



# BUILDING IN A SALINITY PRONE ENVIRONMENT POLICY 1.15

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# BUILDING IN A SALINITY PRONE ENVIRONMENT

**DIVISION:** DEVELOPMENT & HEALTH

**PILLAR:** ENVIRONMENTAL SYSTEMS

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**FILE / BINDER:** 4196/1

## **BACKGROUND:**

The development of this policy has been prompted by information provided by the NSW Government that indicates salinity may occur in parts of the Camden Local Government Area (LGA). This salinity potential is due to inherent characteristics of the Camden LGA landscape. As a result, residential buildings and associated public / private infrastructure in the Camden LGA may be susceptible to salt damage.

This policy will assist the Council in the reasonable carrying out of its roles and responsibilities under the Local Government Act 1993 and the Environmental Planning and Assessment Act 1979.

The following mandatory building requirements and Engineering Design Specifications are suitable to address a “mildly” aggressive saline environment to concrete and steel only.

Where it is proposed to construct underground car parks or storage areas or the like a separate salinity investigation will be required.

## **OBJECTIVE:**

To implement measures designed to **minimise the risk** of salt damage on public / private infrastructure and building materials used in the design and construction of subdivisions, residential and ancillary buildings (*See Note 1*) in the Camden LGA.

Specific design measures include:

- Minimising moisture contact to building materials
- Increasing concrete strength and resistance for building slabs and subdivision infrastructure
- Increasing the resistance of masonry units beneath the damp proof course of buildings
- Increase awareness of salinity indicators within existing buildings

**Note 1:** *All building structures that are classified as either class 1, 2, 3, 9c or 10 in the Building Code of Australia (BCA) are covered by this policy. Site specific salinity investigations of land will be required for all other building classes.*

## **DEFINITIONS:**

**Salt Damage:** the deterioration of material such as concrete, metal or brick caused by the chemical and physical impact of salts. Salts can be carried in surface water, soil, groundwater, rain or air. Salt damage includes what is referred to as ‘salt damp’ in South Australia.

**Residential and Ancillary Buildings:** Structures classified as either class 1, 2, 3, 9c or 10 in the Building Code of Australia (BCA)

**Public / Private Infrastructure:** includes but not limited to parks, roads, stormwater systems, utility/service installations, houses, driveways and cut/fill areas.

**Salinity Management Plan:** is a plan of management that identifies all known and potential salinity constraints on land where development is proposed and provides appropriate management options and strategies to facilitate the approval of the development proposed.

#### **WHAT AREA DOES THE POLICY APPLY TO?**

This policy applies to **all** areas of the Camden LGA. Council will consider on merit, arguments relating to the application of this policy based on diminished salinity risk\*.

In all such instances the onus of proof rests with the applicant.

\*Diminished salinity risk may be argued through a risk assessment of land based on a site analysis consistent with the Department of Land and Water Conservation (2002) Guide: *Site Investigations for Urban Salinity* (ISBN: 0 7347 5305 5) , and the incorporation into structure design, appropriate measures to manage the risk of salt damage.

#### **MANDATORY BUILDING REQUIREMENTS:**

The following measures must be used for house slabs and footings:

1. For slab on ground construction, a layer of sand at least 50 mm deep under the slab must be provided;
2. A damp proof membrane (rather than a vapour proof membrane) must be laid under the slab (NSW BCA 3.2.2.6);
3. The damp proof membrane must be extended to the outside face of the external edge beam up to the finished ground level. (*as per clause 3.2.2.6 and figure 3.2.2.3 of the BCA*);
4. Class 32 Mpa (N32) concrete must be used OR a sulphate resisting Type SR cement with a water cement ratio of 0.5 must be used;
5. Slabs must be vibrated and cured for a minimum of three days
6. The minimum cover to reinforcement must be 50 mm from unprotected ground;
7. The minimum cover to reinforcement must be 30 mm from a membrane in contact with the ground;
8. The minimum cover to reinforcement must be 50 mm for strip footings and beams irrespective of whether a damp proof membrane is used;
9. Admixtures for waterproofing and/or corrosion prevention may be used.

The following measures must be used for brickwork:

1. The damp proof course must consist of polyethylene or polyethylene coated metal and be correctly placed; (SA BCA 3.3.4.4);
2. Exposure class masonry units must be used below the damp proof course including for strip footings; (*Clause 3.3.1.5 (b) and Table 3.3.1.1 of the BCA*);
3. Appropriate mortar and mixing ratio must be used with exposure class masonry units; (*clause 3.3.1.6 and Table 3.3.1.2 of the BCA*);
4. Admixtures for waterproofing and/or corrosion prevention may be used.

The following measures must be used for all buildings:

1. Once installed the damp proof course or the vapour barrier must not be breached by any later works or additions such as; steps, verandahs, walls, rendering, bagging, pointing, paving or landscaping.
2. Appropriate sub-soil drainage must be installed for all slabs, footings, retaining walls and driveways;
3. The dwelling must be designed to suit the sites existing topography and any cut and fill required must not exceed 500 mm (unless approved in the Development Application).

**Recommended for all buildings:**

1. Landscaping and garden designs should not be placed against walls and minimise the use of water on the site.
2. Low water requiring plants and water-wise garden designs are preferred.
3. Water use on the site should be minimised and leaky pipes or drains should be repaired immediately to avoid water logging.
4. The use of grey water for the watering of lawns and gardens should be monitored to avoid water logging, as grey water can be high in salts. The use of low salt detergents is recommended.

**Alterations and Additions**

Proposals for alterations and new additions to existing buildings shall comply with the requirements of this policy. Applications should demonstrate how these requirements will be met. Existing buildings affected by the impact of salinity shall be repaired in accordance with the requirements for new buildings and any necessary remediation carried out to the site to ensure the impacts of salinity are eliminated.

Property owners are to obtain advice from suitably qualified building professionals with experience in the field of salinity before commencing any repairs or remedial action. (*See note 2*).

*Note 2: Situations requiring demolition of parts of a building, repairs to drainage systems or structural alterations should not be commenced before appropriate Local Government Act Section 68 approvals,*

*Construction Certificates or Complying Development Certificates are obtained for the work proposed.*

## **MANDATORY INFRASTRUCTURE REQUIREMENTS:**

The following measures must be used in the design and construction of public / private infrastructure:

In the absence of a salinity investigation, all public / private infrastructure proposed to be constructed on the land must be designed to achieve the requirements of Camden Council's "Engineering Design Specification (Adopted 10 February 2009).

*Note 3: The above mandatory building requirements and Engineering Design Specifications are suitable to address a "mildly" aggressive saline environment to concrete and steel only. Where a salinity investigation has been undertaken in accordance with Department of Land and Water Conservation (2002) Guide: Site Investigations for Urban Salinity and a "moderate", "severe" or "very severe" environment has been identified a separate Salinity Management Plan will be required to address all development within these saline environments.*

*Note 4: In the event that the requirements of this policy contradict the BCA the BCA requirements prevail.*

## **RESOURCES**

The following publications produced by DECC under a "Local Government Salinity Initiative" provide further education about urban salinity. The publications are available from "[www.environment.nsw.gov.au/salinity/solutions/urban.htm](http://www.environment.nsw.gov.au/salinity/solutions/urban.htm)"

- Introduction to Urban Salinity - describes the causes and impacts of urban salinity and summarises current actions the Government is taking to address the issue.
- Indicators of Urban Salinity - contains photographs of a range of salinity indicators.
- Broad Scale Resources for Urban Salinity Assessment - discusses some of the resources available to determine if salinity is, or is likely to be, an issue in a particular region.
- Site Investigations for Urban Salinity - provides a methodology for assessing and quantifying the impact of salinity on a proposed urban development and the impact that development may have on water and salt processes.
- Roads and Salinity - explains how salt and water processes can affect the road structure and decrease its lifespan. It describes strategies to prevent road damage and to minimise the role roads play in salinity problems.
- Building in a Saline Environment - explains how salts get into buildings and the effects some salts can have on some building materials. The booklet provides information on how to build structures that are less susceptible to salt damage.
- Water wise Parks and Gardens – provides information on water wise practices that can be employed in public areas that may reduce the incidence and severity of urban salinity.
- Salinity Indicator Plants - provides a state wide overview of salinity indicator plants.

- Groundwater Basics for Understanding Urban Salinity - presents some basic groundwater concepts necessary to understand urban salinity processes.
- Costs of urban salinity - provides a literature review and analysis of existing information related to the economics of urban salinity.
- Land Use Planning and Urban Salinity – presents an overview of the way land use planning can play an important role at a local government level in preventing and managing urban salinity.
- Repairing and Maintaining Salinity Affected Houses – Provides an overview of issues to consider when planning for the repair of a salinity affected house.

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<b>RELEVANT LEGISLATION:</b>	Local Government Act 1993; Environmental Planning and Assessment Act 1979.
<b>RELATED POLICIES:</b>	Publications produced by DECC under a “Local Government Salinity Initiative”, as listed under Resources heading of Policy
<b>DELEGATIONS:</b>	<b>No</b>
<b>SUSTAINABILITY ELEMENT:</b>	<b>Yes</b>
<b>STAFF TRAINING REQUIRED?</b>	<b>No</b>

**REVIEWED:** 20 October 2009

**NEXT REVIEW DATE:** 31 July 2010

**PREVIOUS POLICY**

**ADOPTED:** n/a

**MINUTE:** n/a