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Forest and Wood Products Research and Development Corporation

An Industry Survey of Opinions Relating to a Termite Risk Management Model for the Australian Housing Industry

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An Industry Survey of Opinions Relating to a Termite risk Management Model for the Australian Housing Industry

Prepared for the

Forest & Wood Products
Research & Development Corporation

by

P. Forsythe

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Contents

1 Introduction 1
2 A Model of Termite Risk Management 1
3 Survey of Pest control operators 3
3.1 Stages in Managing Termite Risk 4
3.2 Site Assessment Factors 4
3.3 Selecting a Termite Management System 5
3.4 Quality of System Installation 6
3.5 Hand-over to Home-owner and On-going Inspection 8
3.6 Conclusions from the Survey of Pest control operators 9
4 Survey of Designers and Builders 11
4.1 Site Situation Assessment Factors 12
4.2 Selecting a Termite Management System 12
4.3 Quality of System Installation 16
4.4 Hand-over to Home-owner and On-going Inspection 17
4.5 Other Issues 19
4.6 Conclusions from the Survey of Designers and Builders 19
5 Comparisons and Overall Conclusions from the Surveys 20
6 References 22
Appendix A – Proforma for Survey of Pest control operators 23
Appendix B – Proforma for Survey of Builders and Building Designers 37

1 Introduction

A previous literature review on termite risk management (Forsythe, 2003) created the basis for developing a termite risk management model for the housing industry. This study adds to the process by seeking industry input to the model. Three sectors from the industry were surveyed: pest control operators, building designers and builders. The study was conducted in two stages starting with pest control operators followed by Designers and Builders. The approach allowed findings from the first stage to assist the questions and content of the second stage.

With regard to the above, the literature review identified the need for the model to focus on decision makers at site assessment, system selection, construction, hand-over and on-going maintenance/inspection stages of a house. Technical content should then be dispensed at these points thus making greater sense of the timing and information needs of those involved. Of note, the review identified that home-owners needed greater attention than contained in previous approaches to termite management. This was especially important once the house was handed over to them as termite barrier systems with the aim to assist post occupancy detection of termites - not prevention of entry to the house (AS 3660.1).

In response to the above a working model developed from the literature review is shown in Figure 1. The model provides a framework for seeking industry input and is explained further, below.

2 A Model of Termite Risk Management

The proposed model has a different emphasis compared to existing approaches to termite management. For instance existing approaches tend to focus on technical content first while process management and decision makers are handled second or not at all. This model shuffles the same issues into a more usable order. It focuses on the people making risk decisions first; the stages when these decisions are required second; and strategic technical solutions third. The sequence is important in terms of acknowledging that risk may vary from one site to the next and may change over the life of the building. It also acknowledges that the people making decisions are important but not necessarily highly experienced in technical matters. They therefore require timely support in order to make prudent decisions. The model shown in Figure 1 is best described as an evolving model put forward as a basis for improvement and allowing better risk management decisions in relation to termite management.

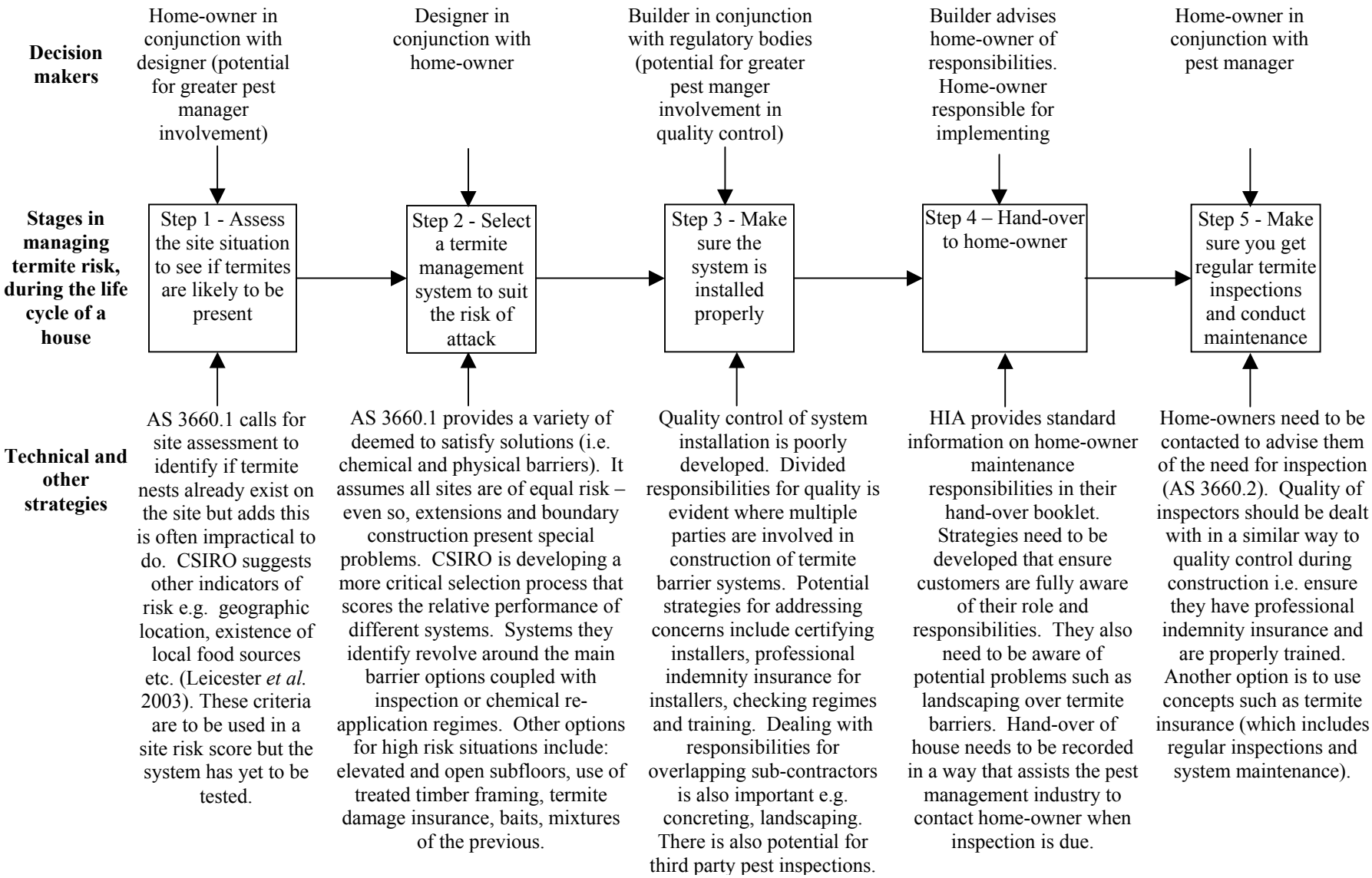


Figure 1: A working model of termite risk management in the housing industry

3 Survey of pest control operators

Stage one of the study involved a survey of pest control operators. In general, questions probed various aspects of the previously presented model and related strategies. A copy of the proforma for the survey is provided in Appendix A.

Reponses were obtained with the assistance of the Australian Environmental Pest Managers Association. Members from Victoria, Queensland and New South Wales[1] completed the survey while attending State based technical seminars focusing on revisions to the termite management standard – AS 3660.1. The survey was presented as part of a formal presentation. The intention of questions was fully explained during this process and members completed the survey at the same time. The response rate from the three states averaged 66% which is considered acceptable for the chosen method of data gathering. The actual number of responses from each State was 35, 66 and 74 respectively – 175 in total.

It is notable that of the above, the Victorian survey was conducted first and was used as both a pilot study as well as contributing to the overall data set. As a pilot study some questions weren't found to extract the depth of comment expected. As a result, these questions were expanded in the New South Wales and Queensland surveys. Where questions differ, responses from each group are reported separately.

Responses to the questions were entered into a spreadsheet and frequencies calculated. Reporting of the data is provided under sub-headings below. For simplicity, a minimalist approach has been adopted in the reporting format. Of note, responses are expressed as simple percentages, some questions are reported in groups and missing responses are not reported for individual questions. Instead, the average amount of missing responses for questions requiring prescriptive responses (closed questions) is reported here as being less than 5%. The amount of missing responses for questions where respondents were free to use their own words (open questions) was much higher because they only served to provide an optional means of elaborating on responses to closed questions. Due to this, responses for open questions were grouped using content analysis i.e. responses of similar content or theme were grouped together. Responses falling into a given group were counted but in practice it was found that many groups were small (the largest being 15% of the overall sample) so to remove insignificant themes, groups smaller than 5% were removed and only those larger have been reported.

[1] The NSW seminar also included respondents from ACT

3.1 Stages in Managing Termite Risk

One of the first issues to explore was support for the stages where termite management was important during the life of a house. Respondents were asked questions seeking agreement or disagreement with the proposed stages (i.e. site assessment, selection of a termite management system, quality of installation, hand-over and ongoing inspection and maintenance. In summary all five stages attained a high level of agreement - 92% on average. From these findings it is concluded that the stages in managing termite risk – as shown in the model in Figure 1 – meet the approval of pest control operators.

3.2 Site Assessment Factors

From the literature review (refer separate document) nine factors were identified to help quantify the difference in risk of termite attack, from one site to the next. The Melbourne sample was asked to accept/change/add/subtract from the nine factors. 55% felt there was no need to make changes but an almost equal 45% wanted some degree of change (but were non specific with details). To probe further, the Sydney and Brisbane samples were asked to agree or disagree with each individual factor as follows:

Question 7: The geographic location of house influences risk (e.g. the further north in Australia, the greater the risk).
94% of respondents agreed that this factor was relevant in assessing site risk; 6% disagreed.

Question 8: The age of the surrounding suburb influences risk (e.g. the older the suburb, the higher the risk of attack).
Only 37% agreed with this factor while a much higher 63% disagreed with the need or relevance of this factor. Of those who disagreed, the main theme of comment was that new sub-divisions could be just as prone to termite attack as older suburbs – especially if new subdivisions were in a previously forested area.

Question 9: The quantity of wood in the garden influences risk (e.g. the more trees and other sources of wood in the garden, the greater the risk of attack).
99% agreed with the relevance of this factor.

Question 10: The distance from house to boundary influences risk (e.g. the closer the house to the boundary, the higher the risk of attack).
Only 37% agreed with this factor and 63% disagreed. Comments on this issue suggested a degree of confusion about the relevance of the distance from the boundary. For instance some said that the distance to the boundary may be important depending on what was on the other side of the boundary. A few others said it was unimportant as long as there was enough room to access the side of the building for inspection. Some suggested

the risk could be better assessed by focusing on what lay on the other side of the boundary in terms of low, medium or high risk food/habitat sources.

Question 11: The distance from the floor to ground influences risk (e.g. the higher the floor above the ground, the lower the risk of attack).
86% agreed and only 14% disagreed with the relevance of this factor. Though this offers agreement about the need for height, respondents seemed to agree for different reasons to originators of the factor, Leicester *et al.* (2003). For instance Leicester *et al.* (2003) suggest that height will reduce the probability of termite attack while termite inspectors associate height with improved access for inspection – therefore they see it as a means of improving the ability to respond to attack, but do not necessarily see it as a risk in itself.

Question 12: The type of construction material influences risk (e.g. non-termite resistant materials increase risk).
76% agreed and 24% disagreed that the higher the content of non-termite resistant material in the building, the higher the risk of termite attack. Though the majority were clearly in support of this, many commented that using termite resistant material was a means of responding to termite risk, but wasn't a risk in itself.

Question 13: There is increased risk of attack by virtue of exposure of materials to dark, wet and rarely disturbed locations.
For this question, an example of such conditions was given by way of an enclosed subfloor with poor drainage. There was very strong support for this factor - 98%.

Question 14: Attaching new construction to existing increases risk e.g. risk increases and system options decrease where attachments create poor ventilation and the quality of new work is hampered by the short comings of old work.
There was 100% agreement that risk increases and system options decrease when attaching new construction to existing construction. Poor ventilation, poor installation and poor consistency between systems are often evident in extensions to houses.

Question 15: The impact of zero house setbacks from boundaries influences risk (e.g. system options decrease where construction, maintenance, and inspection are hampered by the inability to access neighbouring property).
There was a 96% agreement and only 4% disagreement that termite management options decrease due to lack of access to the side of the house i.e. due to the need to walk onto the neighbouring property.

3.3 Selecting a Termite Management System

Respondents were asked for agreement or disagreement with various termite management systems. Options revolved around physical barriers, chemical barriers and options such as baiting, inspection and combined concepts. Most of the options come from AS 3660.1 but opinions on a number of new ideas was also sought.

The Melbourne sample was asked to change/add/subtract from a menu of the above options. 73% felt there was no need to make changes but 27% signified the need for change but were unspecific in giving details. Again further detail was sought from the Sydney and Brisbane samples by asking more detailed questions, as follows:

Question 16: Are physical barriers such as slabs, metal caps, graded stone chips, stainless steel mesh acceptable barrier options?
With regard to the above, there was 78% agreement with the suite of physical barrier options. The 22% who disagreed were mainly concerned with concrete slabs. To some extent this was understandable given that pest control operators don't participate in the slab construction but perceive there is a lack of quality assurance in this area. For instance cracks in the slab potentially allow hidden termite entry, thus allowing the possibility of false blame on pest control operators.

Question 17: Are chemical barriers such as hand sprayed and reticulated systems acceptable barrier options?
There was strong agreement with the two chemical barrier options (98%) thus signaling unanimous support in this area.

Question 18: Are other barrier options including baiting systems, use of non-susceptible materials, chemical impregnated sheeting, inspections and the use of no barrier (i.e. where no perceived risk) acceptable options?
Despite the broad scope of options 71% agreed to all options while 30% disagreed with a number of specific items. The main concern was with the inclusion of "no barrier" which targeted sites where there was no perceived risk of attack. Despite this, pest control operators perceived there was always a risk of attack and it should therefore be removed from the list.

Question 19: Are combined concepts such as systems made up of mixed construction and integrated termite management systems acceptable options?
92% agreed with the need to acknowledge and use these approaches – hence providing strong support.

Question 20: Add your own barrier system?
There were no responses to this question

3.4 Quality of System Installation

Questions under this heading aimed to see how pest control operators felt about existing measures of quality and their receptiveness to new ones. The Melbourne sample was asked to add, subtract or modify the options. 67% chose not to make any changes and though the remaining 23% wanted at least some degree of change, no clear trends were

evident. As a result, more detailed questions were asked of the Sydney and Brisbane samples, as follows:

Question 21: Is the existing "certificate of installation" (AS 3660.1) appropriate as a means of controlling installation quality
There was 75% agreement and 25% disagreement that the certificate was a means of managing quality.

Question 22: Should installers of termite management systems be certified to carry out the work?
The need for certification of installers attracted stronger support than the previous question. 94% agreed and only 6% disagreed.

Question 23: Should third party inspection of installations be carried out to check the work of installers on every project?
The use of third party inspectors on projects received strong support with 86% agreement and only 14% disagreement.

Question 24: Should third party audits of a sample of projects be carried out to check an ongoing sample of industry quality standards?
This question followed trends set by the previous question but with less strength at 73% agreement and 27% disagreement.

Question 25: Do you think pest managers would be interested in conducting third party inspections?
Leading on from the previous line of questions, only 64% of pest control operators agreed they would be interested in doing third party inspections and 34% disagreed.

Question 26: Ideally, pest inspectors who did third party inspections during construction would probably need to do the first inspection once the house was occupied. Is this a good or bad thing ?
Adding further to the previous propositions, 74% thought doing the first inspection once the house was occupied was a good thing while 36% thought it a bad thing.

Question 27: Do you foresee implementation and cost problems with third party inspections?
Unfortunately 80% foresaw problems and only 20% didn't think there would be problems.

Question 28: Do you have concerns whether your insurers would allow you to do third party inspections?
Again a majority of 71% thought there would be problems and a minority of 29% thought there wouldn't be problems.

From the previous set of responses it can be concluded that pest control operators feel there is a need for better quality control of termite system installations during

construction. The existing "certificate on installation" appears to go some way to dealing with this, but not far enough. One popular measure is the potential certification of installers. Options involving third party audit/inspection show potential but are also likely to encounter problems relating to cost and insurance issues. These issue needs to be explored more fully with insurers of pest control operators.

3.5 Hand-over to Home-owner and On-going Inspection

Hand-over involved the house changing from the builder's to home-owner's responsibility. Questions were asked about ensuring that builders had a standard information package to give to home-owners advising them of how to maintain termite barriers and when to call for inspections. Another area of inquiry concerned the appropriateness of sending inspection postcards to home-owners to remind them to get their house inspected after an appropriate period of occupation e.g. 12 months. A third area of questioning canvassed the appropriateness of setting up a central database for registering home-owners to ensure timely contact by pest inspectors.

As previously, the Melbourne sample was asked to add, subtract or modify the list of options. 71% agreed to some or all of the options. The main concern was how to deal with privacy issues relating to the above strategies. It was also stressed by some, that the information given to home-owners should be at the end of the defects liability period in order to help them take the information more seriously.

The Sydney and Brisbane samples were again questioned in more detail about the above issues.

Question 29: Is it a good idea to ensure customers receive easy to read information from builders at hand-over about what they should and shouldn't do during occupation?
98% agreed that customers should receive easy to read information from builders at hand-over, thus creating near enough to unanimous approval for this item.

Question 30: Is it a good idea sending out termite inspection postcards (at the appropriate time) prompting home-owners to call an inspector?
97% agreed that sending a reminder postcard was a good idea. Again this level of response indicates the equivalence of unanimous approval for this item.

Question 31: Registering home-owners on a database at hand-over to ensure they are contacted by a pest inspector at the scheduled point in time?
86% agreed that registering home-owners on a database at hand-over was a good idea. Comments on these issues were that database leads must be managed in an unbiased way and home-owners shouldn't be inundated with too many pest control operators trying to win business from a given home-owner.

Question 32: Do you think pest managers would benefit from the previously mentioned database and postcard system?
90% of respondents agreed that they would benefit from the above initiatives.

Question 33: To manage the risk of poor quality inspections, do you think inspectors should have to undertake regular training and be licensed?
With regard to this, 78% felt that inspectors should have to undertake both regular training and be licensed. 17% felt there was only a need to be licensed and only 3% felt there was only a need for training. There were none who thought that neither training or being licensed shouldn't be required.

Question 34: Is the computer database approach a good idea?
All samples were asked if a more expansive database – one that registered properties at site assessment stage, then kept a case history of on-going risk management decisions and communications with home-owners – was a good idea. 60% agreed fully with this idea and a further 26% thought it "maybe" a good idea. Only 14% felt it was a bad idea.

Question 35: Would the pest management industry be the right people to explore running it?
49% thought the pest management industry would be the right people to explore running the database while 38% thought it "maybe" a good idea and a further 13% felt that the termite management industry should not be involved.

From the above set of responses it can be concluded that the termite management industry agrees strongly with the need for builders to provide a standard information package to home-owners at hand-over. They also support the idea of reminder postcards and a home-owner database but with a number of caveats (e.g. who would maintain it, confidentially issues). Further to this they support the need for regular training and licensing to underpin the professionalism and commitment of its members in providing services to home-owners. Such issues should be taken up with other stakeholders and licensing authorities such as government agencies in each state.

3.6 Conclusions from the Survey of Pest Control Operators

- The stages in managing termite risk – as shown in the model in Figure 1 – meet the approval of pest control operators.
- The main site factors that influence the risk of attack include geographic location and the quantity of wood in the garden (50m radius). In addition, the design of the house may add extra risk due to the inherent creation of dark and wet subfloors, attaching new construction to poor quality existing construction and zero house setbacks from boundaries. A number of other previously defined risk factors are perhaps better described as responsive measures for addressing site

risks - including the use of termite resistant materials and the use of high-set open subfloors.

- The termite management systems offered in the survey reflect those that are commonly used and accepted in the industry. Areas of concern include concrete slabs (as physical barriers) and the use of no barrier (where no perceived risk). Though there was resistance to these options it is apparent that they offer alternate solutions to those preferred by pest control operators.
- There is a need for higher quality installation of termite management systems during construction. A targeted measure is certification of installers. Third party inspection of installations also has potential but requires exploration with builders and building surveyors to ensure viability and need. Licensing and training is also required and needs to be incorporated into a consistent package with installation requirements. Ideas need to be explored more fully with insurers, AEPMA and government agencies.
- There is a need for builders to provide a standard information package to home-owners at hand-over. The idea of reminder postcards and a home-owner database are good ideas but implementation issues pose certain problems that require further exploration (who would do it, confidentiality issues). These issues require further exploration into the practicalities of implementation plus the opinions of builders.

4 Survey of Designers and Builders

The survey of designers and builders was conducted via emails linked to a survey web site. The web site housed the survey pro-forma and could be completed on-line in about 15 minutes. The email was sent to members of design and building associations as follows:

- Housing Industry Association - sent to technical committee members in each state (approximately 55 sent)
- Master Builders Association – sent to NSW members involved in housing (approximately 200 sent)
- Building Designers Association – sent to NSW members plus national billboard members (approximately 2500 sent)

45% of responses came from Sydney, 5% from Brisbane, 3% from Melbourne, 2% from Adelaide and 45% from regional centers. Further to this, 52% of respondents were involved in design and construction, 29% in construction only and 12% in design only.

Of the estimated 2,750 emails sent, only the 255 sent by the HIA and BDA were directed specifically to those involved in home building. The 2500 sent by the MBA were sent in a less targeted way to all types of members on their mailing list - not necessarily those involved specifically in housing construction. On this basis the response rate was much higher for the former groups compared to the latter. In total, 110 responses were received and based on estimations of the HIA and BDA responses, a response rate of 23% was attained. Though low, the rate is considered consistent with what is normally received in mail out surveys.

The survey followed similar themes to the pest control operator's survey but included new information and adjustments to suit the specific roles of designers and builders. A copy of the survey is provided in Appendix B. As in the pest control operator's survey, many questions were closed and where appropriate were paired with open questions to facilitate qualitative comments. Responses to the questions were entered into a spreadsheet to facilitate the analysis of percentages and themes of response. Missing responses and content analysis were handled in the same way as for the pest control operators survey. For instance missing responses for closed questions are reported as an average (the average was 10% for closed questions). Responses to open questions were reported according to similar themes of content (the largest group was found to be 17% of the sample and smaller groups of 5% or less were not reported.

As with the survey of pest control operator's opinions, questions in this survey are reported according to five identifiable stages spanning the inception and life of a house as follows: site assessment, selecting a termite management system, installation quality, hand-over, on-going maintenance/inspection.

4.1 Site Situation Assessment Factors

Questions in this stage mimicked relevant questions asked of pest control operators. The idea was to be able to compare the consistency of designers' and builders' responses with those of pest control operators.

Question 1: New houses are at greater risk of attack depending on their geographic location in Australia?
The majority of respondents (72%) believed the geographic location of a house will have an impact on its exposure to termite attack. Less than one quarter (22%) believed that this is not the case or didn't know (6%).

Question 2: New houses are at greater risk of attack depending on the presence of large trees or similar food/nesting sources (e.g. within 50m of the house)?
The majority of respondents (76%) agree that the closer a house is to these sources the higher the risk posed by termite attack – a response rate similar to question 1. Disagreement with the statement was relatively small at 14% and a further 10% didn't know.

Question 3: New houses built on boundaries represent increased risk of attack if provision isn't made to deal with the lack of inspection access?
The vast majority of respondents (89%) agreed that houses built on boundaries have greater risk of attack if inspection access or other provision isn't provided. Only 6% disagreed and 5% didn't know.

Question 4: New houses or extensions have increased risk of attack if affected by adjoining structures with poor termite management systems?
As in question 3 the vast majority of respondents agreed with the above statement (93%). Only 6% disagreed and a further 1% didn't know.

From the above it can be concluded that factors builders and designers think are relevant to the situational assessment of termite risk include site variables such as geographic location and proximity to food/nesting sources; and design variable such as housing built on the boundary with lack of inspection access and houses where old and new sections create problems in creating an appropriately consistent system.

4.2 Selecting a Termite Management System

For the same reasons as given previously, questions in this stage mimicked questions asked of pest control operators. In addition, questions on a greater variety of system strategies were explored.

Question 5: The BCA doesn't require protection of the building structure where there is no apparent risk of attack. Would you feel comfortable leaving a termite barrier out of houses in these areas?
The overwhelming answer was no (81%) and the remaining 19% answered yes. The main reason for those who answered no, was concerns about exposure to litigation.

Question 6: Do you have concerns about physical barriers such as slabs, graded stone particles, metal capping, in terms of performance?
The general perception of physical barriers appears to be poor with 66% having concerns about performance and the remaining 34% not being concerned. Themes of the comments providing further explanation to those concerned about performance (in order of frequency) are as follows:

1. Concerns specifically about concrete slabs
2. Too much dependence on the quality of installation of physical barriers
3. Concerns specifically about graded stone
4. Concerns specifically about stainless steel mesh

Question 7: Some feel that concrete slabs shouldn't be acknowledged as physical barriers due to the belief that cracks often exceed allowable limits (i.e. >1mm), thus allowing hidden termite entry. Do you agree with this concern?
The response is consistent with question 6. 67% felt that concrete slabs should not be considered part of a termite protection system because cracks may let termites in. The remaining 33% were not concerned. The general theme of the comments concerned why cracks occur and included reasons such as lack of vibration of concrete, cold joints in the slab, lack of curing and lack of steel to control shrinkage. Respondents seemed concerned about the inability to control these issues. Further to the above, it is notable that a few respondents pointed out that AS 2870 allows cracks in slabs large enough for termites to get through. As a result, compliance with AS 2870 for slab construction (as required in the termite management standard AS 3660.1) might not necessarily stop hidden termite entry.

Question 8: Can you think of a way of dealing with concerns in this area in terms of assuring the quality of slab construction?
The response to question 8 was evenly divided with 51% thinking of ways of dealing with concerns and 49% not being able to offer anything. Comments covered a number of themes but some were stronger than others as follows:

1. Use chemical system with the slab to boost overall performance
2. Undertake greater slab design measures e.g. more reinforcing, thicker slab, higher strength concrete, special treatment at cold joints,
3. Better installation practices

Question 9a: Do you have concerns about hand applied or reticulated chemical systems in terms of performance?
Interestingly the response to question 9a is quite similar to that of question 7 which asked about the performance of physical barriers. There appears to be a similar lack of faith in chemical barriers. For instance 66% had concerns about the performance of chemical

barriers while the remaining 33% were not concerned. Comments relating to the majority response concerned the lack of longevity of the chemicals and the need to reapply on a regular basis. There was also concern that chemical barriers can be easily damaged as can reticulation systems. Another concern was the associated risks to people, the environment, and the effectiveness of the chemicals.

Question 9b: Do you have concerns about hand applied or reticulated chemical systems in terms of ability to be installed correctly?
The general feeling amongst respondents (73%) is the chemicals can be installed correctly with only 23% thinking this is not the case. Despite this level of confidence, comments made by respondents suggested a degree of concern about poor work practices which add to comments in previous questions. By far the main theme of comment was the lack of care in installing properly and an inability to check chemicals are applied properly.

Question 10a: Do you have concerns about other barrier options (e.g. chemical impregnated sheeting, mixed systems) in terms of performance?
The general distrust of termite management systems was still prevalent here although the mix of physical and chemical barrier systems, and chemical impregnated sheeting, showed slightly improved figures compared to the previous barrier systems (refer questions 6 and 9a). For instance, only 57% have concerns about these barrier options and 43% are unconcerned. The main comments relating to these responses fall under 2 categories:

1. Have concerns about the reliable installation of plastic sheeting.
2. Have concerns about the use of chemical products in general.

Question 10b: Do you have concerns about other barrier options (e.g. chemical impregnated sheeting, mixed systems) in terms of ability to be installed correctly?
A large number of respondents (70%) have concerns about the proper installation of these barriers and only 30% don't. All of the comments on this subject discussed the need for proper training and supervision of installers, with some mention of protection of the product (specifically Kordon) from following trades.

Question 11: Use termite resistant materials?
Almost all of the respondents agreed that the use of materials resistant to termite attack will be beneficial in reducing the incidence or impact of termite attack (90%). Only 8% disagreed and 2% didn't know. The most common comment on this issue was concern about the associated cost of using treated materials. Some of the other comments raised the use of steel framing and the need for regulation to encourage use of termite resistant materials.

Question 12: Design the house to minimise dark and moist subfloors e.g. use open subfloors, high set floors, good perimeter drainage?
Respondents appear to have real faith in these ideas with 81% agreement and only 18% disagreement. A further 1% didn't know. What can also be said is that these methods won't be damaged during construction and don't require ongoing maintenance by the

owner. Despite the majority of respondents agreeing with the subfloor example, the main theme of comment was that it may have limited applicability due to conflicting building regulations and design controls including: Council height restrictions, thermal requirements, access for the elderly, general architectural trends.

Question 13: Use removable skirtings to facilitate inspection in hard to get at locations?

The largest group at 49% disagreed with the idea of using removable skirtings to allow inspection of difficult areas. Close behind, 43% agreed and a further 8% didn't know. Clearly the use of removable skirtings presents a vexed issue. Comments relating to this mainly came from those opposed to the idea. The most common comment was that the introduction of such a system was not feasible and would never happen due to the increase in associated costs, problematic appearance and the belief that few home-owners actually carry out inspections. A smaller group suggested thermal imaging as an alternative means of inspecting hard to get at locations. Despite the above feedback it seems that even though removable skirtings may not be a first choice solution, there may be instances such as zero boundary setback housing, where such an approach may be one of the only choices on offer (i.e. due to lack of access).

Question 14: Use subcontractors who can follow-on with cyclic maintenance/ inspection once the house is occupied?

The use of subcontractors capable of undertaking cyclic inspections once the house is occupied received a very positive response from the respondents (75%). Only 20% disagreed and 5% didn't know. Liking for this approach is perhaps because responsibility stays more with the subcontractor than the builder. Comments relating to this question mainly involved concern about increased costs.

Question 15: Encourage home-owners to get termite baits installed once the house is occupied, i.e. to monitor and deal with termite activity?

68% agreed with this statement, 20% disagreed and 12% didn't know. From this it seems that many builder/designers see termite baits as a means of divesting themselves of responsibility for termite management i.e. it places greater responsibility on home-owners to maintain the system. Comments can be put into three categories:

1. Respondents felt that the additional cost may be prohibitive
2. That it should only be done in areas of high risk
3. Concern that home-owners would be negligent in maintaining and checking of baits.

Question 16. Encourage home-owners to get termite protection insurance, i.e. once the house is occupied?

Though the majority agreed (53%) with this statement there was still a significant proportion that disagreed (33%). A smaller but relatively significant proportion didn't know (14%). The majority of comments focused around cost and the reluctance of insurers to pay out claims. Other comments included the respondent not being aware of any companies that offer termite insurance and the fact that insurance would not be necessary if buildings were properly maintained and inspected.

Question 17. Specify a high frequency of inspection once the house is occupied i.e. less than 12 monthly intervals?
The majority of respondents (63%) agreed with the above statement, however a third (33%) disagreed. A further 4% didn't know. The question attracted a lot of comment. The most common theme was that the frequency of inspections depends on the risk of each individual property. Other comments included: the need for better design practices, too many inspections will overwhelm people, none of them will be done and concerns about cost increases.

4.3 Quality of System Installation

Questions in this stage were again similar to those asked of pest control operators, but where appropriate were reframed and expanded upon to build on findings from pest control operators.

Question 18: There have been complaints about the installation quality of some barrier systems. To address this, should installers be certified and/or licensed in order to underpin the quality of their installations?
94% thought that licensing and/or certifying barrier system installers was of great merit. Only 4% disagreed and 2% didn't know. The main response here seems to be a means of addressing previously discussed quality concerns.

Question 19: Should installers carry professional indemnity insurance to redress defective installations?
87% believed this was a good idea for the reason of reducing builder/designer liability. The 9% who disagreed seemed to do so because of the increasing cost of insurance to the building industry. The remaining 4% didn't know. Though there was no obvious theme to the comments about this question, cost concerns were implicit in a number of comments.

Question 20a: Would third party inspections of installations be a good or bad thing in preventing defects, if done as an industry audit on a sample of projects?
Though 53% agreed that it would be a good idea to have third party inspections, a relatively high proportion disagreed (35%) and a further 9% didn't know. Comments from respondents who disagreed were mainly that an audit system would be just another layer of red tape and would add to the cost of building. The main comment from those who agreed was that any form of inspection was better than nothing.

Question 20b: Would third party inspections of installations be a good or bad thing in preventing defects, if done on each and every project?
Reponses to these questions shifted compared to question 20a. Those who disagreed held a subtle majority (51%) compared to those who agreed (40%). Those who didn't know represented 9%. This question attracted few comments. The main theme was that

random checking would be adequate and not impose additional cost and extra coordinating and administrative duties.

Question 21: Would it be beneficial to pass on the installer's details to customers to assist the chain of responsibility for on-going performance, maintenance and inspection of termite barriers?
With 95% of responses agreeing with this idea, it seems that home-owners being able to identify the installer of work would be an effective way of reducing responsibility for builder/designers and a way of ensuring installers did a good job. Only 3% disagreed and 2% didn't know. Comments either stated that this was already being done or that it should be done as a way for the installer to maintain and ensure the optimum performance of the product.

From the responses to this stage of questioning it can be concluded that builders and designers are concerned about the quality of termite barrier installations. They strongly support certification and/or licensing of contractors working in this area. They also support the idea that these contractors carry professional indemnity insurance and that their names be passed onto home-owners to assist the chain of responsibility for ongoing performance, maintenance and inspections. In contrast, builders and designers are ambivalent about third party inspections of barrier installations.

4.4 Hand-over to Home-owner and On-going Inspection

Questions about this stage aimed to gauge interest in new strategies for encouraging home-owners to get ongoing termite inspections and ensure maintenance of their termite management systems. Builders were seen as the main conduit for introducing these strategies upon hand-over of the house.

Question 22a: To ensure home-owners fulfill their maintenance responsibility once they've moved into the house, is it a good idea to provide standard information packages for builders to provide to home-owners?
The overwhelming consensus is that the introduction of an information package would be of great benefit and would assist home-owners to ensure they maintain their homes adequately (96%). Only 3% disagreed and 1% didn't know.

Question 22b: To ensure home-owners fulfill their maintenance responsibility once they've moved into the house, feedback is sought on the appropriateness of sending out inspection reminder postcards to home-owners 12 months after they've moved in i.e. reminding them to get an inspection?
The majority of respondents agreed with this proposal (73%) however the majority was not as strong as in question 22a. For instance 24% disagreed and the proportion that didn't know remained consistent at 2%. Comments mainly concerned who would take responsibility for sending out the postcards. Builders and designers did not think it was their responsibility.

Question 22c: To ensure home-owners fulfill their maintenance responsibility once they've moved into the house, feedback is sought on the appropriateness of giving home-owners "termite management" software. Simple software would be provided by email or free CD and would be used to record the termite system installed, who did it, send an inspection reminder at the scheduled time, record inspection results?
There was a majority of 59% who thought this was a good idea (59%) but a significant proportion (31%) still disagreed with the idea. A further 10% found this idea new territory and therefore didn't know whether to agree or disagree. Comments on this issue were divided and the only common theme was the general concern about implementation issues (builders don't want more work or more cost, upgrading of computers would nullify the effect, people must have access to a computer, what about people who rent?).

Question 23: Would builder/designers be prepared to help in terms of handing out free CDs at hand-over?
The clear response was yes. 87% agreed and only 13% disagreed. The greater level of positive response to this question, compared to the last, seemed to be because this question implied limited involvement and responsibility – they just had to hand it out.

Question 24: Would builder/designers be prepared to help in terms of registering their customers on an email database at hand-over?
Over three quarters of respondents would be prepared to assist in registration (76%) while the other quarter disagreed (24%) seemingly due to the same point raised in previous questions – that the builders' responsibility should end once construction has been completed and the building has been handed over. Other themes of comment concerned privacy issues.

Question 25: Should builders include the cost of the first inspection on a new house in their contract price i.e. to ensure that home-owners get an inspection done, thus preventing the risk of termite damage?
64% of respondents disagreed with this idea and this outweighed those who agreed (36%) by nearly 2 to 1. The prevailing comment on this issue, was that at some point in time owners need to take responsibility for their house. Builders think home-owners are being absolved of any responsibility. Extra cost was also a concern.

From the previous set of responses it can be concluded that builders and designers strongly support providing termite management information packages to home-owners at hand-over. They also support sending out termite inspection postcards 12 months after home-owners have moved in (as long as they don't need to expend resources or take responsibility for doing it). There was only a marginal majority for providing termite management software to home-owners. Concerns were mainly about implementation and ownership issues. Notwithstanding this, builders and designers were far more positive about handing out free software CDs or registering customers on an email database (to receive termite management information). Builders were against paying for the first termite inspection as part of their building contract.

4.5 Other Issues

Question 26: Some ideas in this presentation may add extra cost to the design and construction process. Please signify the tolerance to increased costs you think is possible.
35% felt that up to $200 extra would be acceptable, 24% felt that $300 would be acceptable. Surprisingly, 27% suggested higher amounts averaging $2,123. Only 14% felt that a limit of $100 was appropriate.

Question 27: Please add any over-arching comments about what you have read in this presentation.
Many diverse comments came from this question but few converted to consistent themes. One exception was that the emphasis should be on owners taking responsibility for their own inspection home maintenance regimes, not builders.

4.6 Conclusions from the Survey of Designers and Builders

Factors builders and designers think are relevant to the situational assessment of risk of termite attack, include site based factors such as geographic location and proximity to food/nesting sources. They also acknowledge design based factors such as housing built on the boundary with lack of inspection access and houses where old and new sections create problems in developing an appropriate and consistent system

In terms of selecting a termite management system, builders are concerned about future litigation. Concerns about physical barriers mainly focus on concrete slabs and the related issue of hidden termite ingress via cracks. Chemical barriers also pose concern but mainly in terms of the quality of the initial application and the need for re-application. In contrast, use of termite resistant materials received strong support as a means of mitigating overall risk. Similarly, high set open subfloors also received strong support but with perhaps limited application due to conflicting design controls.

In terms of new ideas, respondents were less than enthusiastic about ideas such as removable skirting but were far more positive about using installation subcontractors capable of providing an on-going inspection/maintenance service to their customers. They were also positive about home-owners using baits and more frequent inspections, but this was mainly directed towards high risk areas. Less strong was the use of termite insurance though opinions may be hampered by lack of knowledge of this relatively new idea.

In terms of installation quality, builders and designers showed considerable concern. They strongly support certification and/or licensing of contractors and the need for these people to carry professional indemnity insurance. They also liked the idea of being able to pass the names of installers onto home-owners to assist the chain of responsibility for ongoing performance, maintenance and inspections. In contrast, they were ambivalent about third party inspections of barrier installations.

At hand-over to the home-owner, builders and designers strongly supported information packages for home-owners and the idea of sending out termite inspection postcards 12 months after home-owners moved in. There was greater ambivalence about providing termite management software to home-owners. Concerns were mainly about scheme implementation and ownership issues. Notwithstanding this, builders and designers were far more positive about handing out free CDs or registering customers on an email database to receive the information. Builders were against paying for the first termite inspection as part of their building contract.

5 Comparisons and Overall Conclusions from the Surveys

Five stages of managing termite risk were assessed by pest control operators, builders and designers including:

- Site assessment of termite risk
- Selection of a termite management system
- Installation quality of the system
- Hand-over to home-owner
- Ongoing inspection and maintenance of the system

Pest control operators, designers and builders agree on four factors affecting the situational assessment of the risk of termite attack:
Site factors include:

- the geographic location of the site
- proximity to food/nesting sources (e.g. significant sources with 50m)

Design factors include:

- housing built on the boundary with lack of inspection access
- houses where old and new sections create problems in creating an appropriate and consistent system

Pest control operators, builders and designers all agree that even though no termite management system is required under the BCA where there is no perceived risk of attack,

all prefer to install a termite management system - especially due to concerns about litigation.

In terms of selection of a termite system, AS 3660.1 offers the main options via chemical or physical barriers. With regard to these barriers, pest control operators, designers and builders all hold concerns about particular systems. Concrete slabs used as physical barriers present a consistent area of concern due to the potential of hidden entry through cracks in the concrete. Chemical barriers are less of a concern in terms of design, but more of a concern regarding quality of installation.

Though barriers aren't the only options available to builders and designers they are widely accepted and are in keeping with the whole-of-house approach often implicit in legislation calling for a duty of care by builders. *Note: the Building Code of Australia only requires structural protection (ABCB 1996) but this may not be enough to satisfy the demands of consumer legislation as suggested in publications by the Building Services Authority (2001) and Department of Fair Trading (2003)*. On this basis, other options can be used to add to barrier systems where there is higher risk. Such options that meet wide spread acceptance among pest control operators, builders and designers include:

- using termite resistant materials
- using high set open suspended floors (not withstanding limited applicability where competing with other controls on building design)
- specifying more frequent inspections

An idea that received less support but may be necessary in some situations - such as zero setback housing - is removable skirtings. It may be required to assist the inspection process. A less technical option with a similar level of support is termite insurance. In the future this may gain more support as it is currently a novel and not widely known approach.

Installation quality was also a consistent area of concern for all groups. To address this, certification/licensing of installers and professional indemnity insurance for installers received strong support. Pest control operators also supported professional development training while builders and designers supported the idea of passing the names of installers onto customers (to create a service package that could incorporate ongoing inspection and system maintenance, and make them more accountable for the original installation).

At hand-over to the home-owner, all groups strongly supported information packages for home-owners and the idea of sending out termite inspection postcards 12 months after home-owners moved in. Termite management software for home-owners also seemed to have potential but would require a centralized industry initiative that wouldn't cause extra individual cost or work to builders. An email register approach may also work. In any event, both are long term objective and would require careful planning of implementation.

The next step in utilsing the above findings is to convert them into a format that is usable by the housing industry. As such, the concept of a model for managing termite risk –

presented at the beginning of this report - needs to be refined and converted into an easy to understand publication that can be used by industry practitioners for assessing termite risk and providing practical solutions.

6 References

Australian Building Codes Board (ABCB), 1996, '*Building Code of Australia*', Australian Building Codes Board, Canberra.

Australian Standard AS 2870, 1996, "*Residential slabs and footing code - construction*", Standards Australia, Sydney.

Australian Standard AS 3660.1, 2000, "*Termite management Part 1: New building Work*", Standards Australia, Sydney.

Australian Standard AS 3660.2, 2000, "*Termite management Part 2: In an around existing buildings and structures – guidelines*", Standards Australia, Sydney.

Building Services Authority (BSA), 2001, '*Protection of Buildings Against Subterranean Termites*' Building Services Authority, Queensland.

Department of Fair Trading (DFT), 2003, '*Protecting your home from termites*', Office of Fair Trading, Sydney.

Forsythe, P., 2003, *A Review of Termite Risk Management in Housing Construction*, Timber Development Association (NSW) – see www.fwprdc.org.au for copy of report.

Leicester, B., Wang, C.H. & Cookson, L.J., 2003, Termite Attack, Commentary on Compendium, CSIRO.

7 Appendix A – Proforma for Survey of Pest Control Operators

Managing the Risk of Termite Attack on Houses
Perry Forsythe – Timber Development Association

- Timber is a target for bad press about termite attack,
- There is a need to reduce “real risk”, and at the same time close the gap between this and “perceived risk”,
- The TDA is undertaking an R&D project to address this. It builds on existing work by CSIRO* and others,
- This presentation addresses the above by offering a framework for the risk management of termites. It also seeks feedback on how to improve the framework,
- To this end the presentation incorporates a survey - please participate by filling out the questions on the printed version provided – it will be collected at the end.

A Brief to Managing Termite Risk

- AS 3660 is based on “whole of house protection” but it doesn’t systematically target risks or manage risks as a process (hence there is no way of dealing with different size risks, or filling gaps between the responsible parties).

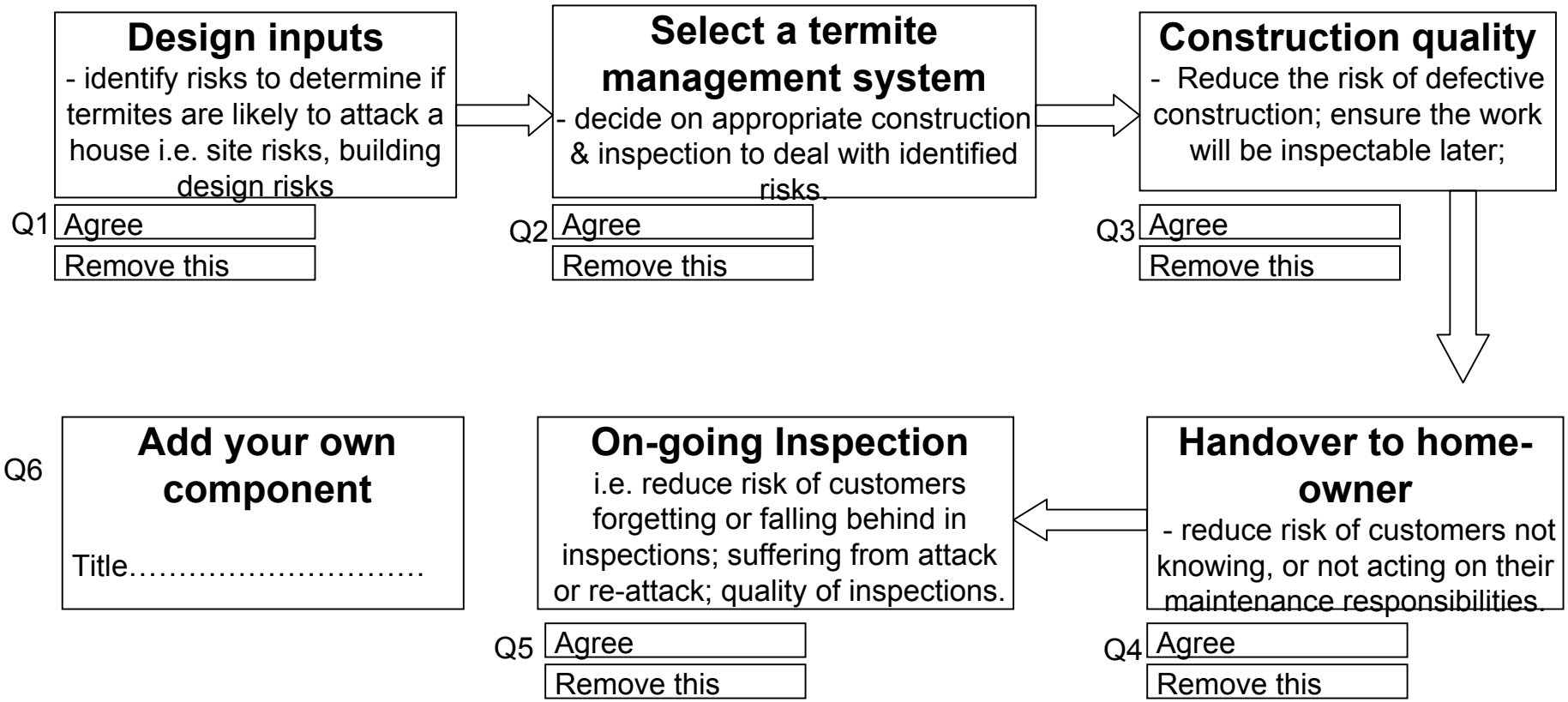
- The TDA project aims to deal with this by adding a “whole of life” approach. It progressively manages risks; incorporates all parties; identifies risk points during and after construction,

- By doing this, levels of termite risk can be determined and dealt with in the most economical and accurate way (i.e. in design, construction and inspection regimes).

- The following questions use a tick the box approach to provide feedback. There is an option to tick “comment”. This should be used where other options are inadequate. The chance for general comments is also provided at the end of the survey.

Framework for Whole of Life Termite Management

Does the framework cover the <u>main</u> points? (details to be discussed later)



Comment …….

……..

Design Inputs - Relating to Site Risks

Do the following inputs sound appropriate?

– Location of house e.g. the further north in Australia, the greater the risk *,

Comment……

Q7 Agree

Remove this item

– Age of surrounding suburb e.g. the older the suburb, the higher the risk *,

Comment……

Q8 Agree

Remove this item

– Quantity of wood in the garden e.g. the more trees, untreated landscaping timber, woodheaps, compost heaps, subfloor wood storage, the higher the risk *,

Comment……

Q9 Agree

Remove this item

Design inputs - Relating to The Building

Do the following inputs sound appropriate?

– Distance from house to boundary e.g. the closer to the boundary, the higher the risk *,

Comment…….

Q10 Agree
Remove this item

– Distance from floor to ground e.g. the higher the floor, the lower the risk *,

Comment……..

Q11 Agree
Remove this item

– Type of construction materials e.g. the higher the content of non termite resistant material, the higher the risk *,

Comment…….

Q12 Agree
Remove this item

– Level of exposure of materials e.g. darkness, sources of moisture and non-disturbance, all increase risk *, such as a poorly drained & enclosed subfloor,

Comment……..

Q13 Agree
Remove this item

Design Inputs – Limiting Options

Do the following inputs sound appropriate?

– Attaching new construction to existing e.g. risk increases & system options decrease where attachments create poor ventilation & the quality of new work is hampered by the short comings of old work,

Q14 Agree / Remove this item

Comment……

– The impact of zero boundary house setbacks such as townhouses (e.g. system options decrease where construction, maintenance, and inspection are hampered by the need to access neighbouring property),

Q15 Agree / Remove this item

Comment……..

Selection of a Termite Management Systems

Do the following (which include AS 3660 & BCA certified options) sound appropriate?

Physical Barriers

a) Concrete slab (in accordance with AS 2870)
b) Graded stone particles
c) Termite shields
d) Stainless steel mesh

Q16 Agree
Remove item ……
Modify wording ……..

Chemical barriers (e.g. termite repelling and toxic)

d) Soil barriers
e) Non-soil barriers
f) Reticulation system required where no access

Q17 Agree
Remove item ……
Modify wording……

General options

g) Detection of colony using baiting systems
h) Use of non-susceptible materials (e.g. treated timber)
i) Impregnated plastic sheet used under slab (e.g. Kordon)
j) Inspection in conjunction with constructed options, to suit risk
k) No Barrier - where no risk

Q18 Agree
Remove item ……
Modify wording……

Combined Concepts

l) Mixed construction to make up a single barrier
m) Integration of methods to provide layers where high risk

Q19 Agree
Remove item ……
Modify wording……

Q20 ……

Add your Own Component (or leave blank)

Construction quality

In considering construction quality some systems are provided by the builder (e.g. termite shields) and some by pest managers.

Some systems are combinations provided by multiple participants, thus creating potential gaps in responsibility.

Given the above, a number of options present themselves for managing the risk of construction defects. Do they sound appropriate ?

– Self certification of the installation as per AS 3660 Appendix A,

Q21 Agree

Remove which item ……

Modify wording……..

– Certification of installers to assure the quality of the people doing the work,

Q22 Agree

Remove which item……..

Modify wording……..

– Third party inspection of work on a specific site e.g. to certify mixed construction, subfloor access, general quality control of others' work

Q23 Agree

Remove which item…….

Modify wording……..

– Third party auditing of a sample of self certified sites,

Q24 Agree

Remove which item ……

Modify wording……..

Related questions

- Do you think pest managers would be interested in conducting third party inspections?

  Comment……

  Q25 Agree / Disagree

- Ideally, pest inspectors who did third party inspections during construction would probably need to do the first inspection once the house was occupied.
  Is this a good or bad thing ?

  Q26 Good / Bad

- Do you foresee implementation & cost problems with third party inspections?

  Comment……

  Q27 No problems / Problems

- Do you have concerns whether your insurers would allow you to do third party inspections?

  Q28 Yes / No

Hand-over to Home-owners & Subsequent Inspections

To manage the risk of home-owners not fulfilling their maintenance responsibilities; and inspections not being carried out correctly; do the following strategies sound appropriate ?

- Ensuring customers receive easy to read information from builders at hand-over about what they should and shouldn't do during occupation,

  Q29 Agree / Disagree

  Comment…….

- Sending out termite inspection postcards (at the appropriate time) prompting home-owners to call an inspector,

  Q30 Agree / Disagree

  Comment……..

- Registering home-owners on a database at hand-over to ensure they are contacted by a pest inspector at the scheduled point in time,

  Q31 Agree / Disagree

  Comment……

- Do you think pest managers would benefit from the previously mentioned database and postcard system ?

  Q32 Yes / No

- To manage the risk of poor quality inspections, do you think inspectors should have to undertake regular training and be licensed?,

  Q33 Yes, licencing / Yes, training / Yes, both / No

Bringing the Stages together – Maintaining case history records

The previously mentioned database could be set up to work on a broader scale. It could record actions at each of the previously mentioned stages and could be accessed via the internet. The database would assist on-going risk management and the data could be used to progressively assist industry risk management methods.

– Is the computer database approach a good idea?

Q34 Yes / No / Maybe

– If so, would the pest management industry be the right people to explore running it ?

Q35 Yes / No / Maybe

Comments

Please write general comments

……

……

……

……

……

……

……

……

……

……

Your Details Please

Name .....

Mailing Address .....

Email address .....

Your main occupation ……

If you'd like to add further comment, tick "yes" a copy of this survey will be sent to you, to allow further response

Q36a Yes

If you'd like to trial any design tools that become available via this project, tick "yes"

Q36b Yes

Appendix B – Proforma for Survey of Builders and Building Designers

Your views about Guidelines for Managing Termite Risk in Housing Construction

An initiative by the Timber Development Association

For further details contact: Perryf@tdansw.asn.au

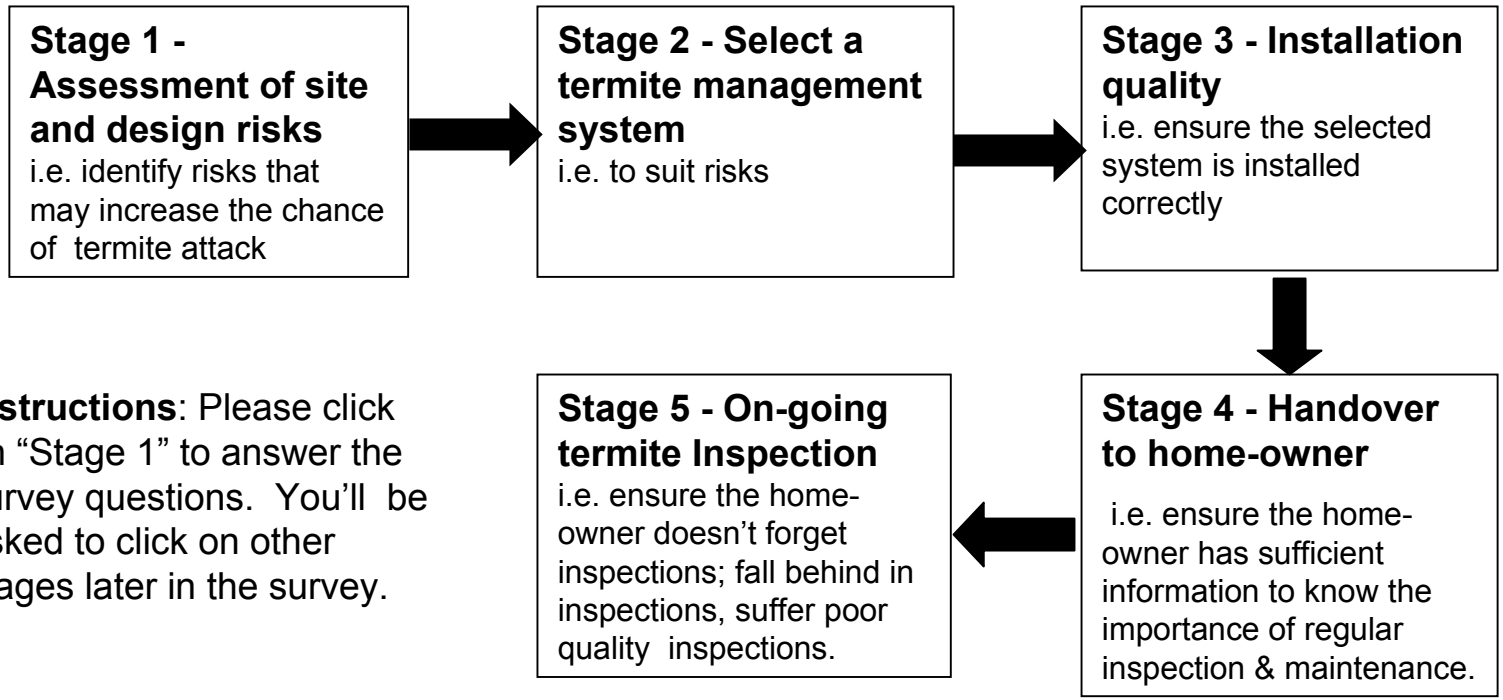
Introduction

- The risk of termite attack varies from one project to the next. This presentation aims to gain your help in developing guidelines for selecting termite management systems to suit different levels of risk. In general the presentation:
  - Identifies stages during the life of a building when termite risks can be managed.
  - Acknowledges that those making decisions aren't necessarily termite experts.
  - Builds on existing termite standards.
  - Provides a number of new ideas for managing the risk of termite damage.
- Please fill out the survey during the automated presentation. Please use only the buttons above to navigate through the presentation.
- Your input is anonymous. Findings will be used to create an industry practice handbook and home-owner information.

Basic facts

- The BCA requires protection of key elements in a building structure against termite attack (in termite prone areas).
- AS 3660 provides deemed to satisfy solutions that aim to not only protect the structure, but provide whole of house protection as well.
- AS 3660 systems don't stop termites entering a house they just make entry easier to detect. As a result, protection is largely about getting the home-owner to get regular inspections.
- All the systems in AS 3660 are deemed to be of equal performance. This means that in high risk areas, extra precautions may be necessary to get better performance.

Stages for Managing Termite Risk



Instructions: Please click on "Stage 1" to answer the survey questions. You'll be asked to click on other stages later in the survey.

Your views on assessing risks

1. New houses are at greater risk of attack depending on their geographic location in Australia. See map

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comments

2. New houses are at greater risk of attack depending on the presence of large trees or similar food/nesting sources (e.g. within 50m of the house)?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comments

3. New houses built on boundaries represent increased risk of attack if provision isn't made to deal with the lack of inspection access?

☐ Agree that this is important ☐ Disagree ☐ Don't know

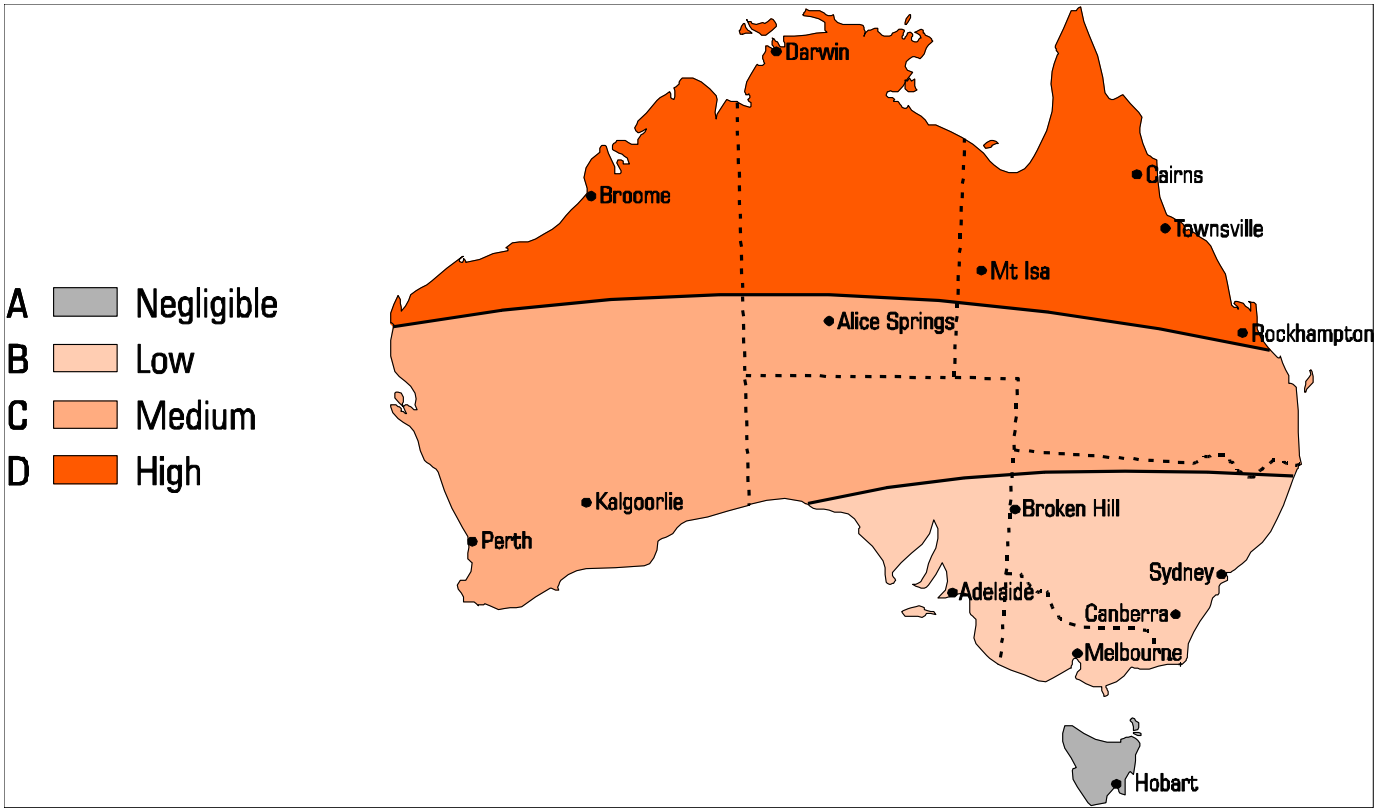
Comments

4. New houses or extensions have increased risk of attack if affected by adjoining structures with poor termite management systems?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comments

Termite hazard map of Australia



Stage 1 COMPLETE.

Please click on Stage 2.

Selecting a termite management system

5. The BCA doesn't require protection of the building structure where there is no apparent risk of attack. Would you feel comfortable leaving a termite barrier out of houses in these areas?

☐ Yes ☐ No

Comment

Types of physical barriers include:

Concrete slabs (in accordance with AS 2870)
Graded stone particles (e.g. granite chips)
Sheet metal capping
Stainless steel mesh

6. Do you have concerns about any of these systems in terms of:

a.) Performance?

☐ Yes ☐ No

Comment

Some feel that concrete slabs shouldn't be acknowledged as physical barriers due to the belief that cracks often exceed allowable limits (i.e. >1mm), thus allowing hidden termite entry.

7. Do you agree with this concern?

☐ Yes ☐ No

Comment

8. Can you think of a way of dealing with concerns in this area in terms of assuring the quality of slab construction?

☐ Yes ☐ No

Comment

Chemical Soil Barriers include:

Hand applied chemicals
Reticulation applied chemicals

9. Do you have concerns about any of these systems in terms of:

a.) Performance?

☐ Yes ☐ No

Comment

b.) Ability to be installed correctly?

☐ Yes ☐ No

Comment

Other barrier options include:

Chemical impregnated plastic sheeting e.g. Kordon

Mixed physical and chemical barrier systems

10. Do you have concerns about any of these systems in terms of:

a.) Performance?

☐ Yes ☐ No

Comment

b.) Ability to be installed correctly?

☐ Yes ☐ No

Comment

Potential upgrades to termite management systems include:

11. Use of termite resistant materials e.g. treated timber framing?

- ☐ Agree that this is important
- ☐ Disagree
- ☐ Don't know

Comment

12. Designing the house to minimise dark and moist subfloors e.g. use open subfloors, high set floors, good perimeter drainage?

- ☐ Agree that this is important
- ☐ Disagree
- ☐ Don't know

Comment

13. Use of removable skirtings to facilitate inspection in hard to get at locations

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

14. Using subcontractors who can follow-on with cyclic maintenance/inspection once the house is occupied?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

15. Specifying the use of termite baits once the house is occupied, i.e. to monitor and deal with termite activity?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

16. Specifying the use of termite protection insurance, i.e. once the house is occupied?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

17. Specifying a high frequency of inspection once the house is occupied i.e. less than 12 monthly intervals?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

Stage 2 COMPLETE.

Please click on Stage 3.

Installation quality

18. There have been complaints about the installation quality of some barrier systems. To address this, should installers be certified and/or licensed in order to underpin the quality of their installations?

- ☐ Agree that this is important
- ☐ Disagree
- ☐ Don't know

Comment

19. Should installers carry professional indemnity insurance to redress defective installations?

- ☐ Agree that this is important
- ☐ Disagree
- ☐ Don't know

Comment

20. Would third party inspectors of installations be a good or bad thing in preventing defects, if done as:

a.) an industry audit on a sample of projects?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

b.) on each and every project?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

21. Would it be beneficial to pass on the installer's details to customers to assist the chain of responsibility for on-going performance, maintenance and inspection of termite barriers?

- ☐ Agree that this is important
- ☐ Disagree
- ☐ Don't know

Comment

Stage 3 COMPLETE.

Please click on Stage 4.

Hand-over and On-going Inspection

22. To ensure home-owners fulfill their maintenance responsibility once they've moved into the house. Feedback is sought on the appropriateness of:

a.) TDA producing standard information packages for builders to provide to home-owners about their maintenance and inspection responsibilities?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

b.) Sending out an inspection reminder postcards to home-owners 12 months after they've moved in i.e. reminding them to get an inspection?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

c.) Giving home-owners “termite management” software. It would be provided by email or free CD and would be used to: record the termite system installed, who did it, send an inspection reminder at the scheduled time, record inspection results?

☐ Agree that this is important ☐ Disagree ☐ Don't know

Comment

23. Would builder/designers be prepared to help in terms of handing out free CDs at hand-over?

☐ Yes ☐ No

Comment

24. Would builder/designers be prepared to help in terms of registering their customers on an email database at hand-over?

☐ Yes ☐ No

Comment

25. Should builders include the cost of the first inspection on a new house in their contract price i.e. to ensure that home owners get an inspection done, thus preventing the risk of termite damage?

☐ Yes ☐ No

Comment

Close

26. Some ideas in this presentation may add extra cost to the design and construction process. Please signify the tolerance to increased costs you think is possible.

☐ $0 ☐ $100 ☐ $200 ☐ $300 ☐ $400 other

27. Please add any over-arching comments about what you have read in this presentation

28. What is the main city you operate in?

29. What is your business?

- ☐ Design ONLY
- ☐ Construction ONLY
- ☐ Design AND Construction

30. Would you like us to let you know about information arising from this project?

- ☐ Yes
- ☐ No

How to submit this survey

Press the “Esc” key which will ask whether you want to save the changes you made to this document, then click “yes”.

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