



Finance Technical Guideline

TG013 Termite Management

1 Termite Management

1.1 Purpose

This guide sets out Finance's requirements for specifications of termite treatment for government building projects with particular reference to buildings with a high timber component including sports floors. This guide is required to be circulated as appropriate to consultants.

1.2 Background

All government building projects in both regional and metropolitan areas are required to meet Australian Standards for termite barriers and/ or treatment systems. This is particularly relevant to buildings with a high timber component and to regions where termites are particularly prevalent and cause significant building damage.

Termite infestations have been identified in newly completed buildings with large timber sports floors which have resulted in additional works being required to treat the infestation, undertake further investigation to ensure that all termites have been eradicated and remediate the damaged building fabric. Further forms of termite barriers or treatments are also being considered to minimise the risk of reinfestation.

It is noted that the risk of infestation appears to be linked to the type of termite treatment provided. A perimeter system is considered unsuitable for public and commercial projects as uncontrolled cracking in the concrete ground slab can create vulnerable opportunities for future termite infestations.

A superior termite barrier system using a complete sheet system under the slab is more appropriate to the typical concrete slab type construction. This approach increases initial costs however in consideration of issues such as structural reconfiguration, movement (e.g. uncontrolled concrete cracking), existing active termite colonies or water introduced through fire fighting or other events that can add to any initial risk of failure, this type of system is likely to be a good investment over the life of the building

It is clear that when procuring and delivering building projects with a significant timber content, such as large expanses of timber sports floor, the approach to termite treatment should act to:

- Minimise risk prior to commencing construction,

- Ensure the construction approach minimises access for termite where possible, and
- Provide a termite barrier including spraying and/ or sheet barriers suitable for buildings of this type.

1.3 Potential causes for Infestations of Termites (to Flooring)

Termite infestation of buildings can occur for a variety of reasons relating to not only the specified termite systems but also the buildings construction methodology.

Causes that have been identified in other government projects include:

- Termite barrier or treatment product failure
- Incorrect installation of termite barrier or treatment system
- Positioning of barrier not aligning with final location of control joints – particularly if saw cut cannot always accurately locate
- Subsidence of the soil below the slab resulting in the barrier not being in contact with the concrete slab enabling termite to travel along the underside of the slab.
- Subsidence of the soil due to excessive use of water including for cleaning and fire fighting purposes
- Impact of cleaning chemicals on the efficacy of chemical and physical barriers
- Removal, repositioning or damage of any physical barrier after installation by pest contractor and prior to or during concrete slabs being poured.

1.4 Termiticides

Chemical composition of termiticides used in physical termite barriers and reticulated systems shall include deltamethrin or similar from the pyrethroid family which are man made versions of pyrethrins which are natural insecticides. These chemicals are not classified as carcinogenic by the National Occupational Health and Safety Commission (NOHSC) Australia or the National Toxicology Program US Department of Health and Human Services (NTP).

Hand spraying under slabs only without use in conjunction with a reticulated system is not supported as it is noted that termiticides only provide an effective barrier for 2 – 6 years depending on climate, soil conditions and soil disturbance.

1.5 Design / Documentation Stages

During the design and documentation stages of any project, need to ensure that the proposed termite treatment system complies with AS 3660.1 2014 Termite

Management Part 1: New Building Works, and AS 3660.3 2014 Termite Management Part 3: Assessment criteria for termite management systems.

Ensure that the adopted termite management system is appropriate to the region, local conditions, specific site conditions, proposed use, proposed construction system and finishes, extent and cost of at risk materials and intended operation and management of the proposed facility.

While concrete can itself be considered a termite barrier, large areas of concrete have expansion and control joints installed, joints at separate concrete pours and have the potential to develop uncontrolled cracks which may permit ingress by termites.

Standard options that should be considered are as follows:

- Installation of a physical barrier under all concrete slab areas with particular attention to the cavities, perimeter trenches, slab joints, expansion or control joints and penetrations. Recommended best practice to double the thickness (250 mm wide) of the sheeting at control joints and penetrations
- Depending on the product up to 50 years protection provided. Trithor, Homeguard, Kordon or similar approved barrier products also provide the moisture barrier for the slab.
- Installation of a reticulated system under the slab and around the immediate perimeter of the structure enabling chemical to be applied and reapplied in the future to create a zone protected against termites. This approach removes the need for costly and unsightly remedial work to provide on-going termite treatments.

1.6 Specification

For specification of the termite system refer to NatSpec Section 0184 – Termite Management. Non-chemical management systems are not considered acceptable approaches to termite management. Chemical termite management systems including masonry incorporating a termiticide in the bedding mortar may only be considered as part of an overall strategy which should include a reticulated system and physical termite barrier.

Ensure the specification of the termite management system adequately addresses the following:

- Extent of particular system;
- Type of system i.e. physical barrier, concrete slab barrier control, cap and strip shield or termite control/ moisture barrier system;
- Details of termite contractor including experience/ pest contractors license etc.
- Installation inspection requirements;

- System testing requirements;
- Warranty period i.e. minimum 10 year warranty; and
- On-going maintenance requirements.

The specification should clearly identify that all termite barriers need to be provided at all wall cavities, perimeter trenches, slab joints and penetrations. The termite contractor is required to provide termite certification that includes the same reference and a plan identifying the location and type of installed termite barriers.

The specified termite system should address any penetrations for building services including ICT, specialised elements such as goal posts as well as structural joints provided below and immediately adjacent to the sport floor.

The specification should require contracted pest control manager to undertake post construction periodic termite inspection to detect termite activity or termite conducive conditions in accordance with AS 3660.2.2017 Termite Management - In and around existing buildings and structures.

The project cost plan is required to adequately address termite treatment in relation to the sports floor item including any associated items. On-going maintenance and inspection regimes should be clearly identified and costed with the buildings routine maintenance scheduled on an annual basis.

1.7 Construction Period

Prior to commencement of construction on site reducing the risk of termite infestation to any future building should be a key consideration. It is recommended that for Greenfield and Brownfield sites, a pest consultant should be retained to undertake a site investigation including an examination of all tree trunks and other relevant vegetation for evidence of colonies of termites.

Where trees are to be partially or wholly cleared from the site, a termite colony can remain, relocate and easily be built over. If a termite colony is discovered it should not be disturbed because termites will relocate and can travel as far as fifty metres from their original location. If the colony does relocate then the consultant or contractor will be required to find the colony again in order to eradicate the colony at the source.

The colony should be baited in a controlled way to eliminate the Queen and the rest of the colony before the site is disturbed until there is no signs of live termites. This treatment may take approximately three months and should be combined with heat imaging to confirm the site is termite free.

Where a large timber floor is being provided, for example for a sports hall, a physical external termite barrier, in addition to the termite barrier below the slab, should be provided to the extent of the ground floor perimeter to provide protection against entry to the underside of slab. The barrier is intended to prevent termite's

subterranean travel into building structure or alternatively clearly show any 'mud' tunnels across the surface to the building fabric.

The installation of a termite barrier should include removal of the existing soil against the building structure, typically to level with bottom of slab thickening or footing and nominally 500mm width to approval of termite treatment contractor.

The excavated soil should be treated with an approved termicide treatment and then replaced in the excavated area together with an approved reticulated termite system. The treated soil should be protected by removable, impermeable, low maintenance cover to the approval of the Superintendent's Representative.

An additional external barrier would also be recommended for existing buildings where termites have been discovered and treated to prevent reinfestation.

At the end of the defects liability period the termite control systems should be inspected and a report on their efficacy and status provided to the Superintendents Representative and the Finance Project Manager.

1.8 Facilities Management

Routine maintenance schedule is required to include annual site and building inspection for any termite activity and treatment of any infestation. It is recommended that the facility or building manager undertake monthly visual inspections of the building to detect any obvious activity.

Where termites have been previously discovered or treated prior to or post construction it is recommend that heat imaging equipment which detects termite body temperature should be used to confirm eradication of the termites.

This is considered good insurance for management and maintaining of sporting facilities and other buildings that are at higher risk of termite infestation by virtue of timber content.

It is recommended this type of equipment should be available to buildings, where appropriate, to provide on-going termite detection. This includes facilities with large areas of timber floor such as Venues West or Department of Sport and Recreation facilities and secondary schools. It is noted that this equipment is easy to use and would provide value for money.

2 References

Refer to the following documents:

AS 3660.2.2017 Termite Management – In and Around Existing Buildings and Structures

NatSpec Section 0184 – Termite Management.

Termite Management Report for Building Management and Works relating to the WA State Netball Centre, 22 December 2015 (Pest Australia Pty Ltd T/A PestConsult)

3 Document Control

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4 Document Approval

This guideline was endorsed and approved for use on 6 July 2021 by:

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