Southern Cross
Building Products

SX Reticulation System

Product Manual

(Incorporating Installers Guide)

June 2014

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Introduction

Reticulation systems have their origins in agriculture where it evolved from simply delivering water to plants to now carrying nutrient solutions and insecticides in many different applications and environments.

For over 20 years delivering termiticides through a reticulation pipe has been used as a treatment method for protection of buildings.

In the current Australian Standard AS 3660.1 - 2000 reticulation systems are acknowledged as a deemed to satisfy method - principally under section 8 “Deemed to Satisfy Requirements - Chemical Soil Barriers”

The SX reticulation system has been independently tested and acknowledged as meeting the deemed to satisfy requirements of AS 3660.1 - 2000

This guide describes the components of SX reticulation system and the principles of installing the system correctly.

The components developed for this system are high quality and have been tested to ensure that they will work as designed.

Every job is different, some may have diffiult designs, others have difficult conditions such as soil type, this means the success of the barrier will often depend on the skills and training of the installer.

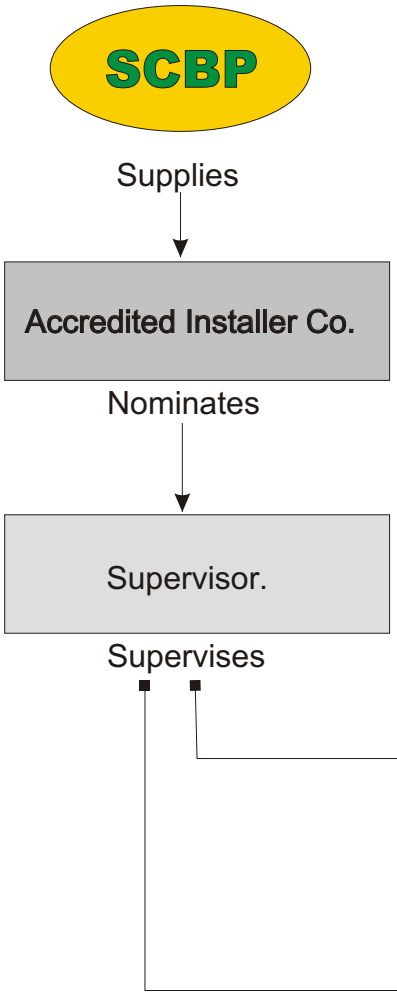
Installers must be alert to situations where an installation will not be effective. This guide highlights many, but certainly not all problem situations that may arise.

It is essential that installers are familiar and adhere to the limitations described in the specifications section of this guide.

Providing an effective barrier may mean combining or incorporating other products, or it may be necessary to refer the problem back to the builder for rectification or re-design.

Thankyou for taking the time to find out about SX Reticulation Systems.

Installer Accreditation



Accredited Installer Company

Supervisor

A "Supervisor" is a person who is responsible for all aspects of the installation of the reticulation systems.
They are responsible for

- Training of staff including being readily accessible to people working under their supervision.
- Supervision of pipe laying,
- Design of a system (length of 'runs' positioning of boxes etc)
- Establish and monitor systems to ensure correct 'pump ups'
- Records including treatment certificates

Skills:

- Holds Cert 3 in Pest control or above. National Competency PRMPM05; 06; 18; 8 and 10
- Is familiar with the SX Reticulation Installers manual
- Familiar with AS 3660.1 2000

Chemical applicator

The chemical applicator is a person responsible for 'pumping the system'. This work must be consistent with competencies PRMPM05; PRMPM06; PRMPM18; PRMPM8 and PRMPM10

- Holds Certificate 3 in Pest Management or above. National Competency 5; 6; 18; 8 and 10
- Has been trained in pipe installation by the supervisor
- Has been trained in chemical application ("pump ups") by the supervisor.

Pipe Installer

The pipe installer prepares a site and lays pipe; installs pump up points prior to a 'pump up'
Completed pipe installation training.
Works under supervisors supervision
The pipe installer must be either an employee or a contractor, where they work under the direct supervision of the supervisor. The supervisor is available for advice and inspection of the final installation.
Where the installer is a contractor they must carry the same qualifications and equivalent PI & PL insurance as the prime contracting company

Record Keeping Traceability

We are required to be able to trace our products through to their end use.

This means we must be able to contact installers of our products in the event of a product recall or essential technical update.

It is SCBP policy not to collect installation certificates, builder details or home owners details from you.

We acknowledge that customer lists and lists of work done is commercially valuable and sensitive information.

However, when you agree to the "Terms of Use" you are agreeing to maintain your records so that you can trace where our products to where they have been used if the need ever arose.

Terms of Use

Installers agree to the following terms of use for Southern Cross Buuilding Products components and systems.

Installers shall.....

- follow SCBP Installation Guidelines for products
- comply with the BCA; relevant Australian Standards and Chemical product labels
- maintain documentation and a system which allows traceability
- only allow properly trained, licensed and accredited people to install and maintain systems
- use only components supplied by SCBP

Reticulation system overview

SX Reticulation is a system designed to distribute pesticides around the base of buildings to form a termite barrier in accordance with Australian Standard AS 3660.1 2000 (Section 8).

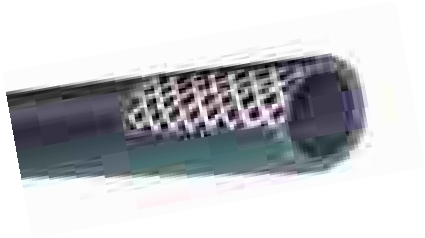
SX Reticulation is a “Deemed to Satisfy Product” this means that the system and its components have been assessed against the performance criteria in AS 3660.1 - 2000

The pipe is placed at the base of the concrete slab, very close to the edge or even clipped on to the slab. The pipe is just under the finished ground level (FGL) or just below concrete or pavers

SX Reticulation is chemical resistant pressure pipe with emitter holes at regular spacings. The system is assembled using pressure fittings generally ***clamps are not necessary as the system should be pumped at relatively low pressure.*** The pipe is flexible and strong and generally does not require “elbows” for bends, however “end stops”; “connector fittings” and “valve boxes” are essential.

When a system is “charged” pesticide is pumped through the pipes at pressure, the pesticide is released from the pipe in a controlled manner and the surrounding soil absorbs the pesticide forming a barrier.

People and companies wanting to use this system must ensure they have the appropriate training and state licences. These requirements vary from state to state.



Product Specifications - PIPE

Southern Cross Building Products

- **Highly Chemical Resistant**
  SX reticulation pipe is a high quality chemical transfer pipe specifically engineered for use by industry and pest controllers for transfer of diluted pesticides including solvent based solutions.
  A PVC Nitrile blended compound ensures that the pipe has high levels of chemical resistance and a long service life.

- **Kink Resistant**
  SX Reticulation pipe has a wall thickness of 3.25mm (I/D 12.5mm O/D19.0mm).
  The pipe is a composite construction combining a stong internal transfer tube, reinforcing fabric and durable outer coating.
  This means the pipe has excellent resistance to kinking even at angles greater than 90 degrees.

- **Strong**
  SX Reticulation Pipe has a rated bust pressure of 8.4 MPA (1100 PSI) and a working pressure of 2.1 MPA (nearly 300PSI).
  The working pressure of this pipe far exceeds any pressures exerted in its normal service period as a reticulation line.
  Installers please note; this is not the pump up pressure for the system, refer to charging the system section for full details

- **UV Stable**
  The outer coating of the pipe is UV stabilised to protect the pipe if construction is delayed or the pipe is inadvertently exposed.

- **Impact Resistant**

  The pipe is strong yet flexible giving it excellent resistance to impact damage; crushing or cutting.

- **Emitting holes**

  The pipe is precision drilled with two opposing holes at 200mm centres providing a radial distribution pattern.

Product Specifications - Perforated Pipe

Reticulation Pipe Re-order Part Number			
SX Kit80 **8**0m Drilled pipe **4 Boxes; 8 endstops;** **8 Connectors / caps** **8 Elbows**		Material	PVC / Nitrile Blend
		Construction	Composite Layered
		Hose classification	Premium
		Dimensions	Pipe ID 12.50mm Pipe OD 19.00mm
SX Retic 100 100m reel Total weight 22 kg stapped only		Pressure	Working Pressure 2.1 Mpa / 297 PSI Burst Pressure 8.2 Mpa / 1190 PSI Average Pump Pressure 0.7 Mpa / 100 PSI *Note this data is the pipe specification, for pump up details refer to "Charging the System' section*
SX Retic 200 200m reel Total weight 66kg On timber reel		Chemical Resistance	Excellent
		UV Stability	Good
		Service Temperature	-10 to +80

Product Specifications - Feeder Pipe

Feeder Pipe
Re-order Part Number

SX Feeder 20
20 m Long
Total weight 12kg
stapped only

Material	PVC / Nitrile Blend
Construction	Composite Layered
Hose classification	Standard
Dimensions	Pipe ID 12.50mm Pipe OD 18.00mm
Pressure	Working Pressure 2.1 Mpa / 297 PSI Burst Pressure 8.2 Mpa / 1190 PSI Average Pump Pressure 0.7 Mpa / 100 PSI *Note this data is the pipe specification, for pump up details refer to 'Çharging the System' section*
Chemical Resistance	Good
UV Stability	Good
Service Temperature	-10 to +80

Product Specifications - Fittings

End Stop **Re-order Part Number** **SX END 20** **SX END 200**		Construction	Injection Moulded PE (Polyethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

T Junction **Re-order Part Number** **SX Tjunc 20** **SX TJunc 200**		Construction	Injection Moulded PE (Polyethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Product Specifications - Fittings

90 Degree elbow **Re-order Part Number** **SX 90Elbow 20** **SX90Elbow 200**		Construction	Injection Moulded PE (Polyethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Male connector **Re-order Part Number** **SX MaleC 20** **SX MaleC 200**		Construction	Injection Moulded PE (Polyethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Product Specifications - Fittings

Dust Cap **Re-order Part Number** **SX CAP 20** **SX CAP 200**		Construction	Injection Moulded PE (Polyethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Female connector **Re-order Part Number** **SX FEMC 20** **SX FEMC 200**		Construction	Injection Moulded PE (Polyethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Product Specifications - Fittings

Hose Clamp **Re-order Part Number** **SX HoseC 20** **SX HoseC 200**		Construction	Marine Grade Stainless Steel
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Cobra Clamp **Re-order Part Number** **SX Cobra 20** **SX Cobra 200**		Construction	Marine Grade Stainless Steel
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Product Specifications - Fittings

Valve Box **Re-order Part Number** **SX Valve Box** **6" square box**		Construction	Injection Moulded PE (Pol ethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Sold separately

Product Specifications - Fittings

Pegs **Re-order Part Number** **SX Pegs 20** **SX Pegs 200**		Construction	Injection Moulded PE (Poly ethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

Saddles **Re-order Part Number** **SXClips 20** **SX Clips 200**		Construction	Injection Moulded PE (Poly ethylene)
		Service Temp	-10 to +80 Deg C
		Chemical Resistance	Excellent
		UV Stability	Excellent
		Packaging	Bag 20; Box 200

System Assembly

Fitting a Female Connector

- Cut the end of the reticulation pipe clean and square using a sharp blade or shears
- Put the clamp on the pipe first
- Put press the barbed end of the fitting into the pipe.
- Tigten the hose clamp (if required)

Fitting a Male Connector

- Cut the end of the reticulation pipe clean and square using a sharp blade or shears
- Put the clamp on the pipe first
- Put the dust cap on to the barbed end of the connector.
- Press the barbed end of the male connector in to the pipe.
- Tighten the hose clamp (if required)

Fitting an End Stop

- Cut the end of the reticulation pipe clean and square using a sharp blade or shears
- Put the clamp on the pipe first
- Press the barbed end of the end stop in to the pipe.
- Tighten the hose clamp (if required)

Safety

SX reticulation systems are safe to handle and install. Charging the installed system requires distribution of pesticide. Pesticides can be dangerous and their use is strictly controlled. Only people who have done specialised training (PSTM national competencies 5; 6 & 18 also known as Certificate 3) may charge the systems.

Accredited installer should develop safe work method statements (SWMS) for handling storage and application of pesticides for their own operations.
Some key risks are highlighted regarding handling and laying SX reticulation.
Each installer is responsible for developing their own Full SWMS including handling and distributing pesticides.

	Disaster	Very Serious	Serious	Subst-antial	Minor
Almost Certain	1	1	1	2	2
Likely	1	1	2	2	2
Possible	1	2	2	2	3
Remotely Possoble	2	2	2	3	3

Job Step	Hazard	Risk Score	Control Measure
Site prep & pipe laying	UV Exposure Slips falls	2 2	Correct PPE Avoid rough terrain & correct lifting procedures
Movings bulk rolls	Lifting strains	2	Correct Manual lifting procedures / mechanical assistance
Cutting Pipe	Cuts	3	Correct PPE especially Gloves
Charging System	Chemical Exposure	2	Follow separate SWMS for chemical use.

SAFE WORK METHOD STATEMENT

TRADE:	ABC Pest Control P/L		Signed be senior management company representative for use:
CONTRACTOR	ABC Pest Control P/L		
CONTRACTORS REGISTERED BUSINESS ADDRESS:			
1 Smith St. Brisbane QLD	ABN	99 123 456 789	SIGNATURE NAME
LOCATION OF WORKS:	Department of Public Works NSW Smithfield Public school 2 Jones Rd Smithfield		TITLE: Managing Dir. Date: Contractors Representative Jim James (supervisor) 0400 123 456

SCOPE OF WORKS:

Installation of reticulated pipe system for protection of structures from termites in accordance with AS 3660.1 2000

PERSONAL PROTECTIVE EQUIPMENT TO BE WORN:

Safety boots; helmet; hearing protection; hand protection, eye protection, respiratory protection and protective clothing when required.

Procedure (in steps):	Possible Hazards	Hazard rating	Safety Controls:
1. Site risk assessment	slip fall	2	Ensure correct lifting techniques.
	other trades working overhead		ensure no other trades working above
2. Unloading materials / tools	Weather exposure	2	Wear adequate protection
	Lifting strain		Correct lifting procedure
	Traffic		Ensure working away from potential traffic hazards
	Walking into sharp protusions /	3	Note hazards and place warnings as necessary
Clearing debris around the work area	Possible cuts / lacerations	2	Wear protective handwear.
	Hazardous materials		Dispose of plastic offcuts into either waste or recycling area
	Strains		correct procedure when raking / digging
Layout the pipe	Body strains	2	Correct liftin g procedures
	Dust Inhalation	3	Wear dust mask while pouring of Granitgard.

Soils

Soils are classified as either “sand” “silt” or “clay”.
Most soils are a combination of each type. The proportion of each type material determins the soil type. Note that silt soils are sometimes referred to as “Loam” soils.

The soil triangle shows the soil types according to their proportions- For example 50% clay / 50% silt is “Silty Clay”.

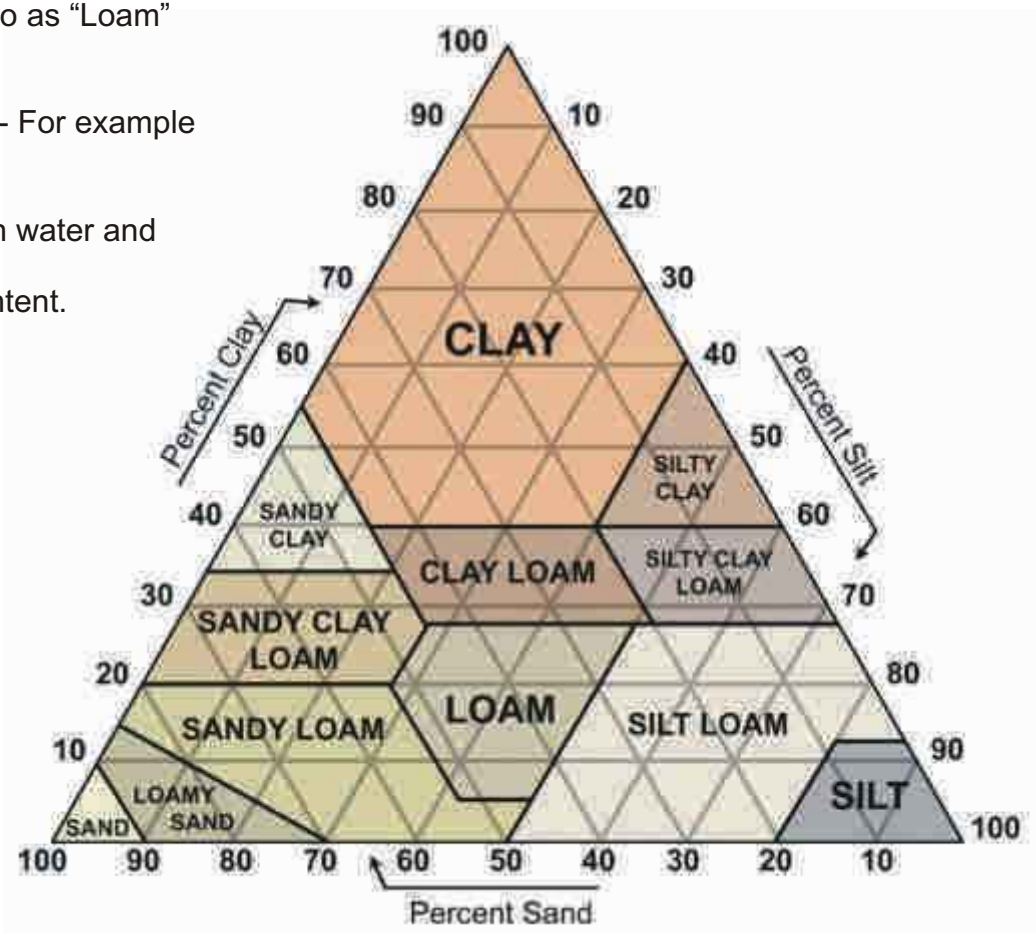
A simple soil test can be done by taking a handful of soil, wet it with water and squeeze it. If the sample feels gritty it has a high sand content, if it feels ‘soapy’ it has high silt and if it feels ‘sticky’ it has high clay content.

Now try the ‘rope test’ take the sample and and try to roll it into a small cylindrical shape like a rope.

- **Sandy soils** will simply break up and not even form a ball.
- **Silt (loam) soil** will feel slick and and only a little gritty it will form a ball but the ball will break apart easily and cannot be rolled onto a rope
- **Clay soils** feel smooth and sticky, will readily form into a strong ball and can be moulded into a rope shape.

Being able to identify a soil type is important because clay soils are very poor at absorbing the pesticide.

A clay soil must be removed and replaced with a sandy soil before application of a pesticide



Perimeter Installations

Where a slab is constructed in accordance with AS 3600 and AS 2870 it is considered to be termite resistant. This means only the perimeter and any penetrations (including joints) need to be protected.

This section of the guide shows the 3 steps to complete the work.....

1. Site Assessment & Site Preparation
Site Assessment means making sure the site is ready for work to begin.
Site Preparation means starting to plan the work and checking for design or installation issues.

2. Installation
Once the site is prepared and the layout determined the pipe can be installed.
The reticulation pipe is placed or clipped against the slab edge, then backfilled with appropriate soil up to FGL which should be just above the pipe.

3. Builder Home owner Notification
AS3660.1 requires a" Certificate of Installation" to be given showing what work was done and what sort of maintenance is required.

Unfortunately for the installer many sites will not have landscaping done and it may not be obvious to the installer what FGL will be during construction. Therefore the home owner & builder must be given appropriate advice about adjustments that may be necessary if landscaping is going to compromise the barrier.
See the advice for landscapring in this guide, review your hand over documentation and speak to your insurer to be sure people are aware of maintence requirements for the reticulation system.
These are the issues that are specific to this property and are additional to the standard handover paperwork.

1. Site Preparations

- Complete any safety procedures before starting work
- Remove all contaminants from the area to be treated.
  This includes timber offcuts, building debris and formwork
- Check site for termite activity including timber on the ground; old fences; and trees.
- Check the soil on site - if inappropriate arrange for new soil.

Debris; building rubble and heavy clay soil.

Bricklayers mortar .

Building rubble

Too Wet

Site Assessment

Check out the building noting:

- position of drains, downpipes & HWS overflows
- the height of finished ground levels
- where driveways & paths will be.
- any change in levels
- any slabs or footingscast separately to the main slab

Note drain adjacent to building

Work out the "layout" of the system

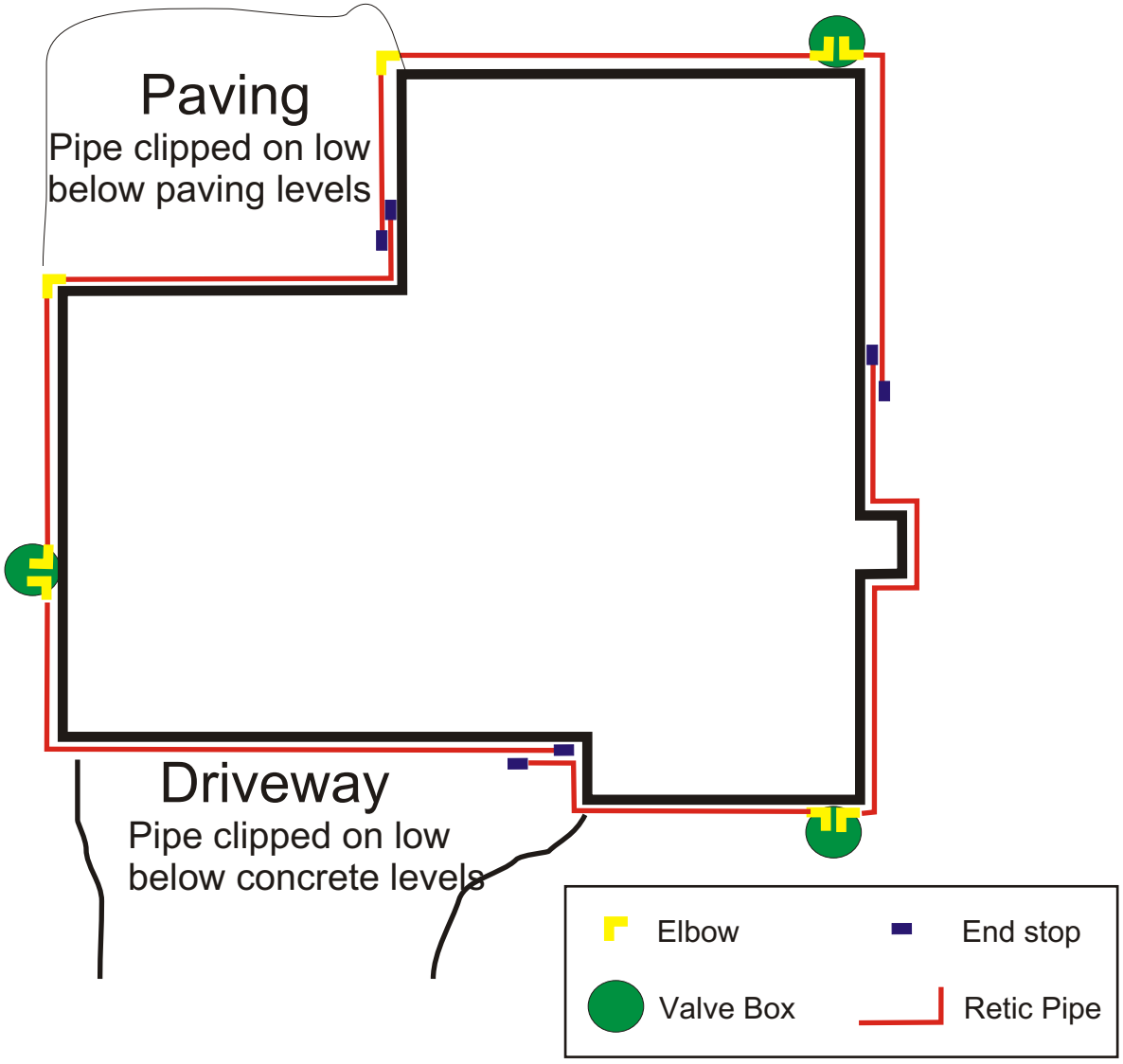
We recommend that installers use a checklist for site preparation and layouts. The checklist is a useful reminder of all the issues to deal with as well as a record of how the system is laid out. This will allow accurate drawing of "Treatment Certificates".
The form can also serve as a record of defects/issues reported to the builder.

A Layout plan determines the following:

- position of valve boxes
- length of pipe runs
- Height the pipe needs to be fixed at given the finished ground level.
- Mark any issues that need to be rectified or marked as a limitation on the certificate.

Site Checklist & Job Plan (example)

		Comment
Safety Check	✓	Refer Company SWMS
Cleared debris	✓	Removed building debis incl mortar timber and rubbish
Termite Check	✓	Checked trees, fences, timber on site, stumps.
Check drains	✓	Checked to make sure pesticide won't be pumped into drains
Check FGL	✓	Checked to make sure pipe is the correct height for the FGL
Run lengths	✓	Run length no more than 10m
Box locations	✓	Boxes are 1m away from doors and downpipes
Access	✓	Boxes can still be accessed after fences etc are built
Defects notified	✓	Identify any potential prblems with the install here. E.g. builder to ensure sand on top of pipe at driveway to avoid encasement.



Key Dimensions

These are the key dimensions to adhere to....

- **Maximum distance of pipe from slab edge 75mm**
- **Maximum height from Finished Ground level 75mm**
- **Maximum distance below hard landscaping (Concrete path driveway or pavers 75mm**
- **Maximum "run" of pipe (length from connector to end stop) 10m**
- **Maximum bend of pipe without an elbow ..... 90 degrees**
- **Pump up pressure - depending on equipment aprox 20 psi for sandy soils; max 60 psi for loams**
  Remember the best method is to do a trial pump at the job to be sure a good soaking delivery is achieved

Caution.

Pressures above 60psi are likely to tunnell through many soils and in some instances may completely wash away the soil leaving an inneffective barrier.

Pipe Installation Equipment

HAND TOOLS - For system assembly

- Mattock
- Shovel
- Pipe Cutter
- PPE Including gloves
- Hammer
- Screw Driver (for clamps)
- Nail Gun
- Pipe
- Fitiings
- Accessories

Perimeter Installations - Correct Height

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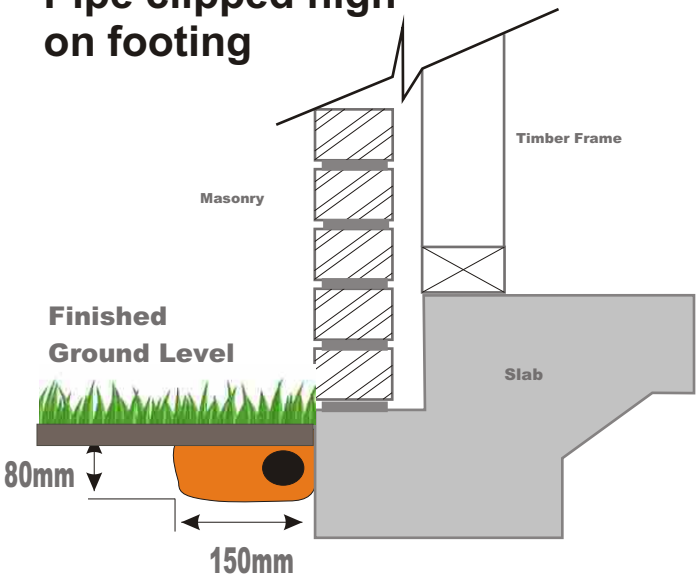
Pipe clipped high on footing



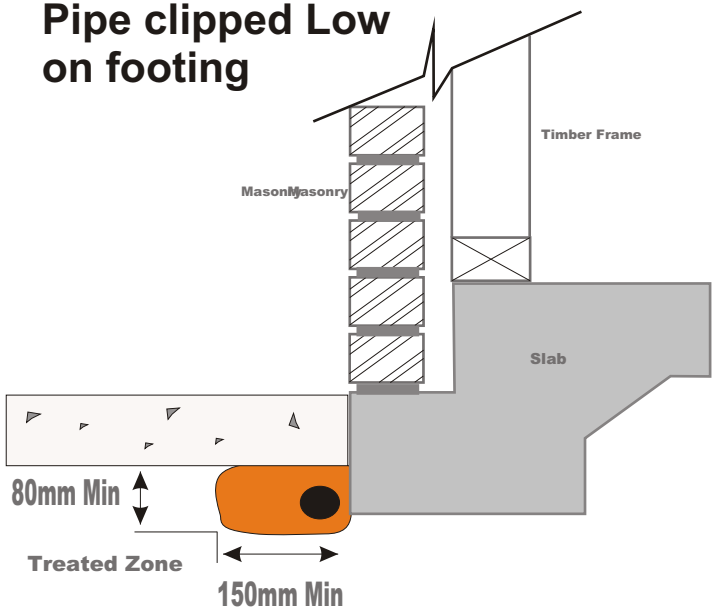
The diagram and picture to the left shows the pipe clipped on “high” ready for garden soil and turf.

The material below the pipe is heavy clay and would not be appropriate soil to hold the pesticide. Here the home owner is building up the level with a sandy loam (turf underlay) which will hold the pesticide.

The diagram and picture to the right shows the pipe clipped on low in preparation for sand base and concrete slab or paving.

It is important that the pipe is protected from being encased in either concrete or mortar when paving, this will block the emitting holes and a barrier will not be formed.

Pipe clipped Low on footing



Perimeter Pipe “Clipped On”

Pic 1 -
Layout the pipe/boxes

Pic 2
Nail on the clips/pipe

Pic 1 **Set Out the pipe** and valve boxes.

Pic 2 **Nail gun pipe clip** on. Using clips is recomended otherwise the pipe could be displaced from the slab edge

Pic 3 **Pipe in place** readyfor soil and turf to be laid. Note the pipe has been passed behind the down pipe to ensure chemical gets in behind the down pipe.

Pic 4 **Overlap at the end of the “run”**, make sure there is at least one set of emitter holes operating here.

Pic 5 & 6 **Elbows & valve box fitted** and the valve box placement. Elbows are recommended here as it often makes connecting for a charge up easier.

Elbows can be used at corners, however generally elbows are not needed as the pipe easily conforms to most slabs without kinking.

Pic 3
Pipe behind downpipes

Pic 4
Overlap ends

Pic 5
Fit elbows / connectors

Pic 6
Fit Valve Box

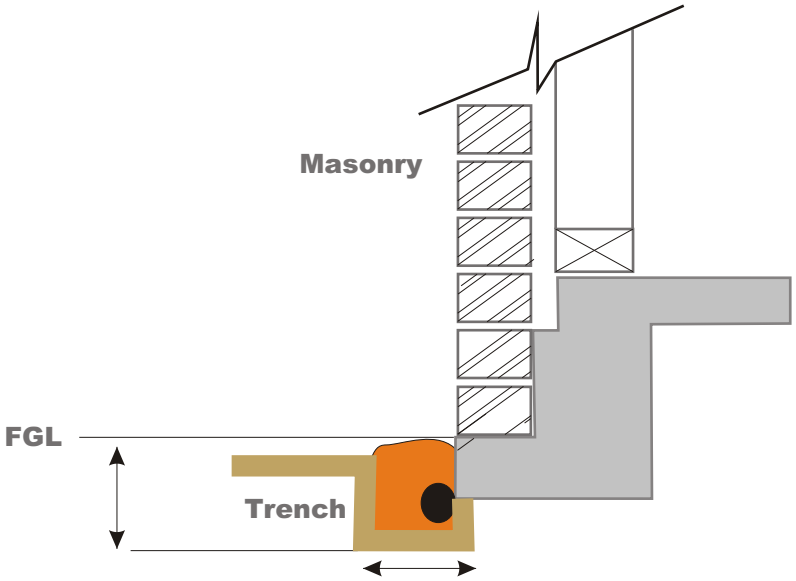
Soil Replacement - “Trenching”

Trenching is required where the soil is either
(i) Above the concrete footings (i.e. too high) or
(ii) The soil is a poor quality and not appropriate for the pesticide.

A trench is dug around the affected area close in to the footing and minimum 150mm wide. The depth of the trench will depend on the height the pipe needs to be installed at (refer previous pages).

When trenching care should be taken for buried services such as water supply, sewer / storm water drainage, telephone & electricity.

Ensure that trenching is done behind down pipes to allow the pipe continuous contact with the slab edge.



Pic 1

Pic 2

Pic 3

Installation - Step downs / Change of Level

A change of level raises two problems:

Firstly making sure the pipe is placed in the correct area to give a treated zone. The placement of the pipe will depend on how FGL is managed. If a step is used as in Diag 1 then the pipe will follow the stepped FGL.
If the FGL slopes past the change of level then the pipe needs to also follow the FGL however installers need to be careful with this detail as this is a potential weak point.
DO NOT treat stepdowns where FGL is above the edge of the slab

The detail in Diag 1 is always the safer option.

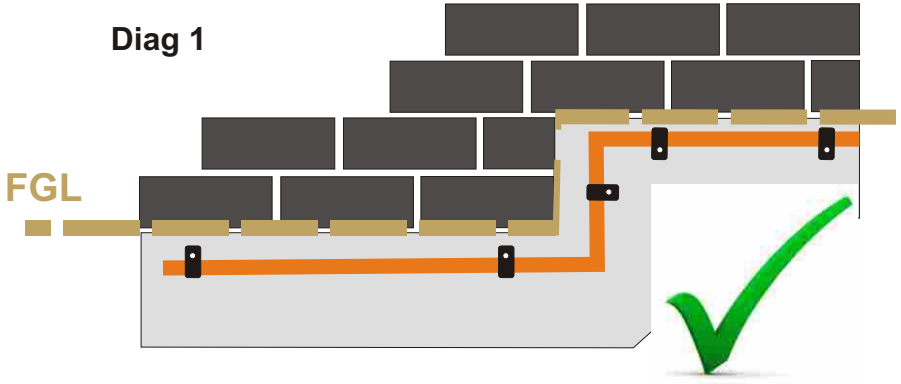
The second issue to consider is the effect a change in height will have on the amount of pesticide solution which is delivered.

Pumping 'uphill' will dramatically reduce the effective run length of the hose.

A rise/fall of more than 2 courses should not be treated (refer excluded details).

A change of level of less than 2 courses can be managed by shortening the run length to 8m maximum.

Diag 1



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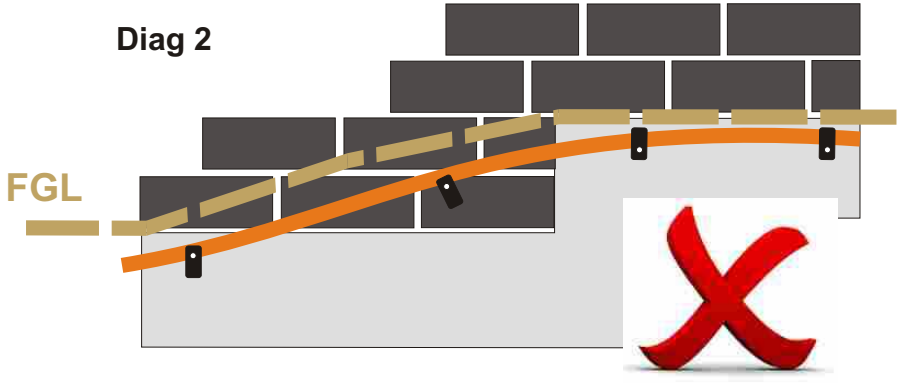
Diag 2



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Subfloor - Footings and Piers

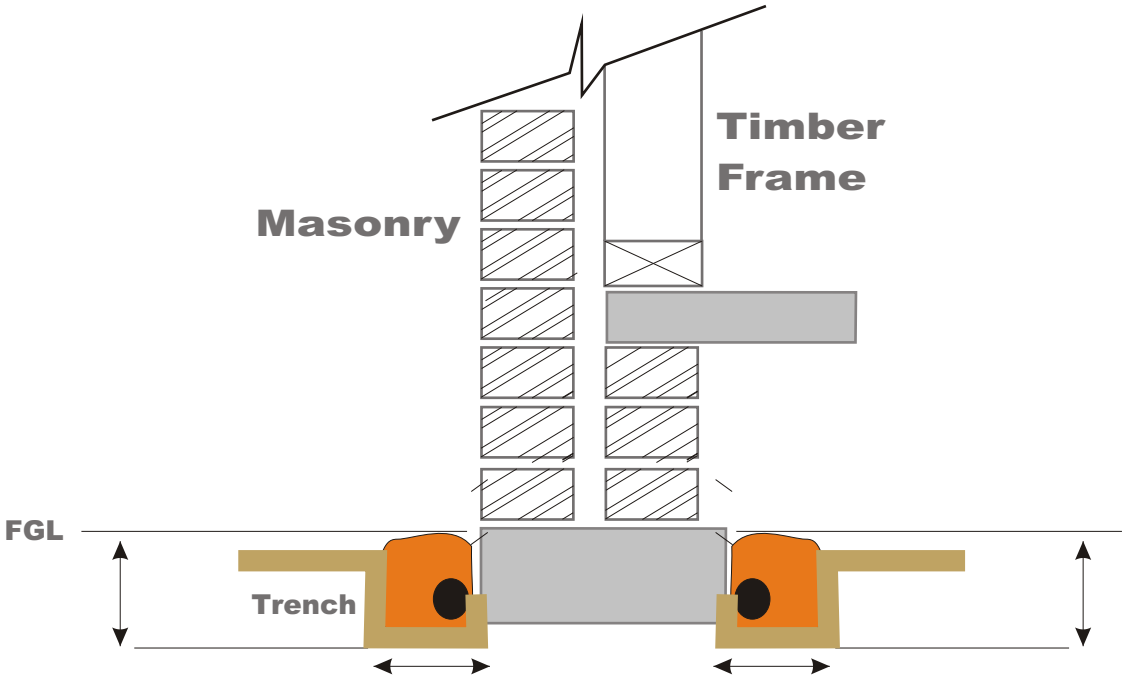
SX reticulation line can be installed in a subfloor of a building either during or after construction.

The same principles apply here.

- Work out a layout of the system
- Trench out the soil
- Place the pipe adjacent to the footing
- Backfill with appropriate soil.
- Charge the system

Remember that both sides of the footing will need to be treated.

Pic 4



Isolated Piers & columns

Isolated piers in subfloors or columns for a Verandah can be protected with a feeder pipe and ring line.

The blue feeder line is not drilled it is ideal to transfer pesticide to a loop of perforated pipe which surrounds the pier.

A “T piece” fitting is used to form the ring line.

The feeder line can be up to 20m long feeding a single ring.

Construction Joints

Control joints or construction joints occur where the concrete slabs are formed (poured) separately.

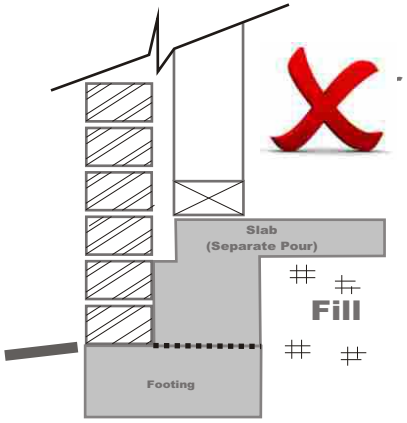
The joint may have steel connecting the two slabs but for the purposes of protection from termites these are effectively two slabs with a small gap in the middle which may allow termite entry.

Joints which occur in the inside the perimeter of the building are excluded from treatment with SX reticulation. See Diag 1 & 2
AS 3660.1 2000 requires these joints to be treated as part of a full underslab treatment.

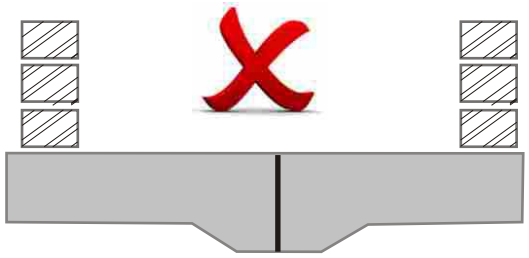
Only joints which can be incorporated in the perimeter shall be treated.
See Diag 3

Installers should take care with the placement of the pipe , remembering to carefully determine the correct height of the path or driveway . The pipe needs to be below the concrete so it is not encased accidentally .

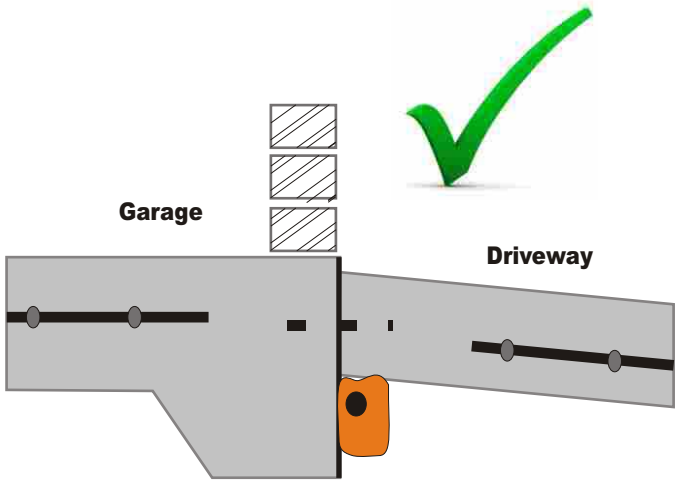
The usual guidelines about appropriate soil/sand also apply here.



"Brick up Base"



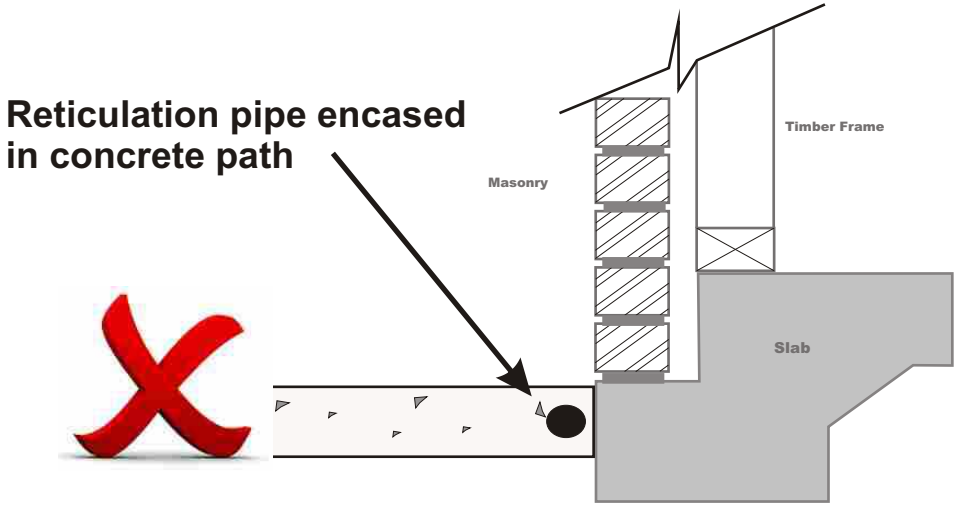
Construction Joints within the building

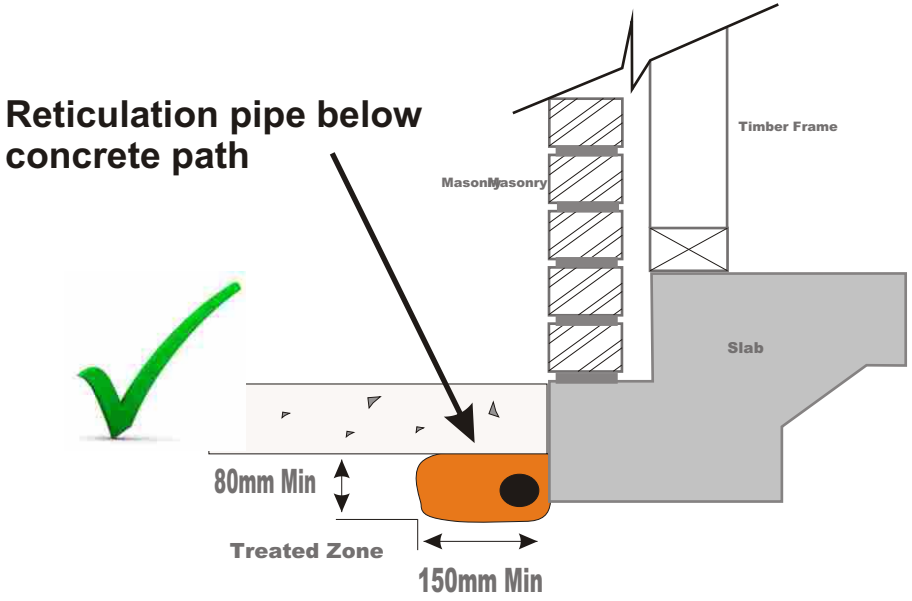


Concrete Paths & Driveways

Concrete paths and driveways have the potential to encase the reticulation pipe. If this occurs the pesticide will be restricted and the barrier will not be effective.

To remedy this the installer should ensure that the pipe is low enough to be below the concrete and put some sand/soil over the pipe where the concrete will be poured .



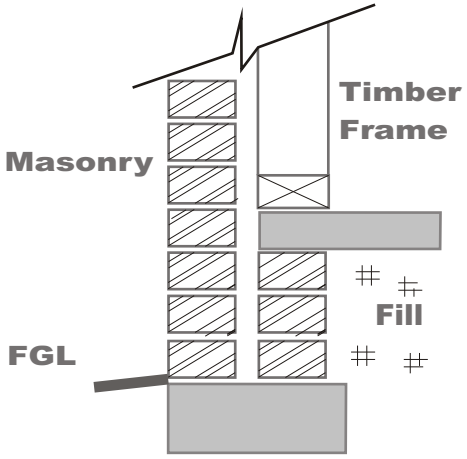


Excluded Installations

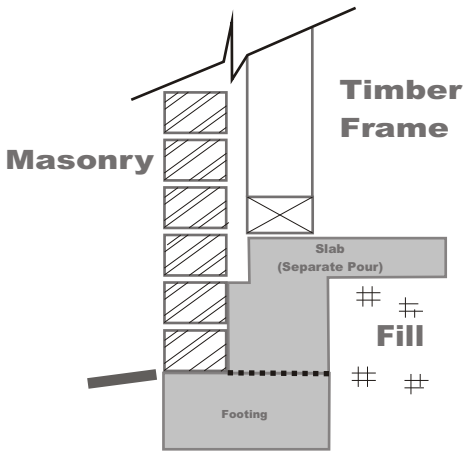
Generally any detail requiring a vertical barrier should not be treated using SX Reticulation.
If the installation requires more than one line of pipe to form the barrier then it is a vertical barrier and is excluded.

Some examples of constructions methods requiring a vertical barrier are described below.

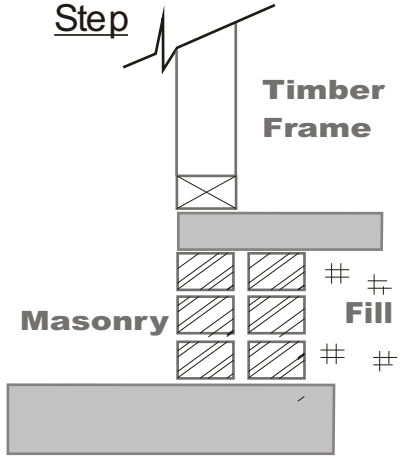
"Infill Slabs"



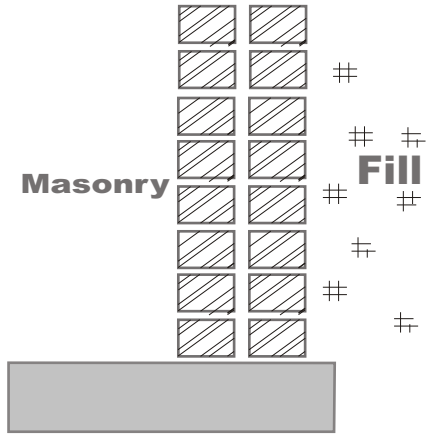
"Brick up Base"



Non Monolithic Step



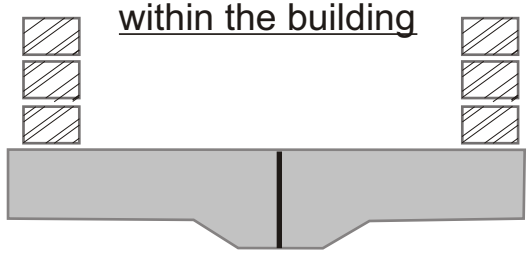
Retaining Walls



Other Exclusions:

- **Full Underslab treatments**
- **Timber posts in the ground**
- **"Pipe Penetrations" through a slab on ground.**
- **"Raised Finished Ground Level"**

Construction Joints within the building



System Limitations

Not to be installed .....

- near drains of any type.
- on impervious surfaces such as concrete, timber, rock, stones or masonry.
- into inappropriate soils types.
- in wall cavities
- differently from “key dimensions”
- Where multiple runs of pipe would be required to form a vertical barrier, such as in deep footings.
- In areas or ways which are listed as “exclusions” in this guide

Not to be Charged .....

- With pesticide which are not approved for use in the SX reticulation system.
- At high pressures which will cause tunnelling or wash away susceptible soils.

  Pump up pressure - depending on equipment aprox 20 psi for sandy soils; max 60 psi for loams
  Remember the best method is to do a trial pump at the job to be sure
  a good soaking delivery is achieved

- Using 'Foaming'. SX Reticulation has not been tested for use with foaming.

Landscaping Requirements

- Not relocate the pipe
- Not raise FGL more than 75mm above the pipe
- Not encase the pipe in concrete or mortar
- Use only appropriate (non clay) soils
- Not introduce drains adjacent to the reticulation pipe

Pumping Equipment

- Motor & Pump
- Flow Metre
- Delivery Hose
- Spill Kit
- Pressure Gauge
- Connector Fitting

- Flow Metre
- Honda 4.5 Hp Motor
- 100m x 13mm Delivery hose
- Pressure Gauge
- 200L Tank

This type of pump system will produce pressures in excess of 100psi

SX Retic only requires 20 psi for sandy soils; max 60 psi for loams

Mixing Chemicals

Sx reticulation can be charged with any pesticide that has a label registration to do so .
There are 2 issues for the instller to consider (1) the dilution or mixing rate and (2) the volume of pesticide to pump.

Mixing Rate

The pesticide label is the best guide for dilution or mixing rates.
An example of an FMC Bifenthrin Label shows the various dilution rates.

POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Biflex® AquaMax
Insecticide

ACTIVE CONSTITUENT: 100 g/L BIFENTHRIN

GROUP 3A INSECTICIDE

For the control of a range of urban interior and exterior pests, for protection of structures from subterranean termite damage and for the control of termites, as specified in the Directions for Use Table.

IMPORTANT: RESTRICTED CHEMICAL PRODUCT ONLY TO BE SUPPLIED TO, OR USED BY AN AUTHORISED PERSON

IMPORTANT: READ THE ATTACHED LEAFLET BEFORE USE

Contents: 10 / 5 / 1 Litres

FMC®
FMC Australasia Pty Ltd
Unit 26, 8 Metroplex Ave
Murarrie Qld 4172
Contact Number 1800 066 356

* FMC and Biflex are Registered Trademarks of FMC Corporation, Philadelphia, USA

Biflex AquaMax Insecticide 10, 5 & 1 Litre L
12 October 2006 Page 1 o

TABLE A: Biflex AquaMax Insecticide use rates for control of SUBTERRANEAN TERMITES

Situations	All areas SOUTH of the Tropic of Capricorn (except Tas.)		All areas NORTH of the Tropic of Capricorn	
	Rate	Expected Protection Period *	Rate	Expected Protection Period *
Pre-Construction Barriers	1 L/100L	At least 10 years	1.5 L/100L	5 years
			1 L/100L (Note 1)	4 years
Under slabs and under suspended floors with less than 400 mm crawl space	500 mL/100L	10 years	750 mL/100L (Note 1)	3 years
			500 mL/100L (Note 1)	2 years
Perimeter Barriers For new and existing buildings	1 L/100L	At least 10 years	1.5 L/100L	5 years
	500 mL/100L	10 years	1 L/100L	4 years
	250 mL/100L	3 years	750 mL/100L	3 years
			500 mL/100L	2 years
Post-Construction Barriers	1 L/100L	At least 10 years	1.5 L/100L	5 years
Under slabs and under			1 L/100L	4 years
suspended floors with less	500 mL/100L	10 years	750 mL/100L	3 years
than 400 mm crawl space			500 mL/100L	2 years
Reticulation systems	1 L/100L	At least 10 years	1.5 L/100L	5 years
Perimeter and/or service	500 mL/100L	10 years	1 L/100L	4 years
penetration treatment only	250 mL/100L	3 years	750 mL/100L	3 years
			500 mL/100L	2 years
Reticulation Systems Cavity infill & footing barriers	500 mL/100L	5 years	1 L/100L	2 years
Protection of Poles & Fence Posts	500 mL/100L	10 years	1.5 L/100L	5 years
			1 L/100L	4 years
			750 mL/100L	3 years
Nest Eradication	500 mL/100L	Not applicable	500 mL/100L	Not applicable

Note 1: This rate must be used in conjunction with a certified reticulation system that is capable of distributing the Water Based Termiticide & Insecticide emulsion according to the product label and the Australian Standard AS 3660 Series.

* The need for retreatment is to be determined as a result of at least an annual inspection, or more frequently in high risk areas, by a qualified Pest Control Operator.

The actual protection period will depend on the termite hazard, climate, soil conditions and rate of termiticide used.

Biflex AquaMax Insecticide 10, 5 & 1 Litre Label
12 October 2006 Page 7 of 15

Mixing Chemicals

Sx reticulation can be charged with any pesticide that has a label registartion to do so .
There are 2 issues for the instller to condider (1) the dilution or mixing rate and (2) the volume of pesticide to pump.

Volume to Pump

Again the the pesticide label is the best guide for volumes to apply .
The FMC Bifenthrin label provides 2 methods of calculating how many litres of emulsion to apply: 100l / 1 m3 or 5L / metre .
So for a maximum pipe length of 10m 50 Litres would be pumped .
Note that this assumes a barrier (trench) 300mm x 150mm

Situations	Critical Comments
Post-Construction Barrier Treatments for the protection of existing buildings	• Apply with suitable application equipment to form a continuous chemical barrier (both vertical and horizontal) around and under the structure with particular emphasis on known infestation areas. The formation of the barrier may require a combination of several application techniques, including soil rodding, trenching, open wand applications and sub-slab injections. • Chemical barriers beneath concrete slabs and paths will require concrete drilling. Recommended drill hole spacings are between 150 and 300 mm. To enhance soil distribution use a lateral dispersion tip on the injector and up to 10 L of emulsion per linear metre. To ensure formation of a continuous barrier, holes should be drilled no more than 150 mm from walls or expansion joints. • For areas beneath suspended floors that have inadequate access (eg. less than 400 mm clearance), the entire sub-floor area should be treated as a continuous horizontal barrier, which completely abuts an internal vertical barrier around any substructure walls. Otherwise, install perimeter barriers around each individual pier, stump, penetration point and substructure walls. • Chemical barriers that have been disturbed by construction, excavation and/or landscaping activities will need to be reapplied to restore continuity of the barrier.
Reticulation Systems Perimeter and/or service penetration treatment only	• Biflex AquaMax Insecticide must be used through a certified reticulation system to form and replenish perimeter barriers around buildings and service penetrations. The system must be installed according to the manufacturer's specifications and be capable of distributing the termiticide emulsion according to the product label and the Australian Standard AS 3660 Series. • Perimeter barriers consist of a horizontal barrier abutting a vertical barrier, which must reach down to the top of the footings. • Delivery pipes must be placed in such a position to ensure that the requirements for both horizontal and vertical barriers as specified in the Australian Standard AS 3660 Series are met. Special attention must also be afforded to the positioning of the delivery pipes to ensure that the resultant termiticidal barriers are continuous and complete. • Apply the prepared termiticide emulsion by pumping through the system according to the manufacturer's specifications. Use a minimum delivery volume of 100 L of emulsion per m^3 of soil. This equates to a delivery volume of 5 L of emulsion per linear metre for a vertical barrier 300 mm x 150 mm in dimension. • **Pre-Construction – For use in conjunction with full soil treatment horizontal barriers only:** apply the diluted emulsion through the perimeter reticulation system as specified above. Follow instructions for Pre-Construction horizontal barrier formation.

Checking Your Equipment & Settings

As every installer will have slightly different equipment and settings we strongly reccomend that installers do a trial charge up using water or a very weak solution. See Pic 2

Using excessive high pressure will cause “tunnelling" or wash away soils.
Tunnelling is where the solution comes out of the pipe at a high pressure and ‘blasts’ a hole in the soil (See Pic 1) .When charging the system creating an even wetting pattern is ideal. See Pics 3 & 4
If the pressure is too low the solution may not reach the end of the run.

The pressure to the pipe can be controlled by
- altering the motor revs
- altering the recycle valve to the tank
- altering the ball cock at the flow meter

Tunnelling caused by too much pressure


Pic 1

Trial Pump up to determine correct settings


Pic 2

An even spread of solution


Pic 3

Good pressure


Pic 4

Charging the System

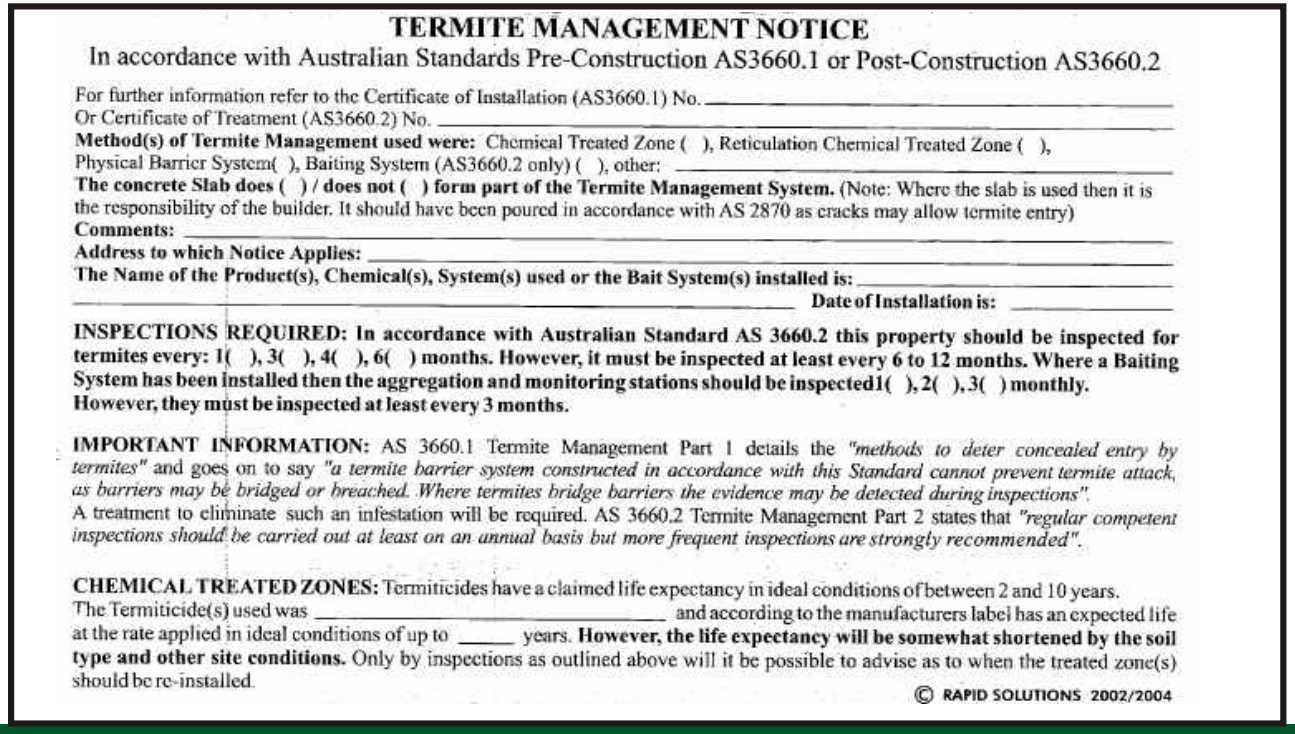
- Once the installer has determined the correct settings for their equipmen the charge up can be done
- Mix the chemicals according to the manufacturers label
- Open the valve box and connect the pump to the reticulation connector
- Make sure the correct amount of emulsion is pumped down each run, this can be done with the flow metre or by noting the measurements on the tank.
- Watch for any unusual things such as higher or lower than usual back pressure
- Document the amount of chemical used.

Builder and Home Owner Notices.

Durable Notice

AS 3660.1 2000 Appendix A sets out the “Durable Notice” requirements for termite management systems:
The notice must
(a) nominate the method of termite management
(B) Indidate the date of installation
(C) Where a chemical barrier is used - diclose the life expectancy of the chemicals (refer the chemical manufacturers label)
(D) Set out the scope and frequency of inspections
The notice must be durable and placed in a prominent location.
Note that some states will require more than one notice - check with the local authoriy for state variations

Sample Durable Notice
Courtesy of Rapid
Solutions P/L



TERMITE MANAGEMENT NOTICE

In accordance with Australian Standards Pre-Construction AS3660.1 or Post-Construction AS3660.2

For further information refer to the Certificate of Installation (AS3660.1) No. _____
Or Certificate of Treatment (AS3660.2) No. _____
Method(s) of Termite Management used were: Chemical Treated Zone ( ), Reticulation Chemical Treated Zone ( ),
Physical Barrier System( ), Baiting System (AS3660.2 only) ( ), other: _____
The concrete Slab does ( ) / does not ( ) form part of the Termite Management System. (Note: Where the slab is used then it is the responsibility of the builder. It should have been poured in accordance with AS 2870 as cracks may allow termite entry)
Comments: _____
Address to which Notice Applies: _____
The Name of the Product(s), Chemical(s), System(s) used or the Bait System(s) installed is: _____
_____ **Date of Installation is:** _____

INSPECTIONS REQUIRED: In accordance with Australian Standard AS 3660.2 this property should be inspected for termites every: 1( ), 3( ), 4( ), 6( ) months. However, it must be inspected at least every 6 to 12 months. Where a Baiting System has been installed then the aggregation and monitoring stations should be inspected1( ), 2( ), 3( ) monthly. However, they must be inspected at least every 3 months.

IMPORTANT INFORMATION: AS 3660.1 Termite Management Part 1 details the *"methods to deter concealed entry by termites"* and goes on to say *"a termite barrier system constructed in accordance with this Standard cannot prevent termite attack, as barriers may be bridged or breached. Where termites bridge barriers the evidence may be detected during inspections"*.
A treatment to eliminate such an infestation will be required. AS 3660.2 Termite Management Part 2 states that *"regular competent inspections should be carried out at least on an annual basis but more frequent inspections are strongly recommended"*.

CHEMICAL TREATED ZONES: Termiticides have a claimed life expectancy in ideal conditions of between 2 and 10 years.
The Termiticide(s) used was _____ and according to the manufacturers label has an expected life at the rate applied in ideal conditions of up to _____ years. **However, the life expectancy will be somewhat shortened by the soil type and other site conditions.** Only by inspections as outlined above will it be possible to advise as to when the treated zone(s) should be re-installed.

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Builder and Home Owner Notices.

Certificate of installation

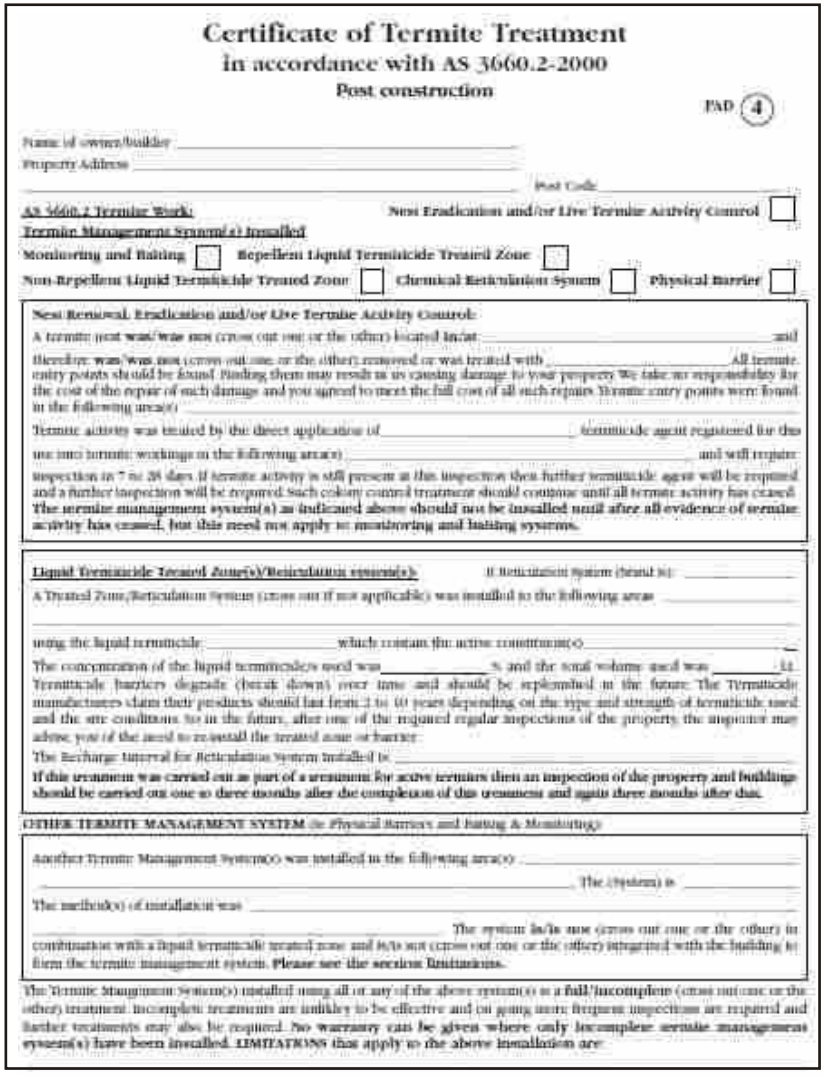
AS 3660.1 2000 Appendix A 2 requires installers of barriers to provide a certificate of installation. Copies should be available to:

- Homeowner
- Builder
- Certifier
- Pest Controller

The certificate shall include:

- Full details of the barrier including the name of the chemical the Concentration used and the volume applied.
- Date of installation.
- Extent of the barrier and whether it was incorporated with other treatment methods.
- A diagram
- Details for the need for future inspections
- Limitations arising from design or installation issues.
- Maintenance requirements for the system
- Installers' contact details

Sample Certificate of installation provided courtesy of Rapid Solutions P/L.
Installers may develop their own documentation but it must comply with all the requirements of AS 3660.1 App A. Installers should also consult with their insurers before altering documentation.



Certificate of Termite Treatment
in accordance with AS 3660.2-2000
Post construction

PAD (4)

Name of owner/builder _____
Property Address _____
Post Code _____

AS 3660.2 Termite Work:
Nest Eradication and/or Live Termite Activity Control ☐
Termite Management System(s) Installed
Monitoring and Baiting ☐ Repellent Liquid Termiticide Treated Zone ☐
Non-Repellent Liquid Termiticide Treated Zone ☐ Chemical Reticulation System ☐ Physical Barrier ☐

Nest Removal, Eradication and/or Live Termite Activity Control:
A termite nest was/was not (cross out one or the other) located in/at _____ and therefore was/was not (cross out one or the other) removed or was treated with _____. All termite entry points should be found. Finding them may result in us causing damage to your property. We take no responsibility for the cost of the repair of such damage and you agreed to meet the full cost of all such repairs. Termite entry points were found in the following area(s) _____
Termite activity was treated by the direct application of _____ termiticide agent registered for this use into termite workings in the following area(s) _____ and will require inspection in 7 to 28 days. If termite activity is still present at this inspection then further termiticide agent will be required and a further inspection will be required. Such colony control treatment should continue until all termite activity has ceased. **The termite management system(s) as indicated above should not be installed until after all evidence of termite activity has ceased, but this need not apply to monitoring and baiting systems.**

Liquid Termiticide Treated Zone(s)/Reticulation system(s): If Reticulation System (brand is): _____
A Treated Zone/Reticulation System (cross out if not applicable) was installed to the following areas _____
using the liquid termiticide _____ which contain the active constituent(s) _____
The concentration of the liquid termiticide/s used was _____ % and the total volume used was _____ Lit. Termiticide barriers degrade (break down) over time and should be replenished in the future. The Termiticide manufacturers claim their products should last from 2 to 10 years depending on the type and strength of termiticide used and the site conditions. So in the future, after one of the required regular inspections of the property the inspector may advise you of the need to re-install the treated zone or barrier.
The Recharge Interval for Reticulation System installed is _____
If this treatment was carried out as part of a treatment for active termites then an inspection of the property and buildings should be carried out one to three months after the completion of this treatment and again three months after that.

OTHER TERMITE MANAGEMENT SYSTEM (ie Physical Barriers and Baiting & Monitoring):
Another Termite Management System(s) was installed in the following area(s) _____
_____ The (System) is _____
The method(s) of installation was _____
_____ The system is/is not (cross out one or the other) in combination with a liquid termiticide treated zone and is/is not (cross out one or the other) integrated with the building to form the termite management system. **Please see the section: limitations.**

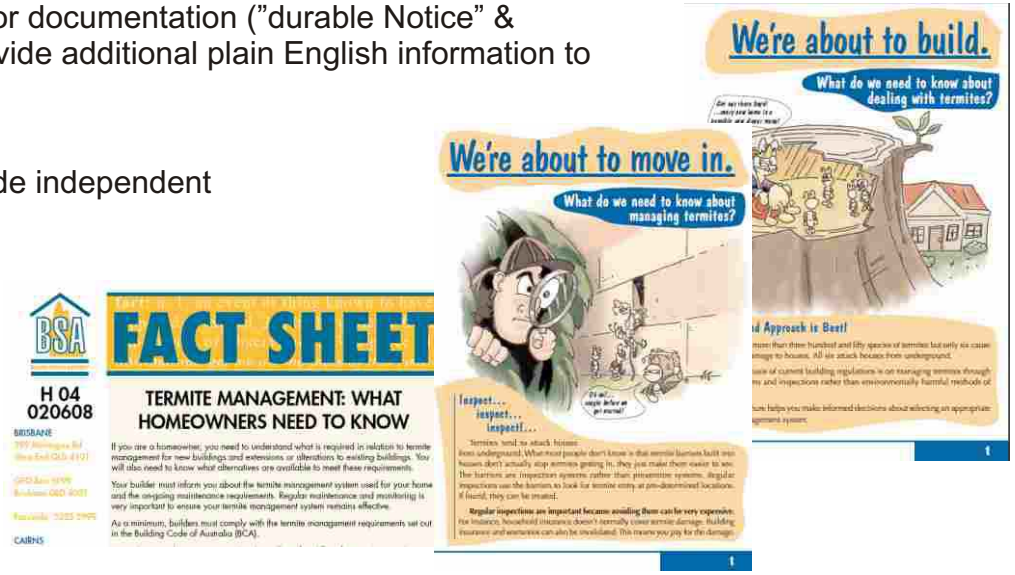
The Termite Management System(s) installed using all or any of the above system(s) is a full/incomplete (cross out one or the other) treatment. Incomplete treatments are unlikely to be effective and on going more frequent inspections are required and further treatments may also be required. **No warranty can be given where only incomplete termite management system(s) have been installed. LIMITATIONS** that apply to the above installation are:

Additional Information:

AS 3660.1 2000 sets out the minimum requirements for documentation (”durable Notice” & “Installation Certificate”). We recommend that you provide additional plain English information to home owners and builders.

Commonwealth and State Government Agenciesprovide independent and professional information.

- www.timber.net.au
- www.bsa.qld.gov.au



Peak Industry Bodies also provide consumer and builder information

- www.hia.com.au
- www.masterbuilders.asn.au
- www.choice.com.au
- www.rapidsolutions.com.au

Warranties

Period of Warranty
In addition to any warranties or conditions implied by the Trade Practices Act, 1974 (as amended) or any other Statute or Regulation, we warrant all of our components against defective workmanship and faulty materials under normal use for a period of 30 years.

To the extent permitted by law and for the purposes of the Warranty where the product is found to be defective during the warranty period our sole obligation under this warranty is, at our option to repair or replace free of charge the defective component(s).

Warranty Exclusions, Limitations and Rights
To the extent permitted by law and other than as required by the Trade Practices Act and other applicable legislation, we give no further warranties and make no representations relating to the suitability os products or systems for specific applications or sites.

SCBP offers no warranty in regard to the pesticide used or the installation.
The warranty excludes consequential loss damage or costs resulting from a failure of a system.

The warranty shall not apply where:

- The products are installed not in accordance with the appropriate SCBP Installation Guide
- The products or systems are installed contrary to the relevant Australian Standard or Building Code.
- Non genuine SCBP Components are substituted
- Annual inspection and servicing requirements are not maintained.
- The system is modified or altered so as to be inconsistent with the appropriate SCBP Installer Guide

Duties of the Installer
The Installation Guidelines set out Installer obligations relation to competency of installers and correct methods of installation and care and maintenance of systems after hand over.

End Installers Guide