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## The Woes of Termite Management

In 1999, the Termite Action Group (TAG) was formed in response to major termite problems being experienced by homeowners in the suburb of Forest Lake in Brisbane. The entire suburb had been inadvertently designed by developers, architects, builders, associated trades and landscapers as a termite smorgasbord. Throughout Australia, similar situations were occurring with residential suburban expansion into bushland habitat which was extensively inhabited by termites.

The developers initially cleared the land and buried the cleared timber in the ground rather than burning off, so as to appease the active 'green' lobby. Small pine plantations were left standing to provide aesthetically pleasing timbered glade areas for residents. These glades also provided termites with ideal habitat conditions. Many homes were constructed with concrete slabs adopting waffle pod technology where polystyrene waffle pods were utilised to create above ground rafted slabs. The polystyrene was a strong attractant to termites and is often used in conjunction with termite baiting systems. The traditional in-ground concrete slabs were often constructed with 'block-outs' where significant sections of concrete were missing under baths and showers despite the slab being provided with barrier status in the Standard.

***Below Pictures showing “Block-outs” under a bath and a shower base where extensive termite ingress was found.***



Many cost cutting construction methodologies provided unrestricted access for termites to homes built at that time. Gardening and landscaping included extensive timber retaining walls and woodchip mulch and residents were encouraged to create gardens which were well watered at that time. Weepholes were generally covered by garden beds set up against the home with zero allotment housing and adjoining timber fencing completing the recipe for disaster and provided an extensive and diverse menu to entice termites into residential homes. Entire streets of homes in this area suffered massive termite infestations.

The scenario described above meant that termites ate the timber underground and then came to the surface to find bait stations and packaged food in the form of Australian homes. At that time, most of the homes in that area had very little, if any, chemical termiticide used in treatments on their homes. This was because at that time almost the entire preconstruction pest management industry was systemically corrupt with ethical pest managers having left that area of the industry in droves. Chemical termiticide treatments were being performed at costs that were often substantially less than the wholesale cost of the volume of chemicals required for a treatment to be performed in accordance with the Standard. Builders' cost-cutting practises were fundamental in causing these illicit practises to occur and this was thoroughly documented in the case involving Guardian Pest and Weed Control Pty. Ltd. This landmark case was conducted by the Queensland Building Tribunal and set out the abysmal state of the preconstruction industry.

It is necessary at this point to provide a brief background as to how this situation came about in the first instance. In the early 1940's, we had organochlorines (O/C's) introduced into Australia as an extremely effective chemical in agriculture and as a potent termiticide. The O/C's were, in fact, so effective that they caused "slab on ground" construction to be adopted in areas even where termites were prevalent. O/C's were able to bond with many varied soil types and were often effective for periods of 40 years or more when applied at half-rates. The O/C's however, were discontinued in mid-1995 because of their persistency and perceived carcinogenic risks. This course of action was adopted by the

federal government of the day without having in place any appropriate or proper alternative replacement technology. In fact, the initial chemical replacement (chlorpyrifos) was an airborne crop and vegetation insecticide that was adapted to being used as a soil borne termiticide.

Chlorpyrifos had problems with sunlight, soil alkalinity and a range of other factors which caused it to often break down very quickly in certain soil conditions. When chlorpyrifos came off patent, many inferior generic formulations of this chemical were to subsequently appear in the market place. Chlorpyrifos at that time was generally applied at rates that were virtually undetectable and homeowners and property investors were left defenceless against the ravages of termites. Chemical reticulation systems were developed which were often poorly researched and failed to have the appropriate apertures and hydraulics to deliver termiticides to all of the required areas. Durability issues, including the impact of solvents on plastic piping of these systems, was generally not researched and the soil mediums often did not allow for the lateral spread of the termiticide.

Some of the more recently introduced chemical termiticides from synthetic pyrethroids through to fipronil have provided greater efficacy and have been more persistent than chlorpyrifos. Chlorpyrifos should not be used as a termiticide and homeowners should reject any use of this chemical around their homes. It is outdated technology that is dumped in Australia because it has passed its use by date in America. It is past time that the Australian Pesticide and Veterinary Medicine Authority (APVMA) deregistered this chemical as a termiticide on a health issue basis alone. Arguably, chlorpyrifos is more dangerous to humans than the O/C's that they replaced, and certainly less effective against termites.

Initially, TAG addressed the problems experienced by homeowners at a local level by approaching government, bureaucracies and building authorities on a case by case basis. Several public meetings where affected homeowners could air their grievances were convened by TAG at local halls and there was some television coverage of these events on current affairs programs at that time. However, a large degree of the frustration involved in the entire process was underpinned by government avoidance and inaction at all levels. Bureaucrats in the Queensland Building Services Authority and the Queensland Building Codes Board were simply incapable of addressing the problems in an appropriate manner. They embraced physical termite management systems which, whilst addressing their self-interest and liability issues, further fuelled the problem for homeowners and property investors. The regulatory process appeared to be systemically flawed and it became further apparent that no great progress could be achieved by dealing with the problem on a case by case basis at a local level.

Mr. Andrew Campbell, the group co-ordinator of TAG, was to subsequently travel extensively throughout Australia for the purposes of identifying, studying and quantifying the extent of the termite problem across Australia. He attended seminars and conferences and discussed the subject at length with pest managers, scientists, entomologists, builders, architects, certifiers, etc. He met with representatives of the HIA, MBA, CSIRO, Consumer Affairs, ACCC, various involved industry associations and government ministers and advisors. He then went on to address several seminars and conferences in relation to his extensive findings on these issues. It was found that each State and Territory had various unique and individual circumstances of termite incidence rates which related back to a combination of chemical termiticide application rates, building practises, differing species of termites inclusive of their varying idiosyncrasies and, onwardly the extensive inter-relationship between termites, buildings and the environment.

***Below Mr. Andrew M. Campbell  
of the Termite Action Group (TAG)***



Termite species vary in their food preferences with some species preferring softwoods such as pine and other species preferring hardwoods. Some species have a singular queen and only the one nest whilst other species may have several sub-nests and more than one reproductive. The various caste types such as soldier (major and minor), worker, nymph, alate, reproductive, etc. can vary significantly from species to species and can affect the manner in which they are treated by a pest manager who must initially identify the species so as to formulate an appropriate treatment program. The study of termites is an expansive area of expertise which requires termite managers to have an extensive knowledge of their habits, behaviour and foraging techniques. The science of termites needed to be brought forward into the twenty-first century. Borescopes, microwave devices (Term-A-Trac), thermal imaging cameras, moisture meters, dusting machines, sniffer dogs and a

host of baiting and monitoring devices are some of the new age tools for termite managers.

Construction techniques vary throughout Australia dependent on soil types, local conditions and availability of construction materials. Homes on the east coast of Australia were generally brick veneer, timber framed, tiled roof construction with the west coast being predominantly double brick construction with timber roof trusses and tiled roofs. South Australia was mostly off-ground floor construction loaded on extensive concrete pier or brick dwarf walls because of the extensive ground movement experienced in that State. These lengthy piers create a labyrinth under the flooring thereby requiring pest managers to cut a series of traps in the floor to provide inspection access to the void areas beneath. South Australia is steadily moving across to 'slab on ground' construction, particularly since the advent of waffle pod. In Tasmania, termite incidence is virtually unknown whilst in the northern parts of Australia the termite incidence rate is at its highest. In fact, the largest and most voracious termite known to man (*Mastotermes darwiniensis*) reigns supreme in northern parts of Queensland, Western Australia and the Northern Territory, devouring everything in its path. They have been known to consume everything from tractor and car tyres, bitumen, leather, cable sheaths, plantations, etc. and are obviously extremely destructive to homes.

Timber preservation processes including LOSP and CCA processes were often employed with limited success. Most of the treatments only provided envelope protection with on-site saw cuts to frames providing uninhibited access to the core of timbers and also voiding the warranty for the timber treatment. Borates provided greater protection for timber frames when applied in an appropriate manner. Borates tended to provide greater level of protection than most available timber preservative treatments. The timber preservative Standard (AS 1604) was poorly conceived and appears to represent commercial interests as opposed to the needs of homeowners and property investors.

The common theme throughout Australia in relation to the termite incidence rate was poor building practises, the improper application of chemical termiticides, poor quality termiticides with limited persistency, and the reliance on physical termite management systems as barriers to termite movement. A combination of these factors was to subsequently provide termites with a multitude of superhighways into Australian homes. The increased use of the new physical termite management systems coming onto the market was underpinned by the representation of pecuniary and 'green' interests on the BD-074 committee which wrote the defective Termite Management Standards (i.e. - The AS 3660 series).

The AS 3660 series consisted of three parts being AS 3660.1 dealing with new building work, AS 3660.2 dealing with existing structures and AS 3660.3 which provided assessment criteria for termite management systems. AS 3660.1 dealing with new building work somehow provided physical termite management systems with ‘barrier’ status whilst failing to provide or submit any assessment criteria as to how the physical termite management systems had attained ‘barrier’ status in AS 3660.3 which is headed “Assessment Criteria for Termite Management Systems”. Any applied assessment criteria clearly demonstrates through the ‘mode of action’ that physical termite management systems are not a barrier to termite movement. In fact, these physical termite management systems were designed with external inspection zones where the termites are easily able to bypass the system. A more accurate description of these physical termite management systems is that of a monitoring system and a very simple rule of thumb for termites is that, “An inert object is not a barrier to termite movement”.

In March 2007, Mr. Andrew Campbell was invited to address the National Technical Summit of the Australian Building Codes Board (ABCB) in relation to a ‘Proposal for Change’ (‘PFC’) submitted by TAG to the ABCB. The ‘PFC’ addressed termite management issues that existed in both the Building Code of Australia (BCA) and the relevant Standards. The ABCB reviewed the information provided by TAG in the ‘PFC’ and the subsequent presentation at Hahndorf in South Australia and requested that TAG address its concerns to Standards Australia. Mr. Campbell was also further encouraged by the federal minister for industry, the Hon. Ian Macfarlane, to meet with Standards Australia to address these matters. Discussions with Standards Australia representatives have unearthed several failings and inadequacies in the AS 3660 series which further call into question the credentials and motivation of several individuals who were representatives on the BD-074 committee. The Standard needs urgent major review and overhaul to clean up the misrepresentations and inadequacies therein that make an absolute mockery of technically correct termite management and disadvantage homeowners and property investors throughout Australia.

TAG findings prompted an ACCC director to state as follows, ***“That consumers could be left with termite systems that provide inadequate protection, or left with systems that have limitations they do not understand, due to a complexity of regulations, industry descriptions, testing and approval processes and product descriptions that are consistent with regulations but are unclear to ordinary consumers. The possibility that consumers are left with termite systems that they are required to service or support in ways they do not understand, or systems that do not really provide the level of protection expected, means that many consumers are living with risks they do not***

***appreciate. Those risks could mean the loss of the most significant investment most consumers make, and such risks cannot be adequately lessened through traditional means like insurance. The need for proper testing criteria and reliable performance assessment of termite systems is crucial for the well being of Australian home owners”.***

It should be noted that this statement was made by the ACCC director prior to the subsequent discovery that there was no assessment criteria provided in the AS 3660.3 to establish the ‘barrier’ status of physical termite management systems.

It needs to be noted by all homeowners and property investors that the comprehensive warranty offered by physical termite management system manufacturers and suppliers fails to provide ‘bridging’ warranty. Many of these physical systems are currently being over-run or ‘bridged’ by termite activity where termites go over the external extremities of the system and yet they do not invoke warranty claims. These areas previously provided an overhang or ‘lippage’ that extended outside the perimeter brick line by 40 mm to assist in the detection of termite movement much in the manner of an ant cap. In fact, ant caps were the first physical termite management system and all physical termite management systems operate off the same basic principles employed by the humble ant cap. Ant caps are a monitoring system and their purpose is to simply expose termite movement so that it can be chemically treated and eliminated. Lippage also somehow disappeared when these systems were provided with barrier status in AS 3660.1. Perhaps the lippage may have betrayed the inalienable fact that a physical termite management system is simply a monitoring device which does not stop termites. The warranty on these systems only covers ‘breaching’ of the system where termites go through the system and fails to cover any and all ‘bridging’ aspects where termites go around the system.

**Below**

***Ant caps showing termite activity. Note that the activity has moved up on to the bearers and joists in Figure 2. The ant cap is unable to stop termite movement and is a monitoring system that assists in the detection of termite movement. All physical termite management systems operate in this manner.***



It should be noted that termites can cross the 75 mm inspection zone within minutes, do not encounter lippage, and be inside a home within a matter of hours. The problem with this situation is that termite inspections are generally an annual event. Many homeowners and property investors are provided with the mistaken belief that these systems provide protection because of the barrier status conferred on physical termite management systems by the Standard. This singular fact ostensibly defrauds Australian homeowners and property investors by allowing system manufacturers and providers to represent a simple termite monitoring system as a barrier system to termites.

If you review the foreword for the current Standard in AS 3660.1, you will note the first three paragraphs read as follows :

***The purpose of termite barriers is to deter concealed entry by termites into a building, above the termite barrier. Termites can build around barriers but their workings or evidence thereof are then in the open where they may be detected more readily during regular inspections.***

***The Standard contains no procedures or details on durability, maintenance and inspection issues.***

***Where barrier systems for termite management of a building are to be installed, the designer should complete all construction details giving due consideration to the above before works commence. The requirements for an effective termite barrier can then be established for the particular site conditions and for any building characteristics.***

The fact that the Standard contains no procedures or details on durability and fails to provide 'barrier' assessment criteria for termite management systems that are generally incorporated into the construction of a dwelling should be cause for extensive concern for architects and building designers who specify termite management systems, building surveyors who certify these systems, builders who incorporate and integrate these systems into the construction of a dwelling, system manufacturers who provide these systems and pest managers who are required to service and inspect these systems. Many of these systems are breaking down or corroding because of their application in the cavity of homes where they are subsequently sandwiched internally between mortar and bricks. The CSIRO has requested that Standards Australia address the durability issue in any new Termite Management Standards.

Below

*Sheet metal termite management systems corroding due to the effects of salt, moisture and heat which cause crevice corrosion of the metal.*



TAG recently advised the industry associations for builders (HIA & MBA), architects (RAIA), building designers (BDAA), certifiers (AIBS), and pest managers (AEPMA) of the problems and failings of the current AS 3660 series. These industry associations were advised by TAG of their ‘duty of care’ and ‘duty to inform’ requirements under Australian Law. The further advice provided by TAG to these parties was that these requirements were something that they should immediately consider and address as a responsible industry association’s pre-eminent requirement.

There is an admission by Standards Australia that the BD-074 committee that wrote the AS 3660 series had significantly erred in not providing ‘assessment criteria’ for physical systems. The CSIRO’s technical assessments, the ABCB’s certificate of conformity and indeed the recently introduced CodeMark scheme are all based on the false premise provided in the Standard (AS 3660.1) that physical termite management systems are barriers. TAG has been provided with a copy of AS 3660.1 by Standards Australia to review and rewrite a draft for the termite management committee (BD-074) to review when it reconvenes in the near future. Standards Australia senior management is in complete agreement with the Mr. Campbell’s recommendation that the word ‘barrier’ be removed from the Standard in its entirety. Physical termite management systems will revert to ‘termite monitoring systems’ as per their ‘mode of action’ and applied assessment criteria would suggest. All chemical systems will be denoted as ‘treatment zones’ and refer back to the chemical actives’ properties. After further discussions between Mr. Campbell and Standards Australia, it was further agreed that any new Standard would be required to be performance based and not prescriptive as per the current format. The listing of proprietary or patented systems in the current Standard as barriers without the provision of assessment criteria perhaps best demonstrates the degree of pecuniary interest on the BD-074 committee. A consumer representative on the BD-074 trained pest managers to apply a physical termite management system that was prescriptively listed in the Standard as a barrier.

It is obvious that the 'barrier' status afforded physical termite management systems by the Standard has allowed manufacturers and distributors who market these products to be able to falsely claim 'protection'. The onward false marketing claims of 'green' chemical-free termite management system manufacturers and emotive claims involving termite management without the use of 'poisons' are spurious and mislead homeowners and property investors. Chemical intervention is obviously a necessary requirement whenever any of these systems are challenged by termites. These falsely advertised claims that are based on a flawed premise in the Standard have seriously misled and continue to dupe homeowners, property investors and all other parties involved in the building process.

What all this has meant is that since mid-1995, termite management companies have experienced massive increases in work volume with one of the largest companies advising TAG that they had experienced a 2800% rise in termite work volume since O/C's had been phased out and that termites had gone from 16% through to 68% of their core volume business. One company reported figures approaching 30,000 termite jobs per annum in Queensland alone. The Archicentre advises on its website that it conservatively places the termite damage problem at \$910,000,000 per annum in treatment and repairs based on a five year cycle whereby there are 130,000 new attacks per annum with an average cost of \$7,000 in treatment and repairs. This figure was revised up from the 2005 figure of 680 million dollars per annum. Independent estimates based on data supplied by major pest management companies point to the figure being closer to 4 billion dollars per annum. What is extremely apparent is that under the current regulatory and policy settings we continue to fuel these figures by constructing dwellings that more closely resemble termite food than homes for ordinary Australians.

Against this background, TAG has suggested to government that termite management needs to achieve "trade" status, with pest technicians receiving the necessary qualifications to be able to address termite management in a scientific manner. The further suggestion was that a Termite Institute of Technology is required for the purposes of providing appropriate training and also to properly research and test termite management systems. Australia has the capacity and resources to be able to turn this multi-billion dollar problem into a multi-billion dollar export earner overseas. TAG is waiting for government to catch up on these issues but believes that the continuing upsurge that will be experienced in the damages bill, combined with homeowners' complaints and onward legal ramifications, may well provide the impetus to cause government to become properly involved in seeking solutions to the termite problem.

TAG continues to engage with Standards Australia and industry bodies on these issues and obviously has major work to complete in addressing all of these issues for and on behalf of homeowners and property investors throughout Australia.

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