

Special Report

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**AN ANALYSIS OF
TERMITE
DAMAGE IN
SYDNEY AND
MELBOURNE**

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AN ANALYSIS OF TERMITE DAMAGE IN SYDNEY AND MELBOURNE

BACKGROUND

Archicentre Limited, the building advisory service of The Royal Australian Institute of Architects, undertakes approximately 25,000 building and design reports in Australia each year.

Over the last five years, Archicentre has repeatedly been asked by its customers to implement an independent and professional pest inspection service.

In response to this, and the lack of reliable termite attack statistics in the pest inspection and treatment industry, Archicentre conducted research during 2003 and 2004 to develop a comprehensive inspection, reporting and data collection system and the Archicentre Pest inspection service was launched in Melbourne in July 2005, followed by Sydney in 2006.

An important feature of this service is the undertaking of research on all aspects of timber pest attack and the collection of data that will permit a more thorough understanding of timber pest attack throughout Australia.

GENERAL INCIDENCE OF TERMITE ATTACK

From Archicentre's database of over 80,000 pre-purchase building inspections reports, it is possible to calculate the approximate incidence of termite attack throughout Australia from observed sightings. It is considered that homes being offered for sale are representative of the general housing stock in a city.

These statistics show an apparent increase in the incidence of termite attack in Australian homes in recent years and, as would be expected, homes in the warmer regions of Australia are more likely to be attacked by termites; but all areas of mainland Australia are susceptible.

Victoria is of particular interest because it has "declared" and "undeclared" termite areas, these usually being arbitrarily defined by local government boundaries. In Victoria it is the responsibility of each council to declare itself a termite prone area. The effect of declaring an area termite prone is that all new houses or extensions built in declared areas must be constructed with some form of termite protection.

As would be expected, houses that are constructed without barriers were found to be more susceptible to attack and Archicentre's inspections indicate that houses in undeclared areas are more likely to be subject to a termite attack than those in declared termite areas.

Figure 1

Incidence of Termite Attack in Australia

Queensland	11%
New South Wales & ACT	9%
Victoria	8%
Tasmania	Nil
South Australia	9%
Western Australia	5%

Percentage of houses suffering termite damage.

Source – Archicentre pre-purchase building inspections.

COST OF TERMITE DAMAGE IN AUSTRALIA

Discussions with home owners and pest treatment companies indicate that the average cost of pest treatment in 2006 is approximately \$2,500 and the average cost of repairs of damage is approximately \$4,500. However damage repair figures in particular can vary markedly.

The cycle time (from initial termite attack, through awareness by home owner, treatment and confirmation of eradication) is about five years.

Figure 2

Cost of Termites to Australian Home Owners

Number of households in Australia	7.2 million
Estimated number affected by termites (9%)	650,000
Average cycle time	5 years
Estimated number of new attacks per annum	130,000
Average rectification cost	\$7,000
Estimated annual cost per annum	\$910 million

PREVALENT TERMITE SPECIES

Attempts have been made to identify the most common species of termite causing economic damage. At present, this information is available in preliminary form in Melbourne and Sydney. As Archicentre's pest inspection service grows, this data will become more refined and more detailed.

The most common species identified from pre-purchase pest inspections in Sydney and Melbourne is *Coptotermes Acinaciformis*. This species of subterranean (ground dwelling) termite is responsible for almost all of the major attacks observed, however disturbing examples of attacks by drywood termites such as *Kaloterme*s were also detected in both cities. Drywood termites are of concern because they are extremely difficult to detect, can cause extensive damage and are difficult to eradicate because they do not have a central nest. Limited infestations of *Porotermes* were also detected, but these had infested damp timber that was already decaying and could be eradicated by improving sub floor ventilation and removing sources of sub floor dampness.



Figure 1. Termite (*Coptotermes sp*) mudding over concrete stumps and bearers



Figure 2. Sub floor bearer damage (*Coptotermes sp*)



Figure 3. Kalotermes (drywood termite) damage to flooring

EXTERNAL FACTORS INFLUENCING TERMITE ATTACK

A number of regional factors were identified that were likely to be associated with an increase in termite activity. These factors were common to Sydney and Melbourne.

- **Heavily treed areas**

Trees, particularly eucalypts and other native species provide the natural nesting sites for most species of economically destructive termites. There was a high risk of termite attack in areas which had extensive native tree cover.

- **Middle aged housing estates**

Housing estates that were thirty years of age or older had a higher than average incidence of termite activity and a subsequently increased risk of attack to homes. In many cases, these estates had been built on cleared tree areas where naturally occurring termite nests had been disrupted and the termites' food sources depleted. While it would appear that a significant number of years are required for mature colonies to re-establish themselves and cause widespread attack, there were cases of individual attacks on new homes and even on homes under construction.

There was also evidence that the construction of new freeways in older areas increases the risk of termite attack to nearby homes by disrupting established foraging networks.

- **Old housing areas**

One of the common factors influencing termite attack was poor sub floor clearance in older homes. This prevents good air circulation resulting in damp soil and sub floor conditions. Generally in homes of this type the floor construction was very low to the ground, providing termites with easy access to the floor structure.

Older terrace houses were particularly susceptible to attack for these reasons.

- **Landscaping**

Many home owners had inadvertently created conditions which invited a termite attack on their home. Unprotected timber in contact with the ground used in retaining walls, garden structures etc was found to be a common nesting area for subterranean termites.



Figure 4. Landscaping timbers in contact with ground

And landscaping practices such as mulching up against external walls allowed subterranean termites undetected access into the home, even when a termite treatment zone had been put in place.



Figure 5. Mulch covering vents

- **Building Rubble**

Many termite infestations are initially caused by timber debris being left under the house, often as part of the original construction. A common problem area is where builders have filled the void area underneath a concrete porch or verandah with timber offcuts and other surplus material. These provide a potential new termite colony with protection, moisture and a rich source of food, the ingredients necessary for a future thriving nest.



Figure 6. Timber stored in sub floor provides a food haven for foraging termites



Figure 7. This timber debris left in sub floor has already been attacked by termites

TERMITE DAMAGE AND TYPES OF BUILDING CONSTRUCTION

• Steel Framed Houses

Several steel framed houses were inspected where termite damage had occurred to skirtings, architraves and joinery work. In one case, wall lining was removed and termite workings were found packed between the metal studs and bottom plate. The moisture brought into the workings by the termites and the acidity of their saliva and faeces had destroyed the galvanizing to the studs and rusted several through, requiring replacement.

• Concrete slabs

Many cases of termite attack were noted on houses built on concrete slabs, even those that had been constructed with a termite treatment zone (commonly and erroneously referred to as a “barrier”). Access was usually gained on the outside of the slab, often concealed by landscaping, garden structures or materials stacked against walls. Occasionally, access was gained through service conduits and pipes which penetrated the treatment zone or the slab itself.

SUBURBS WITH HIGHEST INCIDENCE OF TERMITE ATTACK

Archicentre has identified the six riskiest suburbs in Sydney and Melbourne.

It should be noted however, that these suburbs represent the approximate centres of larger areas of termite attack and neighbouring suburbs may have a similar level of risk.

• **Sydney**

The following suburbs have a risk factor of approximately 25%. This means that from pre-purchase pest inspection experience approximately one in four homes currently have a termite infestation problem or have had one in the past.

Mosman
Maroubra
Marrickville
Bradbury
Rozelle
Pearl Beach

• **Melbourne**

The following suburbs and their immediately surrounding areas have a risk factor of approximately 20%. That is, one in five houses currently have a termite infestation problem or there is evidence of a pest problem in the past.

Wantirna
Newport
Monbulk
Armadale
Frankston
Greensborough

TRAPS FOR HOME BUYERS

When some home owners are confronted with the realization that their home is infested by termites and that the eradication and damage cost could be expensive, they decide instead to sell their homes and in some case take steps to conceal the problem. The following is a summary of some of the traps facing prospective home buyers.

- St Kilda (Vic). A mattress placed on the floor and heavy boxes strategically placed to conceal damage.
- Balmain (NSW). Access hatches to the sub-floor nailed shut to prevent access.
- North Melbourne (Vic). Access hatch to the ceiling nailed shut to prevent access. The roof framing was badly affected and was sagging.
- Mosman (NSW). Hardwood nailed over severely affected floorboards and then carpeted.
- Murrumbena (Vic). Skirtings and architraves patched and painted to conceal damage.
- Dandenong (Vic). A bedroom was locked during inspection times apparently “because it contained valuables”. In fact the floor had been totally destroyed.



Figure 8. Access hatch cut in an inappropriate place, preventing sub floor access



Figure 9. Ducting is a common access problem

HOMEOWNERS' WORST NIGHTMARES

- Oakleigh (Vic). A home buyer who had just purchased a house without an inspection and discovered a drywood termite infestation (Kalotermes). Estimated damage \$20,000 and extremely difficult to eradicate.
- Rowville (Vic). A vendor allegedly first became aware that he had a termite infestation when a buyer had a pre-purchase inspection. The vendor withdrew the home and undertook repairs.
Estimated damage \$25,000.
- Campbelltown (NSW). A known termite infestation was not treated in a home until it began to show extreme structural damage.
Repair cost \$176,000.
- Rozelle (NSW). Termites attacked a renovation during construction.
Repair cost \$7,000.
- Newcastle (NSW). Severe termite damage to wall framing to a new house during construction.
Estimated damage \$7,000.
- Kirrawee (NSW). Termite attack to roofing was not observed until partial collapse occurred.
Estimated damage \$15,000.
- Vermont South (Vic). An advanced termite attack had damaged floor, wall and roof framing in three separate areas.
Estimated damage \$60,000.

UNUSUAL INCIDENTS OF TERMITE ATTACK

- In addition to attacking the structure of a home, termite damage was observed in bookshelves, books, electrical wiring, piles of magazines, a tissue box, a billiard table, furniture; all of which were in contact with a wall or floor.
- Termites gained access to a new home that had a treatment zone, through a cable T.V. conduit. Similar access to other homes was reported via other underground services.

Conclusions

- The economic damage being caused to Australian houses by termites is increasing rapidly and presents a major problem to home owners.
- The concept of “declared” and “undeclared” areas in Victoria is a myth, which is unnecessarily putting home owners at risk.
- The provision of “termite treatment zones” should apply to all Australian homes, however this is no guarantee that a termite attack will not occur.
- Steel framed houses are just as likely to suffer a termite attack as timber framed houses and under some circumstances, frame damage can occur.
- Concrete slabs do not provide more protection from termites than timber framed flooring.
- Regular vigilance is required in all Australian homes for the early detection and treatment of termites.
- Regular pest inspections are the cornerstone of a responsible termite detection and management program

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Archicentre Professional Pest Inspections

Consumer Information -

Victoria and New South Wales

"More than 35% of Australian homes offered for sale have a termite, borer, rot or other destructive timber pest problem." Source - Archicentre Pre-purchase Inspection Research

- Fast, comprehensive, low-cost timber pest inspections
- Professionally trained, full-time pest inspectors
- \$5 million professional indemnity insurance
- \$10 million public liability insurance
- Free membership to Archicentre's Home Owner Club
- Backed by The Royal Australian Institute of Architects

Archicentre's Free 12 month, 10+10 Guarantee

12 MONTH TIMBER PEST GUARANTEE \$10,000

12 MONTH STRUCTURAL GUARANTEE \$10,000

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Audio Interviews

Please note these files are MP3 files of approximate size of 3.5M to 4 M. Dial up users may experience a time for download. Audio files are best listened to with Windows Media Player, Real Player, iTunes or MP3 compatible programs.

About Archicentre

ARCHICENTRE IS THE BUILDING ADVISORY SERVICE OF THE ROYAL AUSTRALIAN INSTITUTE OF ARCHITECTS.

Since 1981, Archicentre has offered architectural services to home buyers, new home builders and renovators. Our services are "packaged" into streamlined set-fee, set-service formats so that people who might not otherwise have considered using an architect can have access to a range of professional architectural services.

Archicentre has more than 900 architects Australia-wide who are available in nearly every suburb and just about any region, to promptly perform professional services. We have offices in Melbourne, Sydney, Brisbane, Adelaide, Perth, Hobart and Darwin and branches in many regional centres.

We distribute free technical advice to thousands of home buyers across the country, through our range of property inspections, our Architect's Advice line, and our series of Homebuyer Seminars run in most States.

The advice we give is the result of our accumulated expertise on identifying house faults and providing remedies for them. Our seminars include other professionals such as legal practitioners, Real Estate professionals, accountants and professionals from other Institutes, all providing their expert advice for free.

Free information on everything to do with housing is given out to thousands of enquirers every year. Advice includes technical sheets on house faults, design issues and the benefits you can expect from using an architect. This internet site is aimed at providing information on a 24 hour, 7 day a week basis.

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