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TECHNICAL ASSESSMENT 319

August 2005[1]

Plasmite™ Reticulation System

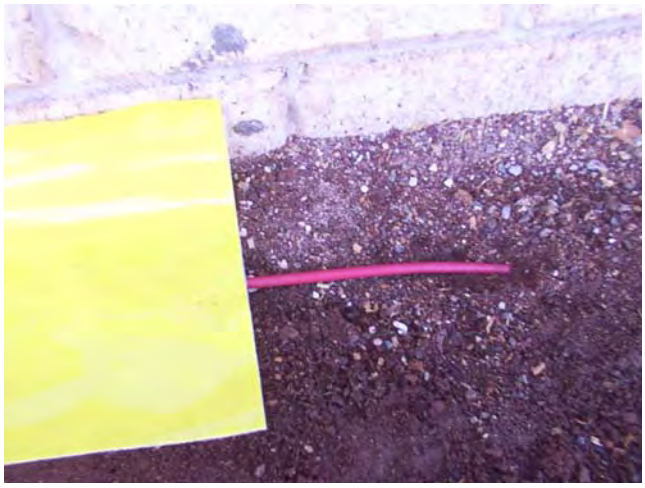
1. May 2006. Update to BCA references.

PURPOSE

A reticulation system for use with concrete slab-on-ground for protection of the perimeter and around penetrations by injection of termiticide

APPLICANT

Creepy Crawly Pest Control Pty Ltd (ACN 072 918 435), Shed 4, 10 Brook Street, Toowoomba, Queensland 4350 (Distributor)



TECHNICAL OPINION

In the opinion of CSIRO Appraisals, the 'Plasmite™ Reticulation System' will provide a suitable reticulation system for protection of the perimeter and around penetrations when used with or use with concrete slab-on-ground construction. When injected with an approved chemical termiticide to deter subterranean termite attack, it is capable of providing rates of application that comply with the requirements of Australian Standard 3660.1-2000 'Termite management – New building work' provided that:

1. The 'Plasmite™ Reticulation System' is installed by installers trained by Plasmite™ marketers. Injection of the 'Plasmite™ Reticulation System' is by licensed pest control operators and in accordance with 'Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006).

Note: These are readily available from Creepy Crawly Pest Control Pty Ltd, Shed 4, 10 Brook Street, Toowoomba, Queensland 4350.

2. The concrete slab is designed and constructed in accordance with Standards Australia, Australian Standard 2870-1996 'Residential slabs and footings - Construction'.

3. The components of the system are as described in the 'Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006).

Note: These are readily available from Creepy Crawly Pest Control Pty Ltd, Shed 4, 10 Brook Street, Toowoomba, Queensland 4350.

4. The termiticide used is one approved by the Australian Pesticides & Veterinary Medicines Authority (APVMA) and injection is carried out by licensed Pest Control Operators.

5. A suitable absorbent sand/soil to be used as backfill.

6. The external system is protected either by paving or advisory signs fixed in close proximity to the barrier to prevent breaching and/or contamination of the chemical barrier.

7. A durable notice (in accordance with BCA requirements (Clause B1.3 (i)(ii) Volume 1 and Part 3.1.3.2 (b), Volume 2) is attached to the building which states that the 'Plasmite™ Reticulation System' is installed.

8. Inspections shall be carried out on an annual basis or more often if required by local conditions or regulations to ensure that no bridging or breaching of the barrier has taken place.

9. The 'Plasmite™ Reticulation System' can be used to protect against the species *Mastotermes darwiniensis* provided the concentration of Bifenthrin termiticide is increased according to the 'Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006) and according with the labelled rates.

Note: This species of termite is believed to be known to exist north of the Tropic of Capricorn.

10. A building site inspection shall be carried out prior to installation and the following precautions taken in accordance with Clause 3.2 of AS 3660.1:

- Eliminate nests of wood feeding species of subterranean termite found within the property boundaries, up to distance of 50m from the proposed building work;
- Excavate and remove all tree stumps, roots and logs from the building footprint;
- All timber off-cuts, debris, removable framework and other waste material should be removed from the area in which the barrier is to be installed.

Notes:

(i) The Building Code of Australia draws attention to the need for regular inspections.

(ii) The installation of a termite barrier does not negate the need for regular competent inspections. Any additions, alterations or earth works, including gardening adjacent to the building, may render the barrier ineffective. Such activity should be referred to a contractor for appropriate advice and treatment.

(iii) Any additional treatment should be done in accordance with the relevant State or Territory regulations.

BUILDING CODE of AUSTRALIA

In the opinion of CSIRO Appraisals, the system described in this Technical Assessment and installed under the conditions listed herein will satisfy the Performance Requirements BP1.1 and BP1.2 (Volume 1 – Class 2-9 buildings) and P2.1 (Volume 2 – Class 1 and Class 10 buildings Housing Provisions) of the Building Code of Australia (2006).

To meet the requirements of Clause P2.1.1 (relevant to Qld only) (Volume 2 Class 1 and Class 10 buildings) of the Building Code of Australia (2006), the applicant has provided a declaration of system design life, which is set out in the Durability section of this Technical Assessment. This declaration is only relevant for the system as described in this Technical Assessment and installed under the conditions listed in this Technical Assessment.

Notes:
(i) The inclusion of this clause with reference to the BCA is aimed at assisting those involved in the design, specification and building approval/permit process, relating the Appraisal to the relevant Performance Requirements of the BCA.

(ii) Any changes made to the BCA will be reviewed during the term of validity of this Technical Assessment and, where necessary, any amendment required will be published on the CSIRO Appraisals web pages on http://www.cmit.csiro.au/Appraisals.

(iii) AS 3660.1-2000 is referenced by the BCA as a deemed to satisfy solution for the protection against concealed entry by subterranean termites.

RELATED INFORMATION

VALIDITY OF THE ASSESSMENT

Condition:
This Technical Assessment applies only to the use of 'Plasmite™ Reticulation System' as described herein.

Withdrawal:
This Technical Assessment will be withdrawn or amended if CSIRO Appraisals considers that a change in design or manufacturing quality renders the basis of appraisal invalid, or if reported field experience convinces CSIRO Appraisals of unsatisfactory quality or performance.

Term of Validity:
This Technical Assessment will lapse three years after the date of issue unless revalidation has been requested and granted (see back page). Technical Assessments may be amended during the term of validity. Users of this Technical Assessment should verify that it remains valid and is the current version by checking on the CSIRO Appraisals website: http://www.cmit.csiro.au/services/appraisals/.

RELEVANT DOCUMENTS

'Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006)

Australian Building Codes Board, Building Code of Australia 2006

Standards Australia, Australian Standard 3660.1-2000 'Termite management – New building work'

Standards Australia, Australian Standard 2870-1996 'Residential slabs and footings - Construction'

APPROVED ASSESSMENT EXTRACT

The 'Plasmite™ Reticulation System' installed by installers trained by Plasmite™ marketers and injection of the 'Plasmite™ Reticulation System' by licensed pest control operators, is a suitable reticulation system, under concrete slab-on-ground and around building penetrations, into which is injected a termiticide for use against subterranean termite attack when the conditions of CSIRO Appraisals Technical Assessment 319 are fulfilled.

APPRAISAL

DESCRIPTION

The following description is based on information provided by the applicant.

General:
The 'Plasmite™ Reticulation System' is a reticulation system designed to deliver termite protection to full under slab, exterior walls, pipe penetrations, control joints, boxed up slab in cavity, exterior soil treatment, against waterproofing treatment and embankment treatment in new buildings and extensions. The system consists of Plasmite Patrol Blanket and polyethylene tubing, 6 mm thick with perforations every 150 mm, laid under the plastic. The liquid termiticide is pumped into the piping system through connectors positioned adjacent to the building and enclosed within specially designed Childproof injection outlets.

Components:
These are detailed in the 'Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006). The main components are as follows:

- ***Injection fittings***
- ***Red injection line*** - A polyethylene tubing 6 mm in diameter with perforations every 150 mm
- ***Black feeder line used for areas over 20 lineal metres*** - A polyethylene tubing 6 mm in diameter
- ***End Stop*** - Two ways of ending line
- ***Childproof injection outlets*** - Soil pod and brickwork pod
- ***Plasmite™/Geotextile Specifications (Plasmite™ Patrol)*** - Consists of an upper layer of polyethylene builders film 200 µm thick heavy grade and non woven geotextile 2 mm thick / density 48 – 200g/m^2.

Installation:
The 'Plasmite™ Reticulation System' is installed by installers trained by Plasmite™ marketers and injection of the 'Plasmite™ Reticulation System' by licensed pest control operators.

Installation instructions are contained in the 'Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006).

Chemical injection:
Termiticide application is carried out by licensed Pest Control Operators.

If mortar in bricks is still damp within the cavity treatment, injection would need to be done at a later stage when the mortar has set. With exterior soil areas under slab etc, hand spraying areas can be done during the placement of the system or re-injection at a later date can be carried out. This is up to the discretion of the operator.

The chemical injection requires a vehicle with a suitable pump to pump control agent at 40 psi.

Termiticides:
These are subject to legal and local government approval. The applicant has listed Bifenthrin as the termiticide used in the system at given concentrations which provide the recommended amount of chemical according to Australian Standard 3660.1.

Record of treatment:
The chemical application, in conjunction with the 'Plasmite™ Reticulation System', is recorded on a Creepy Crawly Pest Control Pty Ltd Certificate in accordance with the requirements of Australian Standard 3660.1-2000 'Termite management – New building work'. A durable notice which states that the 'Plasmite™ Reticulation System' is installed is to be provided.

DESIGN INFORMATION

General:
The 'Plasmite™ Reticulation System' is a reticulation system consisting of Plasmite Patrol Blanket and polyethylene tubing, 6 mm thick with perforations every 150 mm, laid under the plastic. The liquid termiticide is pumped into the piping system through connectors positioned adjacent to the building and enclosed within specially designed Childproof injection outlets.

Maintenance:
Records of treatment used are kept as required by Australian Standard 3660.1-2000 'Termite management – New building work'. A copy of the site plan, showing pipe layout is also kept.

An annual inspection is made of the building to check for bridging or breaching of the barrier. If requested by the owner, this inspection is carried out by a Licensed Pest Control Operator. If bridging or breaching is found, a further treatment is done.

Treatment is in accordance with the APVMA label for the termiticide. Plasmite™ Australia recommends injection every 12 months.

Durability:
CSIRO Appraisals does not assess the durability of termite barriers.

The applicant, Creepy Crawly Pest Control Pty Ltd, has made the following declaration:

- The 'Plasmite™ Reticulation System' has been designed to achieve a service life of 50 years during which period the 'Plasmite™ Reticulation System', including its constituent components, is expected to maintain efficacy and function as a termite barrier in accordance with AS 3660.1-2000;
- The 'Plasmite™ Reticulation System' has been designed in accordance with a quality management system that incorporates a set of rules for the design, manufacture, installation and maintenance of all elements of the system; and
- The components used in the manufacture of the 'Plasmite™ Reticulation System' have been selected for their intended purpose and are expected to operate in accordance with their specification for the duration of the design life of the 'Plasmite™ Reticulation System'.

BASIS OF APPRAISAL

CSIRO Appraisals has assessed the following aspects in undertaking this appraisal:

(a) installation procedures

(b) long term effectiveness of the system

(c) Australian Standard 3660.1-2000 'Termite management – New building work'.

Note: For concrete slabs on ground Australian Standard 3660.1 has an area requirement for the underneath of the whole slab being treated. However, Section 3 of the standard, dealing with physical barriers, allows for the slab to form part of the protection if it is constructed in accordance with Australian Standard 2870-1996.

CSIRO Appraisals has evaluated the 'Plasmite™ Reticulation System' for the periphery and around penetrations being protected by the System with the concrete slab forming part of the protection against termite entry.

The following documents and inspections were used in carrying out the appraisal:

Manufacturer's Information:

1. **Creepy Crawly Pest Control Pty Ltd, Shed 4, 10 Brook St, Toowoomba, Qld 4350. Plasmite™ Reticulation Anti-termite Application System - Installation and Injection Procedure Manual' (April 2006):**
   This outlines the installation instructions and procedures for injection of the termiticide.

2. **Training and Employment Recognition Council, Queensland. Certificate of Registration (National Provider No. 31077)**
   This is certification awarded to Creepy Crawly Pest Control as a registered training organization.

Test Reports:

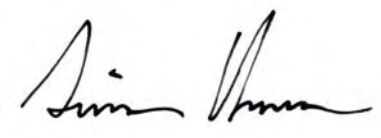
1. **Ecospan Consulting Services Pty Ltd, 10 Miranda Street, Caloundra, Queensland, 4551. 'Final Report of laboratory and field evaluation of Plasmite Reticulation System using Bifenthrin as a chemical barrier within wall cavities against subterranean termites (22 September 2004):**
   This report was on the efficacy of the 'Plasmite™ Reticulation System'. The results indicate that 'Plasmite™ Reticulation System' could deliver the required amount of termiticide.

2. **Food and Agriculture Laboratory (FALA), Brisbane, Qld. Laboratory report (17 July 2004):**
   This report shows termiticide concentrations of soil samples at various distances along the 'Plasmite™ Reticulation System'.

Related Information:

1. **Australian Pesticides & Veterinary Medicines Authority (APVMA), John Curtin House 22 Brisbane Ave, Barton ACT 2600. Notice of Registration of Chemical Product and Approval of Label Under the Agvet Codes (November 2004):**
   This is a Certificate of registration of product Plasmite Termicide and Insecticide.

Inspections:
Representatives of CSIRO Appraisals have inspected installations of the system and found them to be satisfactory.



Simon Hanson
CSIRO Appraisals

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- Interim Reports – appraisals of products that have not yet reached the fully developed or manufacturing phase. They aid with product development and may be used as a step towards a subsequent Technical Assessment.
- Certification Assessments – appraisals of products, systems or materials solely against the requirements of the BCA and used for gaining approval from Federal or State authorities.

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Each Technical Assessment has been prepared by CSIRO Appraisals and then reviewed, revised and finally endorsed by the Technical Advisory Committee (TAC), detailed below. CSIRO makes the appraisals on a national basis by obtaining input from regional committees in each State and Territory to take account of variations in local building regulations, practice and local climatic features.

CSIRO Appraisals bases its assessment on the product and information it receives and cannot accept responsibility for deviations in the manufactured quality and performance of the material, product or system. However, Technical Assessments will be withdrawn where adequate quality or performance has not been maintained.

Technical Assessments are given a term of validity of three years from the date of issue. They are reviewed at the end of the term of validity which may be extended for a subsequent three-year term. Technical Assessments may be amended during the term of validity. Users of Technical Assessments should verify that Technical Assessments remain valid and are the current version by checking on the CSIRO Appraisals website: http://www.cmit.csiro.au/services/appraisals/.

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H. RELATED DOCUMENTS

J. OTHER/OPTIONAL INFORMATION

14. ABSTRACT *(CSIRO Appraisals Approved Assessment Extract)*

The 'Plasmite™ Reticulation System' installed by installers trained by Plasmite™ marketers and injection of the 'Plasmite™ Reticulation System' by licensed pest control operators, is a suitable reticulation system, under concrete slab-on-ground and around building penetrations, into which is injected a termiticide for use against subterranean termite attack when the conditions of CSIRO Appraisals Technical Assessment 319 are fulfilled.