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Appraisals

CSIRO Appraisals, PO Box 56, Graham Road, Highett, Vic. 3190
Tel: (03) 9252 6000 Fax: (03) 9252 6244
E-mail: appraisals@dbce.csiro.au
Web: www.dbce.csiro.au/appraisals

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TECHNICAL ASSESSMENT 254

July 1999^{1, 2, 3}

The Camilleri Under Slab Injection System for the Control of Subterranean Termites

1. Formerly ABSAC Technical Opinion 104
2. July 2003. Revalidated
3. September 2006. Revalidated

PURPOSE

A reticulation system for use with concrete slab on ground for protection against subterranean termite entry by injection of a termiticide.

APPLICANT

Camilleri Underslab Pty Ltd (ABN 27 002 059 252),
72 Churchill Mines Road, Dundathu, Queensland 4650
(Manufacturer)



TECHNICAL OPINION

In the opinion of CSIRO Appraisals, The Camilleri Under Slab Injection System for the Control of Subterranean Termites is a suitable reticulation system for use under concrete slab on ground either under the whole slab or for protection of the perimeter and under walls. 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 Part 1: New building work' (in the treated areas) provided that:

1. The system is installed in accordance with the Injecta Pest Pty Ltd, 'The Camilleri Underslab Injection System' (14 May 1999) by licensed pest control operators and who are approved by Injecta Pest.

Note: These instructions are readily available from Camilleri Underslab Pty Ltd, 72 Churchill Mines Road, Dundathu, Queensland 4650.

2. The components of the system are as described in the Injecta Pest Pty Ltd, 'Standard Specifications for the Camilleri Under Slab Injection System' (8 July 1999).
3. The termiticide is injected at the concentration level, quantity and pressure as specified in the applicant's data sheet 'The Camilleri Underslab Injection System for the Control of Subterranean Termites' (14 May 1999). The termiticide used is one approved by the Australian Pesticides & Veterinary Medicines Authority (APVMA) for use in reticulation systems.
4. A durable notice (in accordance with BCA requirements (Clause B1.4 (i)(ii) Volume 1 and Part 3.1.3.2 (b), Volume 2) is attached to the building which states that 'The Camilleri Under Slab Injection System for the Control of Subterranean Termites' is installed.
5. When used in conjunction with other termite barriers, all treatment is to comply with the performance requirements of AS 3660.1-2000 'Termite Management Part 1: New building work'. An external chemical 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.
6. To check that no bridging or breaching of the barrier has taken place, inspections are made at least once a year in normal risk areas, or more regularly as recommended in AS 3660.1-2000 for high termite risk areas.

7. 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.
8. Sand/soils free of heavy clay deposits, rocks, timber and other debris are suitable for laying of the system. Soil should not contain composted materials or other artificial sources of organic matter and be suitable for use according to the Australian Pesticides & Veterinary Medicines Authority (APVMA) recommendations for the termiticide used.

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.

Full and Perimeter Systems

9. The maximum length of perforated pipe is 8 metres per pipe. (Note: Pipes can be joined for longer lengths (see Installation page 4).
10. It is the builders responsibility to discuss with the owner of the building, the construction of any concrete cap that is to be laid over the top of the perimeter treatment.

External (Part B) Perimeter Application

11. The Part B Perimeter application can be installed either in conjunction with the full system, that is prior to the slab being laid, or on its own once the slab has been poured (see Installation page 4).

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, BP1.2 and FP1.5 (Volume 1 – Class 2-9 buildings) and P2.1 and P2.2.3 (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, specifying and building approval/permit process relate 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 the 'The Camilleri Under Slab Injection System for the Control of Subterranean Termites' 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 is valid until September 2009. 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

Camilleri Underslab Pty Ltd, 'The Camilleri Underslab Injection System' Specification (dated 1/09/06)

Injecta Pest Pty Ltd, 'The Camilleri Under Slab Injection System' (14 May 1999)

Injecta Pest Pty Ltd, 'Standard Specifications for the Camilleri Under Slab Injection System' (8 July 1999)

Standards Australia, AS 3660.1-2000 'Termite Management Part 1: New building work'

APPROVED ASSESSMENT EXTRACT

'The Camilleri Under Slab Injection System for the Control of Subterranean Termites' as installed by licensed pest control operators and who are approved by Camilleri Underslab Pty Ltd, Dundathu, Queensland 4650, will satisfy the performance requirements of AS 3660.1-2000 'Termite Management Part 1: New building work' as a suitable chemical barrier against subterranean termite entry in concrete slab on ground when the conditions of CSIRO Appraisals Technical Assessment 254 are fulfilled.

APPRAISAL

DESCRIPTION

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

General:

Emulsions of termiticide are injected through polythene pipes laid at regular intervals under the slab or that are located beneath permanent timber structures such as wall frames, wardrobes and cabinets. The pipes are laid in the sand layer below the membrane.

Components:

Pipes. All pipes are 13 mm inside diameter polythene pipe classed as grade 12 and supplied by Iplex Pipelines. The perforated pipe has 1.5 mm diameter perforations spaced 150 mm apart. The length of the perforated pipe does not exceed 8 metres. The feeder pipe does not have perforations. Joiners, elbows and stoppers are 13 mm polythene. Joiners, elbows, caps, screw caps and valve sockets are specified. Non-return valves and valve box are also polythene. Pipes are plugged with a 13 mm polythene plug and secured with polythene clamps. Elbows and joiners are similarly secured.

Termiticides:

Termiticides are subject to legal and local government approval. The applicant has a list of termiticides which when used in the system at given concentrations provide the recommended amount of chemical according to AS 3660.1.

Installation:

The system is installed and maintained only by licensed Pest Control Companies.

The pipes are laid beneath the membrane and on top of a graded sand fill layer of at least 50 mm in depth. The pipes are held in place with steel pegs.

Each length of pipe is plugged at the innermost end and left protruding out of the foundations at the outermost end. When all pipes are laid, they are connected with the feeder pipes to the inlet points which are directed back to the valve box. The valve box lid is screwed down for security. When the building is completed, termiticide is injected by turning on each tap in turn.

Where walls are more than 8 metres in length, 8 metre lengths of perforated pipe are laid consecutively from each end of the wall. Any remaining lengths being bridged by extra pipes which are extended to the building's extremity with unperforated lengths of pipe.

Full slab system:

Pipes are laid at 500 mm intervals to cover the entire sand bed starting not more than 250 mm from the edge of the slab. The pipe is 'fixed' on the wall of the footing trench which acts as a perimeter system.

Perimeter:

To install the perimeter system after the slab has been laid, or to existing buildings, a small trench is dug (approx 100 mm deep) around the complete perimeter of the building. The perforated pipe is then laid hard up against the footings (or to within 150 mm from the footings) in 8 metre lengths and plugged at the further most end of each 8 metre length. Low-density poly pipe is then connected to each length of the perforated pipe. A non-return valve is fitted to each end. These pipes are used to feed the perforated pipe lengths and are directed back to the previously installed Valve Box.

Post in Ground:

Spiral a length of perforated CUSIS Pipe around the base of the post to be placed in the hole. Block the bottom end of the pipe with an end plug and saddle the pipe to the post. Allow approximately 100 mm of pipe to protrude above ground level and connect a non-return valve to the top end of the pipe and ensure this is covered. Back fill the hole after the post has been inserted.

Slab Penetration:

To install the system around penetrations, cut a length of perforated pipe to encircle the drainage pipe and join it to itself in a circle with a T/piece. Join a length of pipe to the outer end of the T/Piece and direct the pipe through the footings. This pipe is then directed to a Valve Box and a Non-Return valve is placed on the end of the pipe.

DESIGN INFORMATION**General:**

Based on information from the applicant, the 'Camilleri Under Slab Injection System for the Control of Subterranean Termites' is a reticulation system designed to prevent termite infestation of timber in buildings with concrete slab on ground. It comprises polythene pipes which carry the termiticide below the concrete slab on ground. The system is injected with a chemical termiticide registered by the APVMA for reticulation purposes.

Maintenance:

Records of treatment used are kept as required by Australian Standard 3660.1-2000 'Termite Management Part 1: 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 the Pest Control Operator or Licensed Pest Control Operator. If bridging or breaching is found, corrective measures are undertaken.

Retreatment intervals should be not less than that recommended by the chemical manufacturer.

Durability:

CSIRO does not assess the durability of termite barriers.

The applicant, Camilleri Underslab Pty Ltd, has made the following declaration that the Camilleri Underslab Injection System for the Control of Subterranean Termites:

- has been designed to achieve a service life of 50 years during which period the termite barrier, including its constituent components, is expected to maintain efficacy and function as a termite barrier in accordance with AS 3660.1-2000;
- 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 termite barrier 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 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) relationship to AS 3660.1-2000 'Termite Management Part 1: New building work'.

Manufacturer's and Installation Information:

Note: The applicant was formerly operated under the name of Ponderosa Pest Control and Injecta Pest Pty Ltd. Information supplied under that name and referenced here is relevant to the appraisal.

1. **Injecta Pest Pty Ltd (ACN 002 059 252), 34 Churchill Mines Road, Maryborough, Queensland 4650 'The Camilleri Underslab Injection System' (14 May 1999):**
This data sheet provides specifications of the pipe system and the types and quantities of termiticide used. It also includes quality control procedures used by the applicant.
2. **Injecta Pest Pty Ltd (ACN 002 059 252), 34 Churchill Mines Road, Maryborough, Queensland 4650. Letter (5 July 1999):**
These letter provides information on the polythene tube including the supplier. It also includes information on testing the pipe for prolonged exposure to the chlorpyrifos. The chemical did not affect the pipe.
3. **'Injecta Pest Pty Ltd (ACN 002 059 252), 34 Churchill Mines Road, Maryborough, Queensland 4650. 'Standard Specifications for the Camilleri Under Slab Injection System' (8 July 1999):**
This provides specifications of the various components.
4. **Conmac Laboratory Services, Unit 2, No 1, Lochlarney Street, Beenleigh, Queensland 4207. Certificate of Analysis Report 940128 to 9401285 (incl) (12 July 1994):**
These reports cover the termiticide (chlorpyrifos) retained in the ground after treatment. Samples were taken from an eight metre long test bed by the applicant. The results showed an adequate retention of termiticide for protection against termites.
5. **Injecta Pest Pty Ltd, (ACN 002 059 252), 34 Churchill Mines Road, Maryborough, Queensland, 4650 (28 March 1994):**
This letter advises change of company name and address. Installation instructions using the new company name were also received.
6. **Holmes McLeod Consulting Engineers (ACN 053 696 272), 328 Alice Street, Maryborough, Queensland, 4650. Drawings for 'Injecta Pest P/L Under Slab Termite Treatment'. (April 1994):**
These diagrams show general details and layout of the system.
7. **Camilleri Under Slab Injection System Company, 34 Churchill Mines Road, Maryborough, Qld 4650. 'The Installation Process' (© 1994):**
This data shows installation of the system under an entire slab.

8. **Camilleri Underslab Pty Ltd (ABN 27 002 059 252), 72 Churchill Mines Road, Dundathu, Queensland 4650 (Manufacturer):**
'The Camilleri Underslab Injection System' Specification (dated 1/09/06)

9. **IMEMS Pty Ltd, Camilleri Underslab Pty Ltd Chemical Soil Barrier Investigation (23 August 2006):**
This report details testing carried out to Underslab, Slab Perimeter, Slab Penetration and Post in Ground structures by IMEMS Pty Ltd (Independent NATA accredited consultant) in accordance with Appendix E of AS 3660.1-2000. The Chemical Soil Barrier key finding states.. 'Comparison of results of calculations for Bifenthrin residue per unit surface area for horizontal barriers (Ra) and per unit volume for vertical barriers (Rv) with the relevant LETV indicate the horizontal and vertical soil barriers established using the Camilleri Underslab Injection System at the test sites in this investigation are in compliance with AS 3660.1-2000'.

Inspections

CSIRO Appraisals representatives have inspected a number of dwellings where the system has been installed and found it to be performing satisfactorily. The system has been in use for over 22 years and householders contacted reported no breaching by termites.



Simon Hanson
General Manager: 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.

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CSIRO Appraisals (03) 9252 6000
Camilleri Underslab Pty Ltd
(07) 4121 5996

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H. RELATED DOCUMENTS**J. OTHER/OPTIONAL INFORMATION****14. ABSTRACT** *(CSIRO Appraisals Approved Assessment Extract)*

'The Camilleri Under Slab Injection System for the Control of Subterranean Termites' as installed by licensed pest control operators and who are approved by Camilleri Underslab Pty Ltd, Dundathu, Queensland 4650, will satisfy the performance requirements of AS 3660.1-2000 'Termite Management Part 1: New building work' as a suitable chemical barrier against subterranean termite entry in concrete slab on ground when the conditions of CSIRO Appraisals Technical Assessment 254 are fulfilled.