Australian Standard®

Termite management

Part 1: New building work

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PREFACE

This Standard was prepared by the Standards Australia Committee BD-074, Termite Management, to supersede AS 3660.1—2000.

The objective of this Standard is to provide builders, building designers, regulatory authorities, termite management system manufacturers and installers, and those people requiring termite management systems, with methods of termite management for implementation during construction of new building work.

The objective of this revision is to update the Standard to reflect current needs and practices for termite management in new buildings and new building work.

This Standard is part of a series on termite management, as follows:

AS
3660 Termite management
3660.1 Part 1: New building work (this Standard)
3660.2 Part 2: In and around existing buildings and structures—Guidelines
3660.3 Part 3: Assessment criteria for termite management systems

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

FOREWORD

This Standard is primarily concerned with providing measures to reduce the risks of undetected subterranean termite attack on buildings. Improving the design and construction of buildings to minimize termite damage is one of several risk reduction measures available to building owners and occupiers.

This Standard describes measures to deter termite attack arising from concealed entry into a building. The system options provided rely on a combination of partial measures to termite passage combined with perimeter inspection zones so that when termites attack, evidence of their workings is in the open where it may be detected more readily during regular inspections. The measures contained in this Standard cannot guarantee that a building will never be entered by termites nor will ever suffer some form of termite attack.

The requirements for an effective termite management system depend on design, location, site conditions and building characteristics.

More than 350 species of termites have been recorded in Australia, about 30 of which achieve economic importance as pests of timber-in-service. With the exception of drywood termites, all species of economic importance are soil dwelling (subterranean) and have similar habits.

Subterranean termites may eat timber and timber products, plant fibre, or any material containing cellulose (their principal food); this could include building contents, e.g. cabinetry, furniture, books and papers, fabrics, clothing, footwear, packing cases and tools. Termites can also damage some non-cellulose materials, e.g. mortar, soft metals, soft plastics such as cable insulation, building sealants and rigid foam insulation.

Typically, termites form their nests in the soil, near ground level in a stump, in the trunk of a living tree or other suitably large pieces of wood. Sometimes the nest takes the form of a conical or dome-shaped mound. A colony may exist for many years and, as it matures, can have a population well in excess of one million termites. Attack by subterranean termites originates from the nest. Wood or timber lying on or buried in the ground may be reached by underground foraging galleries but attack may occur well above ground level, either inside the wood or by way of mud-walled shelter-tubes 'plastered' to exposed surfaces. Timber resting on an impenetrable substructure may be reached by means of these shelter tubes or through independent, freestanding columns built by the termites. In some cases, where a source of permanent moisture, e.g. leaking plumbing, is available to subterranean termites within a building, they can form a nest inside the building, without soil contact. Where such a colony arises within a building, it may be several years before the termites are sufficiently numerous to be detected.

'Drywood termites' are economically important only in restricted coastal, tropical, subtropical and adjacent tableland areas of Australia. This Standard does not cover measures to manage the risk of drywood termite attacks. Unlike subterranean termites they do not construct galleries or tunnels connecting the infested timber with the soil, but form their nest inside the wood upon which they feed and so may attack any piece of susceptible timber, regardless of its position in a building. The evidence of infestation by these species is the presence of dry, granular faecal pellets that may be stored in disused galleries or ejected through small openings in the surface of the wood.

STANDARDS AUSTRALIA

Australian Standard
Termite management

Part 1: New building work

SECTION 1 SCOPE AND APPLICATION

1.1 SCOPE

This Standard sets out requirements for the design and construction of subterranean termite management systems for new buildings and new building work. It includes solutions for both physical and chemical termite management systems. Options are provided so that various approaches may be used either singly, or in combination, to provide an integrated termite management system.

This Standard includes methods to deter concealed entry by termites from the soil to the building above the termite management system inspection zone.

This Standard does not cover procedures or details on maintenance and inspection.

This Standard does not apply to the following:

(a) The provision of termite management systems to existing buildings (see Note 3).

(b) Drywood termite infestations, as the systems described herein will not be effective against access by drywood termites or termite nests established without soil contact.

(c) Durability, maintenance and inspection procedures or details.

NOTES:

1 The treatment of existing buildings is covered in AS 3660.2. For the interface between new and existing structures, see Paragraph A1, Appendix A.

2 For testing of systems and materials, refer to AS 3660.3.

3 A termite management system constructed in accordance with this Standard cannot prevent termite attack as systems may be bridged or breached. Termite-bridged or termite-breached systems may be detected during inspections.

4 The diagrams used in this Standard are indicative only and are deemed to meet the design requirements outlined in Section 2. The diagrams apply to domestic construction techniques. Some diagrams may have construction details (e.g. damp-proof courses, vapour barriers, and the like) omitted for clarity.

5 Issues such as the detection of termite infestation, and the necessity and accessibility for regular, competent inspections can be found in AS 3660.2. It is recommended that access for inspection, maintenance and durability issues be considered part of the design process.

6 It is stressed that the installation of a termite management system does not negate the need for regular competent inspections after installation.

7 Activities such as turfing, paving and landscaping adjacent to the building might compromise the inspection zone clearances required by this Standard. Where it is known that these activities will be undertaken, the design should ensure that sufficient dimensions are provided so that the required minimum inspection zones are not compromised.

8 Where construction is at or close to the property boundary, it may not be possible to apply the solutions of this Standard. See Paragraph A2, Appendix A.

9 Termite management systems may not be effective where a nest is established inside the building above inspection zones. Such nests typically require significant plumbing or drainage faults for their water supply.

1.2 APPLICATION

This Standard is intended for use where subterranean termites pose an economic risk to buildings.

This Standard is intended to be read in conjunction with the requirements of the pesticides registrar and the National Construction Code (NCC).

1.3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS	
1604	Specification for preservative treatment
1604.1	Part 1: Sawn and round timber
AS	
2870	Residential slabs and footings
3600	Concrete structures
3660	Termite management
3660.3	Part 3: Assessment criteria for termite management systems
AS/NZS	
1604	Specification for preservative treatment (series)
4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
ABCB	
NCC	National Construction Code

1.4 DEFINITIONS AND ABBREVIATIONS

1.4.1 Definitions

1.4.1.1 *Breaching*

The passing of termites through a hole or gap in a termite management system.

NOTE: Examples of breaches include the removal of a section of treated soil from a chemical soil termite management system, or a perforation or a disjunction in a physical management system.

1.4.1.2 *Bridging*

Termites gaining access to a structure by passing over a termite management system or inspection zone.

NOTE: Termites bridging a termite management system will often construct a shelter tube, which reveals their passage.

1.4.1.3 *Chemical*

A substance or substances, required to be registered by the pesticides registrar, for use in a termite management system in accordance with the pesticides registrar's approved label

1.4.1.4 *Chemically treated sheet*

A pesticides registrar registered sheet material treated with a chemical.

1.4.1.5 *Granular material*

Termite-resistant particles, placed to form a termite management system, which includes physical termite management system of mineral granules and pesticides registrar registered chemical termite management systems made of impregnated materials.

1.4.1.6 *Inspection zone*

An unobstructed space over which termites have to cross or pass in order to gain access to a building or structure and, as a consequence, reveal their presence during visual inspection.

1.4.1.7 *Non-shrink grout*

A gap-filling concrete grout formulated to be as strong as the surrounding concrete and not to shrink as it cures.

1.4.1.8 *Perimeter termite management system*

A termite management system placed either external to, or within, the structure or cavity of an external wall.

NOTE: A perimeter termite management system can also include a 75 mm exposed slab edge.

1.4.1.9 *Pesticides registrar*

The government body responsible for the registration of pesticides.

NOTE: Currently, the Australian Pesticides and Veterinary Medicines Authority (APVMA) coordinates the registration scheme.

1.4.1.10 *Product label*

A chemical product registered by the pesticides registrar, which carries a label with specific approved information detailing the use of the chemical.

1.4.1.11 *Registered testing authority*

An organization providing testing services, which is either—

(a) an organization accredited by an accreditation body that is a signatory to the ILAC MRA to test in the relevant field (see Note); or

(b) an organization recognized as being a registered testing authority under legislation at the time the test was undertaken.

NOTE: In Australia, an ILAC MRA signatory is the National Association of Testing Authorities (NATA).

1.4.1.12 *Sheet material*

Termite-resistant planar product that is used in a termite management system.

1.4.1.13 *Termite management system*

A product or a coordinated system designed to mitigate the risk of concealed access by subterranean termites causing significant damage to a structure.

NOTE: Termite management systems are typically comprised of integrated components, inspection zones and inspection regime.

1.4.1.14 *Termite resistant*

The ability of materials or components to withstand the effects of termites to such an extent that the materials and components are not functionally impaired.

1.4.1.15 *Termite-resistant adhesive*

An adhesive/sealant of low build that is used to bond components or to bond the termite management system to structural components acting as a termite management system.

1.4.1.16 *Termite-resistant filler*

An adhesive/sealant of higher build than a termite-resistant adhesive, which functions as part of a termite management system, and is used to fill spaces that might otherwise be traversed by termites.

NOTE: The termite-resistant filler is applied between the termite management system components or system components and structural components acting as a termite management system.

1.4.1.17 *Termite sheet*

See *sheet material*.

1.5 TERMITE MANAGEMENT SYSTEMS AND THEIR COMPONENTS

Proprietary systems are not detailed in this Standard. Criteria for the assessment of termite management systems and components are detailed in AS 3660.3.

Systems and components of systems not detailed in this Standard shall be assessed in accordance with AS 3660.3.

SECTION 2 DESIGN REQUIREMENTS

2.1 SCOPE OF SECTION

This Section sets out the design requirements for termite management systems for new building work.

2.2 ATTACHMENTS AND ITEMS ADJACENT TO BUILDINGS

Attachments to buildings such as downpipes and service pipes shall have a nominal gap, to allow clear and uninterrupted visual inspection across the inspection zone.

Attachments and items adjacent to buildings such as steps, verandas, porches, access ramps, carports, trellises, decks, hot-water systems, air conditioners, downpipes, service pipes, or similar attachments, shall be separated from the building by a gap of at least 25 mm, to allow clear and uninterrupted visual inspection across the inspection zone.

NOTE: Sufficient clearance and access should be provided between any building and adjacent items to allow for inspection and maintenance.

Where attachments or structures abut a building and there is no clear gap, the system shall be provided or extended to the attachment so that a continuous inspection zone is preserved. Where a plate or grid is used to cover the gap (e.g. for providing wheelchair access), it shall be detachable.

2.3 ELEMENTS THAT BRIDGE OR BREACH TERMITE MANAGEMENT SYSTEMS

Structures, fixtures or fittings attached to a building shall not bridge or breach a termite management system unless that attachment is also provided with a termite management system.

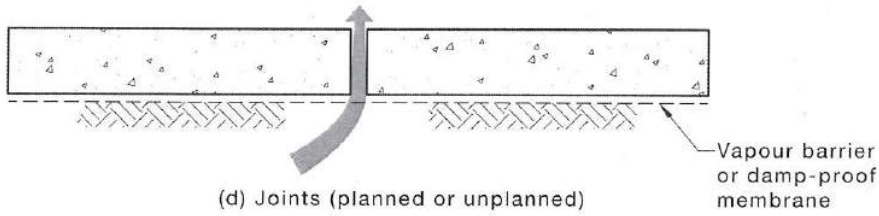
2.4 POTENTIAL ENTRY POINTS FOR TERMITES

Where a suspended floor has less than a 400 mm clearance, an underfloor termite management system shall be installed to the whole of the underfloor area of reduced clearance except as permitted by Clause 3.3.2(b).

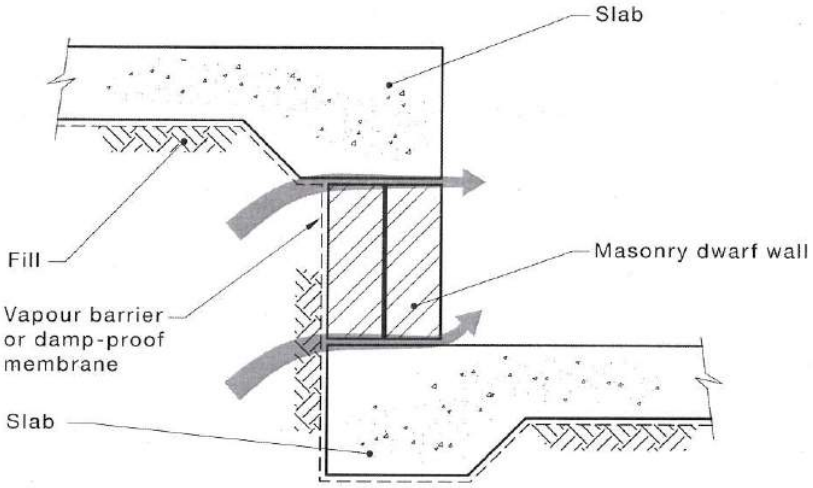
NOTES:

1 Where a floor is suspended, areas too low for easy access [less than 400 mm clearance, see Figure 3.1(A)] that have reduced airflow are favourable to termite activity and termites may build shelter tubes between the ground and bearers. These, and a selection of other vulnerable points, are depicted in Figure 2.1.

2 Certain parts of buildings are at higher risk than other parts of being exploited by termites to gain concealed access. Cavities or discontinuities at or below exterior ground level are readily exploited by termites. With slab-on-ground construction these vulnerable points may include discontinuities in the slab (e.g. at joints and service penetrations) and mortar joints (in the lower courses of perimeter brick walls). Termite management systems need to be provided at these vulnerable points. For any particular building, the number and location of vulnerable areas will depend on the type of construction used.



(d) Joints (planned or unplanned)



(e) Changes in level of concrete slabs

FIGURE 2.1 (in part) EXAMPLES OF VULNERABLE POINTS IN BUILDINGS WHERE TERMITES COMMONLY GAIN CONCEALED ACCESS (PATH OF TERMITE ATTACK INDICATED BY ARROW)

SECTION 4 REQUIREMENTS—CONCRETE SLABS

4.1 GENERAL

This Section sets out requirements for concrete slabs to be used as a component of a termite management system to deter termites from gaining concealed access to a building.

4.2 CONCRETE SLABS

In addition to the requirements of Clause 2.2, a concrete slab or footing forming part of a termite management system shall—

(a) have all interfaces between the penetrations and slab or footing provided with a termite management system integrated with the slab; and

(b) have all joints, except for tied footing slab construction joints [see Figure 4.1(c)], provided with a termite management system integrated with the slab.

4.3 SLAB-ON-GROUND

4.3.1 General

A slab-on-ground shall be designed and constructed in accordance with AS 2870 or AS 3600. All joints and penetrations shall comply with Clause 4.3.2, and the edge shall be exposed in accordance with Clause 4.4 or have a termite management system installed in accordance with Sections 5, 6 or 7.

NOTES:

1 Compacting and curing the concrete will enhance the performance of the slab both structurally and in its ability to resist penetration by termites. Thoroughly compacting concrete ensures that maximum density and strength is achieved by eliminating voids. It also provides clean, sharp edges and maximum bond to the reinforcement. For edge beams and footings and in locations where a smooth slab edge is required, compaction is recommended.

2 Curing ensures that the concrete will achieve its potential strength and reduce the likelihood of shrinkage and cracking. Curing is the retention of moisture in the concrete to allow hydration of the cement.

3 If constructed in accordance with AS 3600, due regard should be given to minimizing shrinkage and cracking.

Any penetrations through concrete slabs from temporary fixings, to support items such as formwork, shall be cleared and filled prior to the final setting of the concrete using either—

(a) a concrete of the same strength and properties; or

(b) a non-shrink grout of minimum strength greater than that of the concrete.

After final setting, any penetrations shall be filled using only a non-shrink grout equal in strength to that of the concrete.

4.3.2 Joints and penetrations

4.3.2.1 *Vertical construction joints*

Vertical construction joints, regardless of whether the reinforcement is continuous through the joint or not, shall have a termite management system installed in accordance with Sections 5, 6 or 7.

4.3.2.2 *Footing slab construction joints*

Where edge beams, stiffening beams, footing beams and retaining walls form part of the slab construction, and—

(a) they are placed as an integral component of the slab, or tied together in accordance with AS 2870;

(b) the surface of the footing is cleaned prior to placing the slab; and

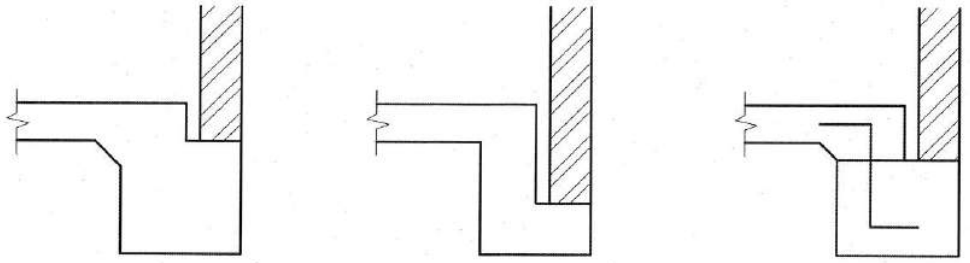
(c) the concrete is compacted to eliminate voids at the joint,

termite treatment of the joint is not required.

NOTE: Examples of footing systems not requiring joint treatment are depicted in Figure 4.1.

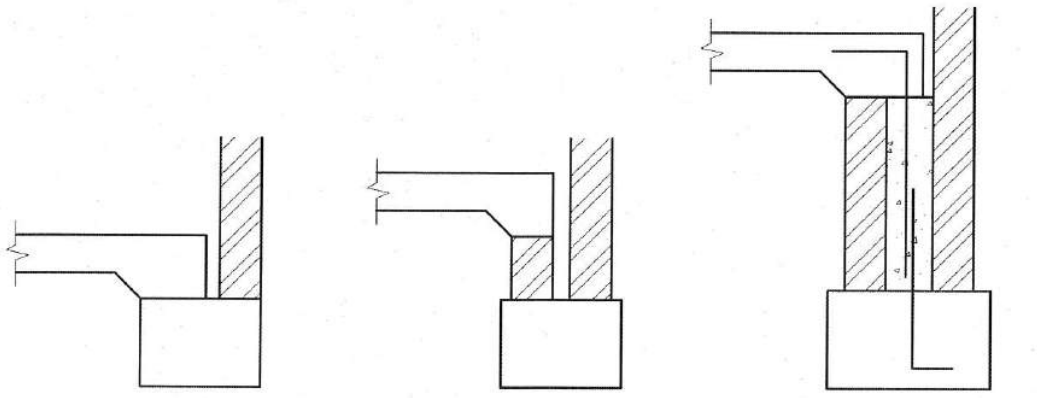
In all other cases, joints at the junction/support of the slab and the horizontal joint shall have termite management systems installed in accordance with Sections 6, 7 or 8.

NOTE: Examples of footing systems requiring joint treatment are depicted in Figure 4.2.



(a) Stiffened raft (no joint) (b) Waffle raft (no joint) (c) Footing slab construction joint

FIGURE 4.1 EXAMPLES OF FOOTING SYSTEMS REQUIRING NO JOINT TREATMENT



(a) Footing slab (b) Footing slab (c) Reinforced cavity masonry

FIGURE 4.2 EXAMPLES OF FOOTING SYSTEMS REQUIRING JOINT TREATMENTS

4.3.2.3 *Isolation, sawn or other movement control joints*

Where isolation, sawn or other movement control joints occur in the slab, they shall have a termite management system installed in accordance with Sections 5, 6 or 7.

4.3.2.4 *Penetrations*

4.3.2.4.1 *General*

Penetrations through slabs such as service pipes shall be termite resistant and shall have a termite management system installed, or shall function as a termite management system. A termite management system fitted to penetrations shall be—

(a) as specified in Sections 5, 6 or 7; or

(b) a collar.

Additionally, service pipes set into the cavity adjacent to infill slabs shall have a termite management system installed in accordance with Sections 5, 6 or 7, integrated with the slab or perimeter termite management system.

4.3.2.4.2 *Penetration collars for use with concrete slabs*

Collars shall be embedded into the concrete or adhered to the surface using a termite-resistant adhesive or filler in accordance with AS 3660.3. Collars shall comply with the material requirements of one or more of Items (b) to (f) of Clause 5.2 or be of a chemically treated product complying with AS 3660.3.

Where a collar is to be embedded in a concrete slab, it shall be placed so as to sit not less than 40 mm from the upper surface and not closer than 50 mm to any reinforcing mesh or bar chair.

NOTE: Galvanized steel is not suitable and certain products that comply with Items (d) and (e) of Clause 5.2 may be prone to corrosion when in contact with the alkaline concrete. Collars placed too high or too close to reinforcing steel or bar chairs may not achieve the required concrete contact.

4.4 SLAB EDGE EXPOSURE

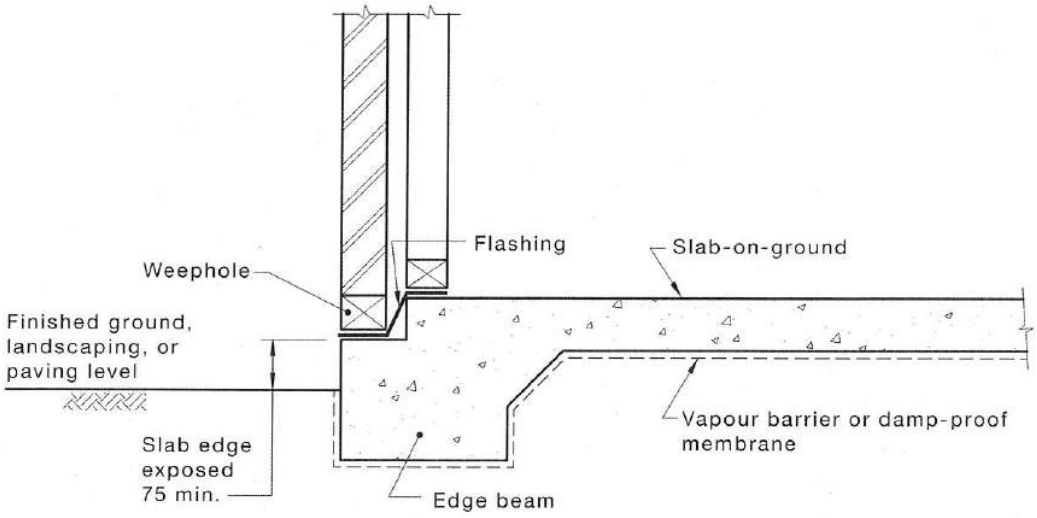
Where slab edge exposure is used as part of a termite management system, the exposed face of the perimeter of the slab shall be off-the-form and shall not exhibit areas of rough surface, honeycombing or ripples. The slab edge shall be exposed for a minimum of 75 mm above finished ground, landscaping or paving level to permit ready detection of termite entry and shall not be rendered, tiled, clad, or concealed by vapour barrier, plastic sheeting, flashings, adjoining structures, paving, soil or other coating or cover that might provide scope for concealed termite access.

NOTES:

1 For examples of slab edge exposure, see Figure 4.3.

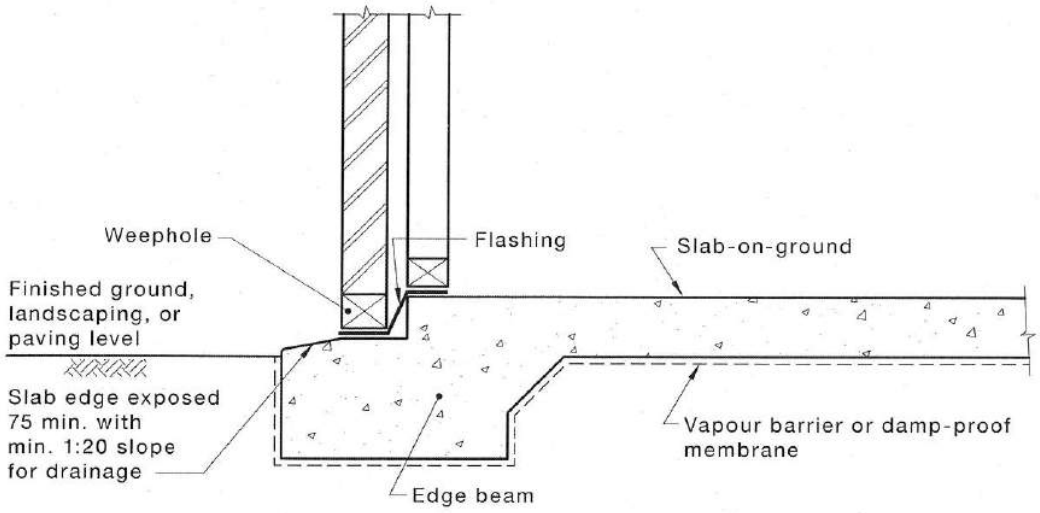
2 The purpose of slab edge exposure is to provide an inspection zone for detection of termite ingress.

3 Areas of rough surface, honeycombing or ripples caused by folds of vapour barriers can conceal termite mud-tubes.



DIMENSIONS IN MILLIMETRES

(a) Slab edge exposure—Vertical slab edge



(b) Slab edge exposure—Sloped slab edge

DIMENSIONS IN MILLIMETRES

FIGURE 4.3 EXAMPLES OF SLAB EDGE EXPOSURE

4.5 SUSPENDED SLABS

4.5.1 Design and construction

Suspended slabs shall be designed and constructed in accordance with AS 3600.

4.5.2 Penetration and joints

Penetrations and joints that cannot be visually inspected shall have a physical termite management system installed.

SECTION 7 REQUIREMENTS—CHEMICAL TERMITE MANAGEMENT SYSTEM

7.1 GENERAL

This Section sets out requirements for chemicals to be used as a component of a termite management system to deter termites from gaining concealed access to a building.

This Section shall be read in conjunction with the requirements of Section 3.

7.1.1 Soil chemical

A soil chemical component system shall comply with AS 3660.3. The chemical used shall be registered by the pesticides registrar.

Chemical termite management systems applied under concealed and inaccessible areas shall be replenishable via a reticulation system providing an even and continuous distribution of chemical into the soil.

NOTES:

1 Consideration should be given as to how the chemical will be reapplied.

2 The chemical treatments specified in this Section are not applicable for use against wood-boring beetles, fungi or termites other than subterranean species.

3 A chemical soil termite management system is most readily installed while a building is under construction. Application of the chemical has to be at a stage of construction when the whole of the subfloor area is readily accessible. In most cases, however, work is progressive, and special care should be taken to ensure that the system is complete and that each stage is well integrated so that no avenues of entry are left open to the termites.

7.2 CHEMICAL REQUIREMENTS

All chemical products shall be registered by the pesticides registrar and tested in accordance with AS 3660.3. Chemical products shall be applied in accordance with the pesticides registrar's approved label.

7.3 RESTRICTIONS ON AREAS OF APPLICATION

The following restrictions apply to the installation of chemical termite management systems:

(a) *Drains* Chemical mixtures shall not be applied directly, or in close proximity to, rubble and agricultural pipe drains, to prevent chemicals entering the drain.

NOTE: Installing termite management systems may require the removal and reinstatement of drains, and/or the use of physical termite management systems to prevent chemicals from entering the drain.

(b) *Impervious surfaces* Surfaces such as concrete, timber, rocks, stones, masonry or similar materials shall not receive direct applications of chemical. Treatment shall be limited to cracks, faults or joints and to the soil in contact with their perimeter.

NOTE: Alternative measures may be necessary to provide a complete termite management system.

(c) *In wall cavities* Chemical products described in this Section shall not be used as a surface treatment in wall cavities.

(d) *Concrete perimeter* At a concrete perimeter, chemical products shall be applied so as to maintain direct contact with concrete slabs.

NOTE: Only where a vapour barrier or damp-proof membrane is not required by the NCC can a chemical concrete perimeter system be used.

7.4 SOIL PREPARATION

To allow the required distribution of the applied chemical and to permit percolation into the soil, the soil shall be prepared as follows:

(a) *Removal of contaminants* All timber offcuts, building debris, removable formwork and other waste materials shall be removed from the area to be treated.

(b) *Clay soils, sloping sites* On clay soils, the surface of the soil shall be scarified along the contours to form furrows to a depth of not less than 50 mm to 80 mm, or a 50 mm minimum layer of fine soil shall be used to retain the applied chemical.

NOTE: All clumps of clay should be broken up or removed from the area. Some fine soil should be introduced and mixed with the broken-up clay soil.

(c) *Sandy or porous soils* Where loose, sandy or porous soils are dry, they shall be moistened with water immediately before chemical treatment to prevent loss of chemical through 'piping' or excessive percolation.

NOTE: On clay soils, penetration is likely to be slow, and on sloping sites runoff of the chemical mixture is likely to occur. If the soil cannot retain a chemical, consideration should be given to replacing the soil.

7.5 METHOD OF APPLICATION AND INSTALLATION

7.5.1 General

Chemical mixtures shall be applied to the soil by hand-spray or reticulation systems and in accordance with the rates and manner specified by the pesticides registrar and shall be tested in accordance with AS 3660.3.

When applied by hand-spray, only low-pressure, high-volume spray equipment that delivers coarse droplets shall be used.

7.5.2 Horizontal application

Horizontal application shall be used to deter termites from gaining concealed vertical access to the substructure of the building. The area of treated soil shall—

(a) be a minimum of 150 mm wide to a minimum depth of 50 mm, unless otherwise specified on the product label;

(b) abut the substructure walls on both sides;

(c) surround all other connections between the building and the soil;

(d) cover all areas of subfloor soil where there is inadequate access (see Clause 3.3.2) or where there is less than 400 mm clearance; and

(e) be continuous beneath a concrete slab-on-ground or slab-on-fill.

7.5.3 Vertical application

Vertical application shall be used to deter termites from gaining concealed horizontal access to the building. The area of treated soil shall—

(a) be at least 150 mm wide, installed to a depth 50 mm below the top of footing;

(b) abut the substructure or substructure wall and footing;

(c) surround all connections between the building and the soil which provide concealed access to the building, e.g. pipes and conduits;

(d) adjoin horizontal termite management systems; and

(e) continuously surround all portions of stumps or piers that are in the ground.

NOTES:

1 Vertical chemical application may be installed by excavating trenches, treating the exposed trench, backfilling and treating the backfill.

2 The characteristics of the site and the construction determine the most suitable method of application.

3 For chemical under slab and perimeter application, see Figure 7.2.

7.5.4 External perimeter application

An external perimeter chemical soil application shall be a minimum of 150 mm wide × a minimum of 80 mm deep and extend not less than 50 mm below the lowest point where the construction below ground could allow concealed termite ingress (see Figures 7.8 and 7.9).

7.5.5 Reticulation systems

Where a reticulation system is installed, the maximum pressure to be applied in replenishing the system specified by the reticulation system manufacturer shall be displayed on the Certificate of Installation, along with the volumes of termiticides required at each fill point.

7.6 STAGES OF APPLICATION

Treatment of particular areas shall be made after the site has been prepared in accordance with Clause 7.4, and at the following stages:

(a) Where hand-spray treatments are permitted, the following shall apply:

(i) For buildings with a suspended floor, immediately before laying the floor.

(ii) For buildings with a slab-on-ground floor, immediately (on the same day) before the vapour barrier or damp proof membrane is placed.

(iii) For external treatments, on completion of the construction when all formwork has been removed, services have been connected and backfill is in place, treatment shall not be performed just before or after heavy rain, unless the treatment can be physically protected.

NOTE: Rain may cause leaching and runoff before the chemical has bound to the soil.

(b) Where reticulation systems are installed and the chemical is approved for use through a reticulation system on the manufacturer's product label and in accordance with testing under AS 3660.3, the initial under-slab treatment shall be applied as soon as practicable after a 28 d period following the placing of the slab.

NOTE: The manufacturer's product label is the label as registered by the pesticides registrar.

7.7 AREAS OF APPLICATION

7.7.1 General

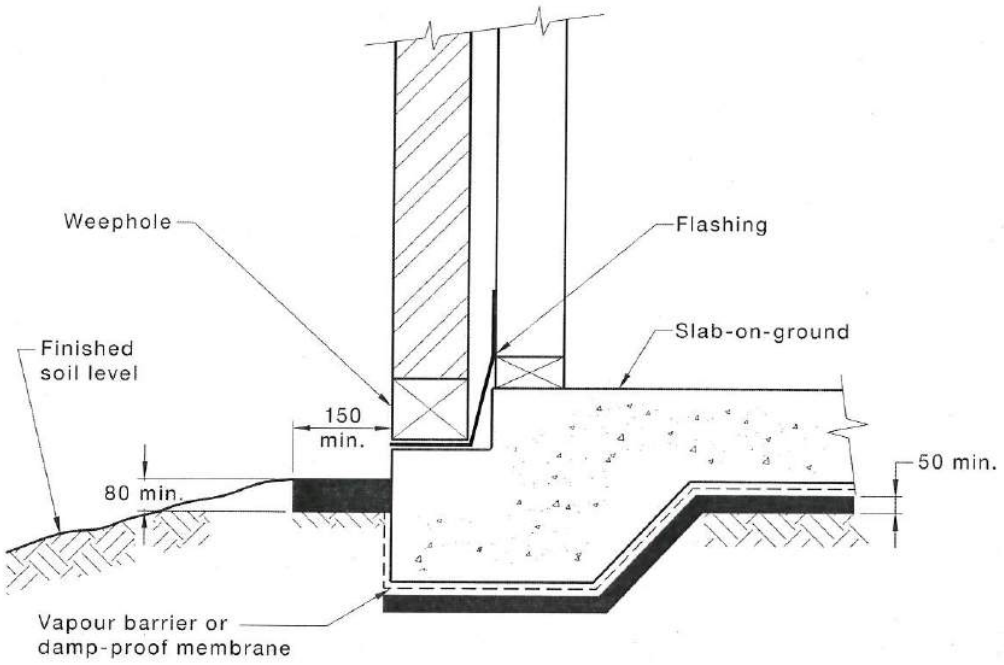
An acceptable chemical soil termite management system for the entire perimeter and subfloor, as specified in Clause 7.5, shall be deemed to have been achieved if the chemical is as defined in Clause 1.4.1.3

NOTES:

1 For typical details for perimeter and under-slab applications, see Figures 7.1 and 7.2.

2 For typical details for masonry blockwork, see Figure 7.3.

3 For typical details for changes in floor levels, see Figure 7.4.



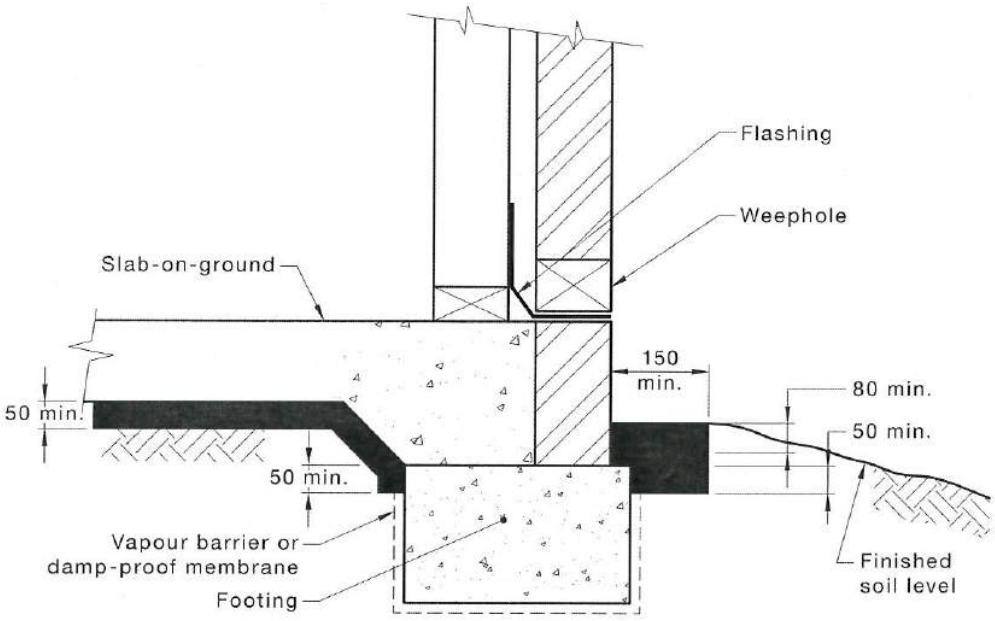
LEGEND:

= Chemically treated soil

NOTE: Perimeter chemical application is not required if there is 75 mm min. of slab edge exposed.

DIMENSIONS IN MILLIMETRES

FIGURE 7.1 TYPICAL DETAILS FOR CHEMICAL UNDER-SLAB AND PERIMETER APPLICATION—SLAB-ON-GROUND



LEGEND:

= Chemically treated soil

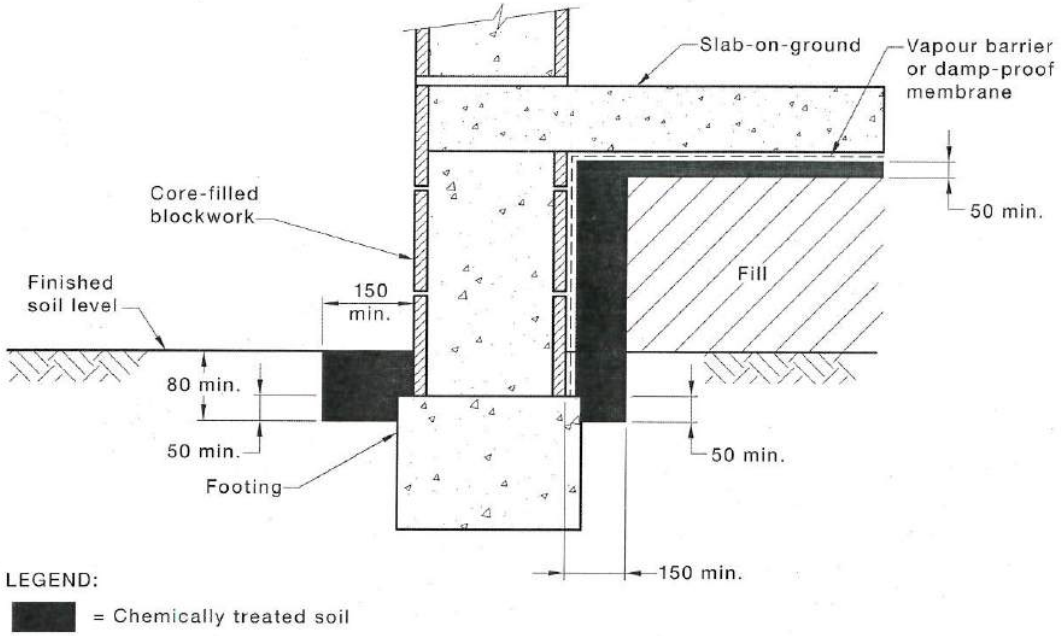
NOTES:

1 Chemical to penetrate below top of footing as indicated.

2 Where required, a step-down from the top of the slab to external weephole is to be provided.

DIMENSIONS IN MILLIMETRES

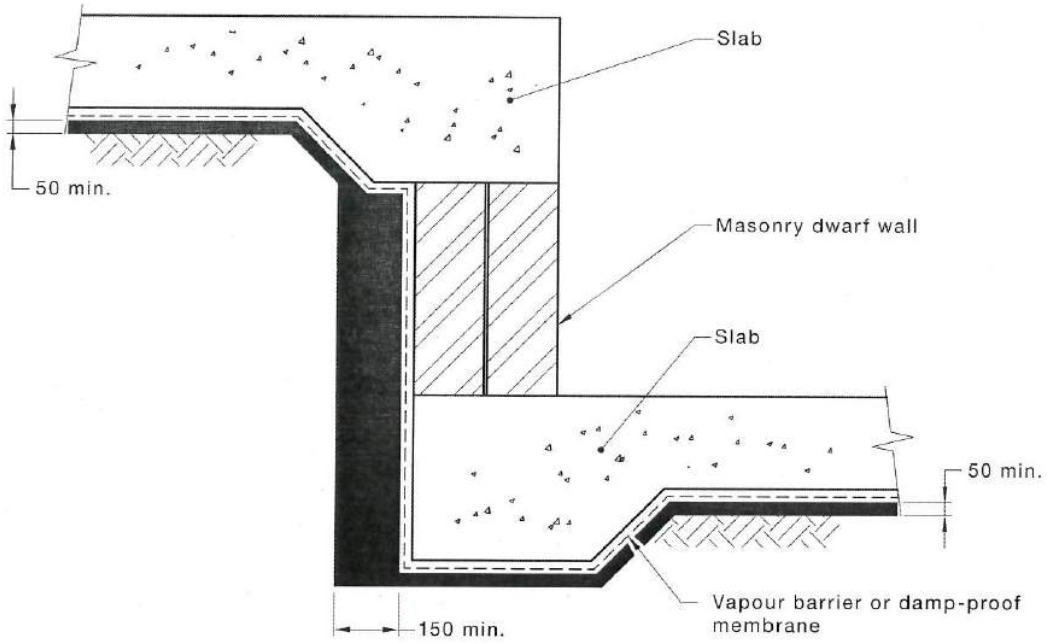
FIGURE 7.2 TYPICAL DETAILS FOR CHEMICAL UNDER-SLAB AND PERIMETER APPLICATION—FOOTING SLAB



DIMENSIONS IN MILLIMETRES

NOTE: Damp-proof course not shown.

FIGURE 7.3 TYPICAL DETAILS FOR CHEMICAL APPLICATION TO MASONRY BLOCKWORK WALLS AND SLAB-ON-FILL



LEGEND:

= Chemically treated soil

DIMENSIONS IN MILLIMETRES

FIGURE 7.4 TYPICAL DETAILS FOR CHEMICAL APPLICATION AT CHANGE IN LEVEL OF CONCRETE SLAB

7.7.2 Under slab

7.7.2.1 *Area*

The area beneath concrete slabs shall be treated as follows:

(a) *Slab-on-ground* Horizontal application beneath the whole slab, a minimum depth of 50 mm or complying with Clause 7.5.

(b) *Slab-on-fill* Horizontal application beneath the whole slab and vertical application where the building fabric remains susceptible to attack by termites.

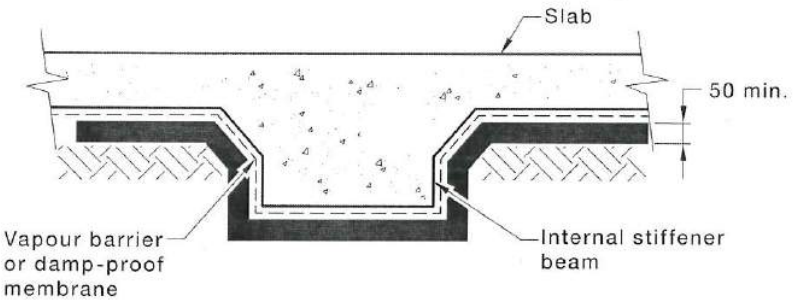
If the fill is in place before the treatment is commenced, all sides and the top of the fill shall be treated.

If cast concrete substructures and retaining walls are used, the chemical shall be continuous at the junctions between retaining walls and floor slab, and under the slab.

NOTES:

1 It may not be possible to achieve a 50 mm application at vertical faces of trenches.

2 For typical details at internal beams when using an under-slab chemical, see Figure 7.5.



LEGEND:

= Chemically treated soil

DIMENSIONS IN MILLIMETRES

FIGURE 7.5 TYPICAL DETAILS FOR CHEMICAL APPLICATION AT INTERNAL BEAM OF SLAB-ON-GROUND

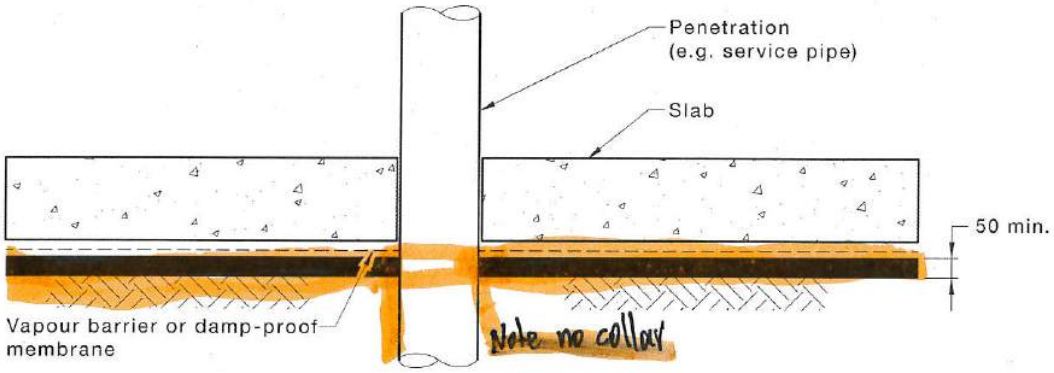
7.7.2.2 *Penetrations and joints*

Penetrations and joints not provided with a termite management system detail to the slab shall be fully underlain by a horizontal application.

NOTES:

1 The typical treatment of service pipe penetrations and slab joints when using an under-slab chemical is shown in Figures 7.6 and 7.7.

2 The treatment of fill always presents a problem unless the fill is placed over a bed of treated soil and contained within retaining walls fully surrounded by chemically treated soil (see Figure 7.3).

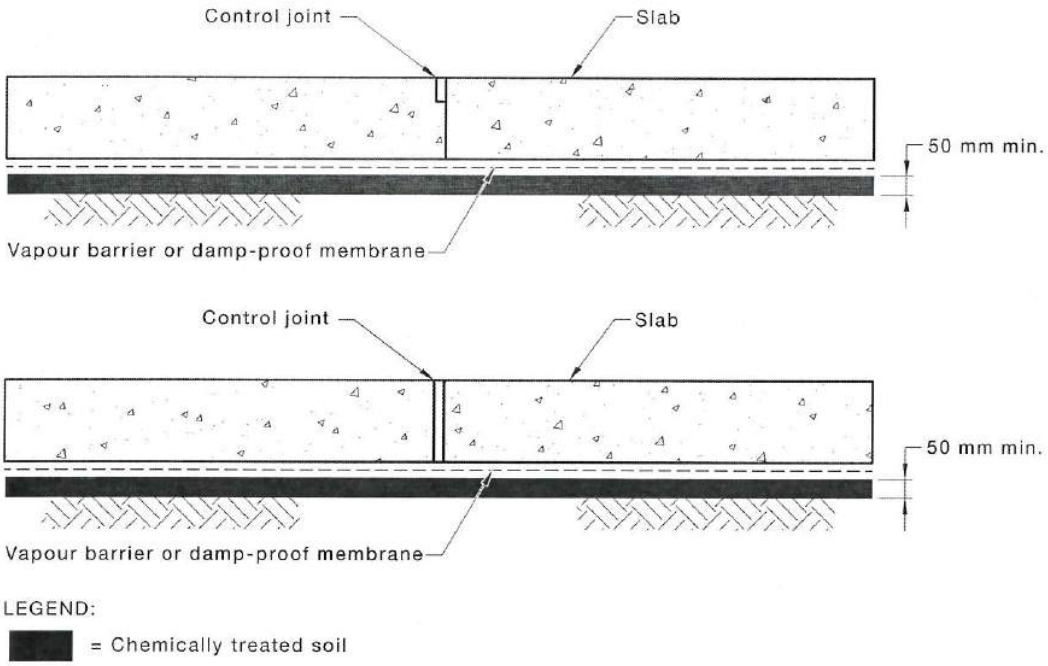


LEGEND:

= Chemically treated soil

DIMENSIONS IN MILLIMETRES

FIGURE 7.6 TYPICAL DETAILS FOR CHEMICAL APPLICATION AT SERVICE PIPE PENETRATION



DIMENSIONS IN MILLIMETRES

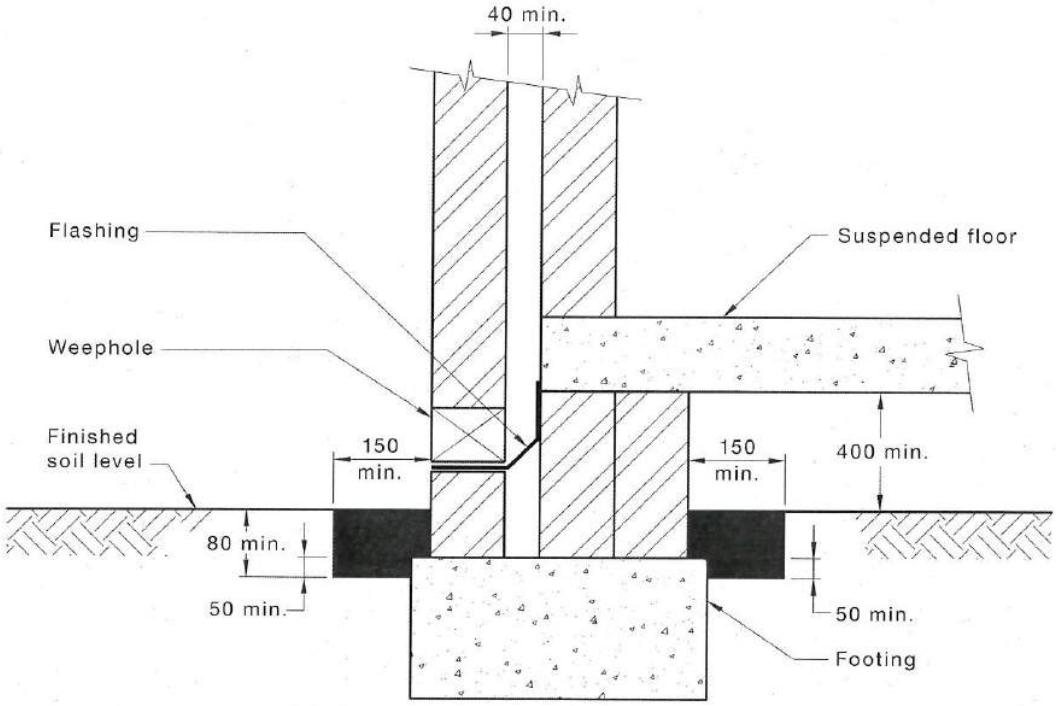
FIGURE 7.7 TYPICAL DETAILS FOR CHEMICAL APPLICATION AT JOINTS IN SLAB

7.7.3 Suspended floors

Where compliance with Clause 3.3.2 cannot be achieved, all areas of subfloor soil shall be treated.

Horizontal application shall abut all substructure walls, stumps, piers, pipes and wastes. Where the building provides concealed access, vertical application shall be installed to not less than 50 mm below the top of the footings.

NOTE: Typical details for chemical application for suspended floors are shown in Figures 7.8 and 7.9.



LEGEND:

= Chemically treated soil

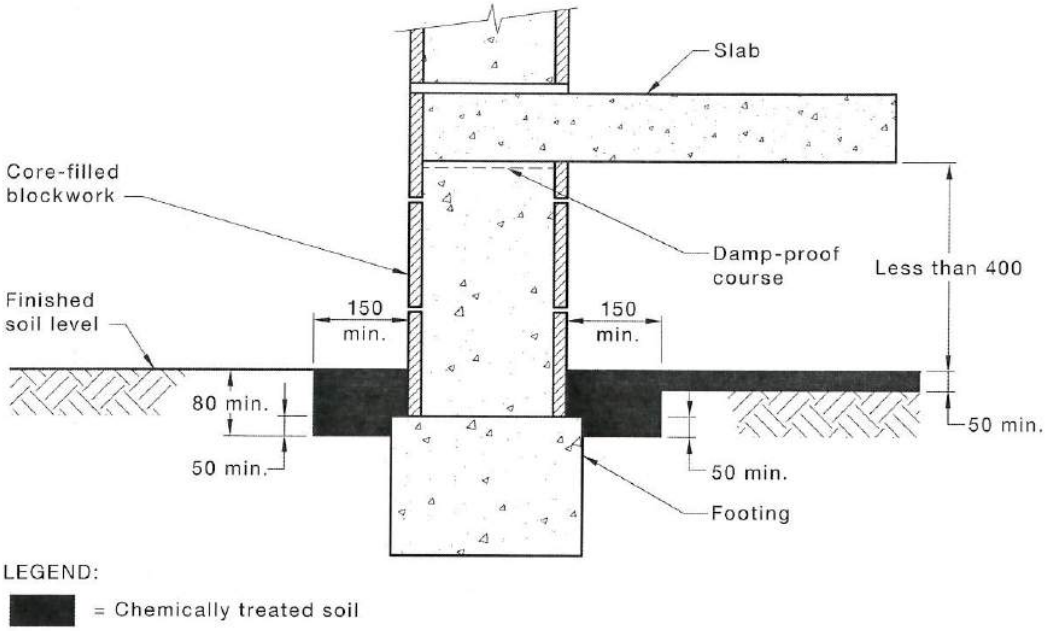
DIMENSIONS IN MILLIMETRES

NOTES:

1 Where sheet material is installed on top of the piers, or the like, the vertical chemical application below the top of the footings may be omitted.

2 Termite management systems will not be effective where the nest is established inside the building and has no contact with the soil.

FIGURE 7.8 TYPICAL DETAILS FOR CHEMICAL APPLICATION AT BRICK CAVITY WALLS WITH SUSPENDED FLOOR



DIMENSIONS IN MILLIMETRES

NOTE: Slip joint not shown.

FIGURE 7.9 TYPICAL DETAILS FOR CHEMICAL APPLICATION AT BLOCKWORK WALLS WITH SUSPENDED FLOOR

7.7.4 Poles, posts or stumps

Where a chemical is used around susceptible poles, posts or stumps placed in the ground in accessible or untreated subfloor areas, the buried section of the pole, post or stump shall be fully encased with a vertical application of the chemical.

NOTE: For typical details, see Figure 7.10.

APPENDIX A

GUIDANCE ON INSTALLATION OF TERMITE MANAGEMENT SYSTEMS

(Informative)

A1 INTERFACE BETWEEN NEW AND EXISTING WORK

Building owners should be aware that this Standard may not provide adequate solutions for ground-floor level extensions or renovation that are connected to an existing building, irrespective of whether the existing building has been previously constructed in accordance with this Standard or its predecessors, or may not have had such provisions made. For termite management of an existing building, refer to AS 3660.2.

During the design and construction process, it is recommended that consultation occurs between the various parties, which may include the designer, the builders, the termite specialist and the owner. This will ensure that termite management systems are properly designed and installed.

Where a termite management system cannot be provided in accordance with this Standard, the limitations of the system, as installed, should be documented and supplied to the building owner along with a recommendation for more frequent inspections.

A2 CONSTRUCTION AT OR NEAR BOUNDARY

Where construction at or near the boundary is carried out, it may not be possible to install a complete management system as specified in this Standard. These situations may include duplexes, villas, townhouses, parapet walls, buildings with zero setbacks to an allotment boundary on separate title allotments, and the like.

Where a termite management system cannot be provided on a boundary, access for inspection may not be available.

Building owners should be aware that construction at or near a boundary could result in a greater risk of termite entry due to one or a combination of the following factors:

(a) Concealed entry to the structure because of the specific construction methods used.

(b) Lack of access for the installation of a termite management system during construction.

(c) Lack of access for inspection and maintenance.

(d) The actions of adjoining owners, which may compromise the effectiveness of the termite management after construction.

A3 CERTIFICATES OF INSTALLATION

The installers of a termite management system in accordance with this Standard should provide the person soliciting the work with copies of all the 'Certificates of Installation' in accordance with AS 3660.1 (this Standard) that apply to the work.

The Certificate of Installation includes the following:

(a) Full details of the termite management system installed, including the following:

(i) In the case of a chemical soil or chemical sheet termite management system, the name of the chemical product used, the service life on the manufacturer's product label and, if applied as a liquid, the total volume used. The locations of chemical application with area, in metres squared, and perimeter and linear applications, in metres. Where a reticulation system is installed, the maximum pressure to be applied in replenishing the system, as specified by the reticulation system manufacturer, should be prominently displayed on the Certificate of Installation, along with the volumes of termiticides required at each fill point.

(ii) For a physical termite management system, the name of the system and methods of installation.

NOTE: The manufacturer's product label is the label containing information approved by the pesticides registrar.

(b) The date the work was completed.

(c) The extent of the termite management system provided and whether a single system or integrated system has been applied.

(d) A diagram to show the location of the termite system components.

(e) The installer's or manufacturer's specifications for the scope and frequency of future inspections for termite activity (see AS 3660.2).

(f) Any limitations to the installation of the system or the ability to maintain or inspect system components, which may have occurred due to the design or construction of the building or the requirements of the person soliciting the work.

(g) Advice for maintaining the termite management system, where appropriate (see AS 3660.2).

(h) Contact details for further information on the system and the installer who performed the installation, including the name of the person responsible for that installation.

(i) For concrete slabs used as part of a termite management system, the builder or concreter's certification of concrete slab compliance with AS 2870 or AS 3600. The type(s) of concrete slab used (e.g. raft, infill, formed-void, tied, etc.) and any slab inclusions present, such as heater wires or pipes and sub-slab water storages in metres.

(j) Where a slab requires additional works, the number of slab penetration treatments, the number and total length of slab joints treated, in metres, and any works to discontinuities in the slabs or to the edges of slabs.

(k) Details of works to suspended floor, including, minimum clearance under floor, in millimetres, minimum clearance under fixtures, in millimetres, details of grading and drainage to prevent ponding, the presence of subfloor ventilation installed in accordance with the NCC and the treatment applied to piers/stumps/pillars and similar structure.

(l) Works to the building perimeter, including where systems have been applied internally or externally, and the length of perimeter treated, in metres.