, refer to Website www.plumbingregulators.org

- Plumbing Code of Australia.

National Water Commission, Canberra

For further particulars, refer to Website www.nwc.gov.au

- Australian Guidelines for Water Recycling : Managing Health and Environmental Risk.
- Recycled Water Quality.
- Prevailing National Guidelines for Sewerage Systems-Use of Reclaimed Water, (2000).

New South Wales

Department of Water and Energy, Sydney.

For further particulars, refer to Website www.dwe.nsw.gov.au

- Liquid Trade Waste Management Guidelines.
- Management of Private Recycled Water Schemes.
- NSW Code of Practice-Plumbing and Drainage, (2006).

NSW Health, Sydney.

For further particulars, refer to Website www.health.nsw.gov.au

- NSW Code of Practice for the Control of Legionnaires' disease. (2004).

Sydney Water, Sydney.

For further particulars, refer to Website www.sydneywater.com.au

- Water Conservation, Best practice guidelines for cooling towers in commercial buildings.

NSW Government Water for Life

- Links to the NSW Government Water for Life website (<http://www.waterforlife.nsw.gov.au/recycling/guidelines>) and the NSW Health website (<http://www.health.nsw.gov.au/PublicHealth/environment/water/wastewater.asp>)

Victoria

Environmental Protection Authority, Melbourne.

For further particulars, refer to Website www.epa.vic.gov.au

- Guidelines for Environmental Management-Use of Reclaimed Water (2003).

America

American Water Works Association, Denver.

For further particulars, refer to Website www.awwa.org

- Using Reclaimed Water to Augment Potable Water Resources.

US Department of Energy, Washington.

For further particulars, refer to Website www.energy.gov

- Environmental Science Division-Use of Reclaimed Water for Power Plant Cooling. (2007).

US Environment Protection Agency, Washington.

For further particulars, refer to Website www.epa.org

- Guideline for Water Reuse, (2004).

(5) SOME GENERAL INDUSTRY PUBLICATIONS

Other publications may also be relevant.

Users of this listing will need to exercise their own professional judgement when deciding to abide by or to depart from any non-mandatory requirements.

Australian Institute of Refrigeration, Air-conditioning and

Heating (Inc), Melbourne.

For further particulars, refer to Website www.airah.org.au

- ❑ DA 1 : Centrifugal Pumps.
- ❑ DA 9 : Air-conditioning Load Estimation.
- ❑ DA16 : Air-conditioning Water Piping.
- ❑ DA17 : Cooling Towers
- ❑ DA18 : Water Treatment.
- ❑ DA19 : Maintenance of HVAC&R Systems.
- ❑ Technical Handbook.

Chartered Institute of Building Services Engineers,
Australasian Chapter, Sydney.

For further particulars, refer to Website www.cibse.org.au

- ❑ Guide G: Public health engineering.
- ❑ Guide L: Sustainability in buildings.
- ❑ Guide M : Maintenance engineering and management
- ❑ TM 13 : Minimising the risk of Legionnaires' disease.:

(6) BOOKS

George Tchobanoglous, Franklin L Burton, H David Stensel,
Metcalf & Eddy Inc, Burton Franklin Wastewater Engineering :
Treatment and Reuse-Published by McGraw-Hill Professional,
(2002)

(7) SOME NOTES RE LEGISLATION, STANDARDS AND CODES

Legislation, Standards and Codes provide important technical requirements which are relevant to a particular subject.

The following information provides some background particulars regarding the application of relevant local legislation and also any referenced Standards and Codes.

- (i) Some Standards and Codes are referenced in local legislation and thus their content becomes a mandatory requirement.
- (ii) Check the relevant Website (eg www.standards.org.au for Standards Australia), for the latest issue and any subsequent amendments or supplements to any particular Standard.
- (iii) Note that the title of a Standard or a Code may not depict the full content of the particular Standard or Code.
- (iv) Note that some Standards may be in multiple parts and also may have supplements or amendments as separate documents.
- (v) Note also that most Standards and Codes include a list of Referenced Documents each of which becomes a requirement of the Standard or Code to the extent referenced.

- (vi) Some legislation, Standards and Codes may make reference to Standards which have become obsolete and are still available or may have been superseded by other Standards.
- (vii) Where relevant Standards or Codes are not referenced in local legislation as a mandatory requirement, they may be recognised by the legal system as representing best practice in terms of common law, duty of care requirements as they have been subject to extensive public review..
- (viii) The relevant local legislation would be that administered by the respective Commonwealth, Territory, State and Local Government authority having jurisdiction in matters such as public, population and environmental health, service utilities (water, gas, electricity, etc), OH&S, environmental planning, ecology, heritage, water conservation, energy conservation, sustainability, trade and local government. See the Website www.austlii.edu.au
- (ix) Other legislation, Standards and Codes may also apply to a particular project.
- (x) Note that there may be various items of secondary legislation, eg. regulations, ordinances, orders, by-laws, etc. as well as the principal legislation that is applicable to a particular subject.
- (xi) Competent advice should be sought from qualified legal practitioners who are experienced in the particular field re any challenging legal issue. Ref. AS/NZS 3905.6 and SAA HB296.
- (xii) Some establishments may have their own in-house organisational standards, codes, policies, guidelines, rules, etc. which will need to be recognised and applied as appropriate. Similarly some professional, business, trade, technical and industry organizations may have their own standards, codes, guidelines, etc. which may apply to the role of their members.
- (xiii) Some aspects of a referenced Standard or Code may be superseded by the relevant local legislation.
- (xiv) Some legislation may require reference to a particular issue of a Standard.
- (xv) Where there is perceived to be a conflict between a Standard and the requirements of relevant local legislation, the requirements of the legislation would obviously apply.
- (xvi) Some legislation may contain retrospective requirements.
- (xvii) There needs to be in place by the establishment as part of a legislative compliance program (ref. AS 3806), an effective and efficient management system for ensuring an early knowledge of any relevant new or amended legislation, national or industry standards, codes, handbooks, manuals, guides, rules, etc. and a structured approach to the audit of any affected items. See AS/NZS ISO 9001 and www.standards.org.au
- (xviii) Current legislation and current Standards, Codes, etc. may not represent current best practice in terms of common law, public liability, due diligence, duty of care and this information may need to be described in the relevant project documentation.

(xix) Before they are approved for publication and issue, draft Standards and any draft revisions or amendments are subject to extensive public/peer-review and also endorsement by a peak Standards review committee comprising nominated reps of the relevant key industry organizations. These organizations are usually acknowledged in the Standard when published. Ref. SAA MP15.

(xx) Where the relevant legislation and Standards are available in the draft form for public review, consider submitting constructive comments and recommendations based on any practical experience. Suggestions for changes to Standards should be sent with supporting information to the relevant Standards Organisation for consideration by the respective committee. Ref. SAA HB162.

(xxi) Independent certification by NATA reference, accredited or other recognised testing organizations, may be required to be provided by suppliers or their authorised agents, to substantiate in all respects, any claim of compliance with prescribed requirements and being fit for purpose. Ref. AS ISO/IEC 17050.

(xxii) Consult with the relevant statutory authority if clarification is needed (preferably in writing) regarding any aspect of the respective local legislation or if there is perceived to be a conflict between separate legislation or if there is considered to be a conflict between the requirements of principal and secondary legislation.

(xxiii) Consult with the relevant Standards Organisation if clarification is needed regarding a particular Standard.

(xxiv) Some Standards may be referenced as a requirement in different legislation which is administered by separate statutory authorities each having separate jurisdiction.

(xxv) Some Standards are also endorsed by other Standards organizations.

(xxvi) Some statutory requirements and Standards may not apply to all classes of buildings having the same services.

(xxvii) Professional advice should be sought regarding any complex technical issues associated with a project.

(xxviii) In conformity of statute and common law, duty of care and other obligations, relevant documents need to be readily available on site evidencing that the installation, operation, performance, routine maintenance and site management, as applicable, of the respective services at the site continues to comply with prescribed requirements. Ref. AIRAH DA19.

(xxix) Documentation concerning any on-going, routine maintenance and performance testing of relevant services, needs to be securely retained in legible condition for the life of the plant as installed, in case an incident ever occurs and the respective documents are required for submission as evidence of continual compliance with prescribed requirements, should an investigation or inquest be subsequently held.

(xxx) Quoting compliance with the relevant Standard is a powerful marketing tool provided the compliance can be substantiated in all respects, as the penalty for any misleading claims can be severe. Ref. Trade Practices Act 1974.

(xxxii) Standards can usually be read online at a Reference Library.

(xxxii) For further information on the role of Australian Standards, refer to SAA HB 107.

(6) DISCLAIMER

The information or advice contained in this document is intended for use only by persons who have had adequate technical training in the field in which the document relates. The document has been compiled as an aid only and the information or advice should be verified before it is put to use by any person. The user should also establish the applicability of the information or advice in relation to any special circumstances. While the information or advice is believed to be correct, The Australian Institute of Refrigeration, Air-conditioning and Heating (Inc), its officers, employees and agents, disclaim responsibility for any inaccuracies contained within the document including those due to any negligence in the preparation and publication of the said document.

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