



TERMIFILM

Installation Manual Accreditation Course Manual

Version 8: FEB 2025



For Creepy Crawly Pest Control Pty Ltd
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*Note: Drawings are indicative and used for training purposes. All installers **must be** trained by Creepy Crawly Pest Control Pty Ltd to install Termifilm to the manufacturer's instructions and specifications.*

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INTRODUCTION

Termifilm

Termifilm is a building product/termite management system; that when installed into a new building it will provide long term protection to the whole of the house from hidden subterranean termites and also provide protection from moisture movement. Termifilm is made from low density robust polyethylene mechanically impregnated with a synthetic pyrethroid insecticide, permethrin. Permethrin is a natural Pyrethium produced by the chrysanthemum daisy, nature's own care for insect problems. It has a low toxicity rate for warm blooded animals but is deadly to termites and insects, not only repelling but also killing termites.

The Termifilm is manufactured using a manufacturing process to make a finished product that is durable and very effective termite management system (when installed correctly). Termifilm has been used for over 20 years in France and is the number one preconstruction termite management system used in that country.

The Termifilm is supplied in various width and length sizes. The supplied rolls are cut into particular sizes depending on the installation method, either placed vertically or horizontally in structures, to form a continuous termite management system.

How Termifilm Works:

Termifilm is approved standard low-density polyethylene sheet and meets the requirements of AS 2870-2011 – Vapour barrier and damp proofing membrane for under concrete slabs.

The Termifilm is impregnated with permethrin, a synthetic insecticide, which repels and kills termites upon contact.

The Termifilm is installed in vertical and horizontal positions in a structure to protect the structure for many years.

The Termifilm is safe as it poses minimal risk to the homeowner, construction site workers and/or the environment. It is ideal for use in sensitive environments and in allergy free housing etc.

The Termifilm is UV stabilised as it is installed under slabs and in between construction materials exposed to direct sunlight whilst construction is in progress. This also makes the Termifilm more effective and flexible in providing a closer tight fit against building materials to repel and kill subterranean termites.

Note: Termifilm is not to be exposed to direct sunlight or UV rays for prolonged periods of time, as this could compromise the polyethylene compound.

Termifilm Installation Components:

ROLL SIZES: 100m x 200mm, 100m x 250mm, 100m x 300mm, 50m x 300mm, 100m x 1m, 50m x 4m.

- 3M Performance Plus Duct Tape (for sealing overlaps in termite blanket application)
- Termite Sealant (termite resistant flexible) 410g (to seal blanket on to substrates and overlaps of termite blanket)
- Termifilm Epoxy Kit (termite resistant - to seal blanket on to substrates and overlaps of termite blanket)
- 3M High tact Multi-purpose adhesive (for sealing overlaps and adhesion to substrates, particularly retainer walls to hold in place)
- Panduit Cable ties for collar installations
- Termifilm grip strip for sill till adhesion for doorway installations

Qualified Installers:

Only qualified installers trained by Creepy Crawly Pest Control Pty Ltd are to install the Termifilm. Installers will also require appropriate licensing by state government legislation e.g. QBCC QLD, units 6, 8, 10 and 42A competency for Pest Control licensing.

Site inspection sheets are to be completed upon installation of Termifilm. Please contact Creepy Crawly Pest Control Pty Ltd for a copy of this document. Particular notice should be made on the site inspection sheet of any termite nests within 50m of the proposed construction site of the dwelling or structure.

Warranty:

Available on request - Berkem Development South East Asia Pacific sample of warranty Terms & Conditions which may be subject to change.

1 Student Training Briefing on Habitat, Location & Damage caused by Termites

1.1 Termites and damage they cause

Termites and the damage they cause, is accepted as a normal risk to buildings in Australia.

Termites pose a significant threat throughout mainland Australia. They attack timber in buildings, trees, posts, poles, firewood, bridges and railway sleepers.

In the mid 1980s annual damage caused by termites in Australia was estimated to be in the vicinity of \$80-\$100 million. Today the figure would be considerably higher.

Termites do have their place in the environment however, as they play an important role in the breakdown and recycling of dead wood and other plant debris. Termites have been around for at least the last 120 million years. They were in Australia millions of years before eucalypt trees evolved. This long period of coexistence means that the Australia bush is adapted to their needs.



Termite damage

1.2 Termites Existence and the Beneficial Aspects

- Their tunnelling in the soil reduced runoff by helping rainwater to soak in more quickly. They also allow more air down to plant roots and help mix the soil layers.
- They have a crucial role in the bush where they eat unwanted woody plant parts, recycle nutrients and create habitat for many animals (birds, possums, lizards, etc.)
- Termite colonies provide a home for fungi, some smaller insects and an incubation chamber for birds and lizards.
- Human food value- winged termites have twice the protein of rump steak.
- As part of the nutrient cycle, termites are a major food source for ants, spiders, birds, reptiles and mammals (eg. Echidna & numbat).



Termites in soil

1.3 Different Types of Termites

Planet Earth has about 2,500 different termite species. In Australia we have about 15% of the total (about 350 species). Fortunately, only a few of these species (approximately 30) damage buildings. Australia termites can be grouped into 4 classes:

- Dampwood termites,
- Grass feeders,
- Drywood termites,
- Subterranean termites.

Dampwood termites, as their name suggests, are restricted to damp timber and are most common in the tall wet forests of the eastern seaboard. They rarely infest houses, except where there is a significant moisture problem, such as from a leaking laundry or bathroom.

Grassfeeding termites do not attack timber structures.

Drywood termites live entirely within timber and are a minor pest, mostly warm and humid coastal areas, where the damage they cause is not significant.

Subterranean termites cause nearly all damage to buildings. The vast bulk of this destruction is attributed to termites from a single group, the genus *Coptotermes*. In tropical Australia, *Mastotermes darwiniensis* is also capable of causing significant damage. In some regions, otherwise minor genera like *Schedorhinotermes* and *Heterotermes* are prominent.

Subterranean termites take their name from their habits of either nesting below ground level or keeping some contact with the ground. They do this mostly to reach water. Sometimes, where parts of structures are always wet, subterranean termites will live without any ground contact. Such nests without ground contact have been found in docks, boats and in buildings where there is regular water from leaking showers, pipes or guttering.

Termite Management Systems are effective in blocking the passage of subterranean termites (excluding *Mastotermes darwiniensis*).

In the rest of this document, “termite” unless otherwise specified, means “subterranean termite”.

1.4 Termite Food and Habitat

Termites are subterranean and live underground. They live on colonies which may grow to contain millions of individuals.

Subterranean termites live in the dark and damp atmosphere of their nests, foraging galleries (mud tunnels) and timber food sources. They cannot survive very long when exposed to sunlight or dry conditions. Their soft, pale skin burns easily and dries quickly.

In general termites prefer loose sandy soil or leaf mulch and humus where tunnelling is easiest. Hard clay, however, is also a suitable habitat.

The majority of termite tunnelling takes place in the top 300mm of the ground (where the wood is plentiful) although they have been known to burrow deeper, (as deep as 70 metres) and can enter buildings well above ground level, especially on sloping sites with retaining walls or cellars.

Termites are common in woodlands and forest areas that often adjoin housing estates. They feed mainly on materials containing cellulose (timber and plant materials). Termite food might include:

- Trees, stumps, garden retaining edges and mulch,
- Timber building materials,
- Furniture,
- Floor coverings
- Packing,
- Printed materials (papers, records, blueprints, books),
- Fabric,
- Clothing,

- Footwear.

Termites can also damage many other non-cellulose materials, components or structures, including the insulation on electrical cables, rigid polystyrene foam insulation and soft decorative renders, as they building galleries to reach food.

1.5 Termite Nests, Colonies and Lifecycles

Within subterranean termite nests there are a number of different castes each of which has its role to play in the operation and expansion of the colony.

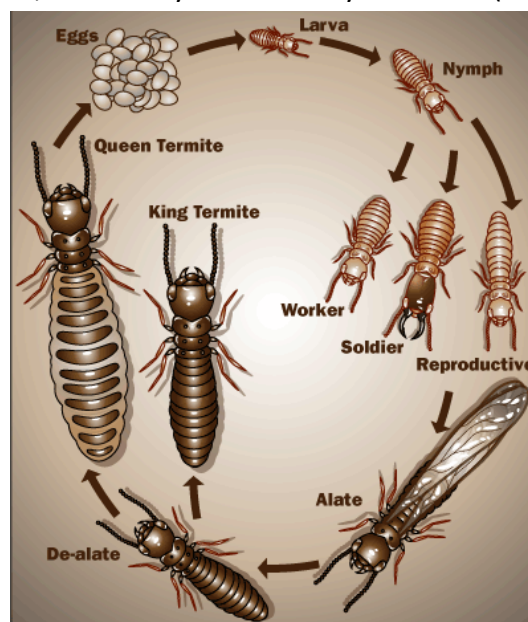
- Reproductive's i.e. Queens and Kings-breeding stock.
- Alates i.e. immature Queens and Kings that have wings and will fly away during the breeding season to mate and establish new colonies.
- Workers i.e. search for food, build galleries, groom other termites, feed the Reproductive's, Alates and Soldiers.
- Soldiers i.e. defend the nest from predators, especially ants.

Termites from a large mature colony may forage for food and attack timber over an area of one hectare.

A typical termite has a maximum life expectancy of about four years and takes about four months to develop from egg to maturity.

As the colony starts with just two individuals (Queen and King), it takes awhile to build up numbers. It is unusual for a new colony to significantly damage a building until at least three to five years have passed.

Some termite colonies have been known to exist for well over 25years, and in species where the Queen and King can be replaced, the colony is essentially immortal (i.e. will not die of old age).



Lifecycle of a termite

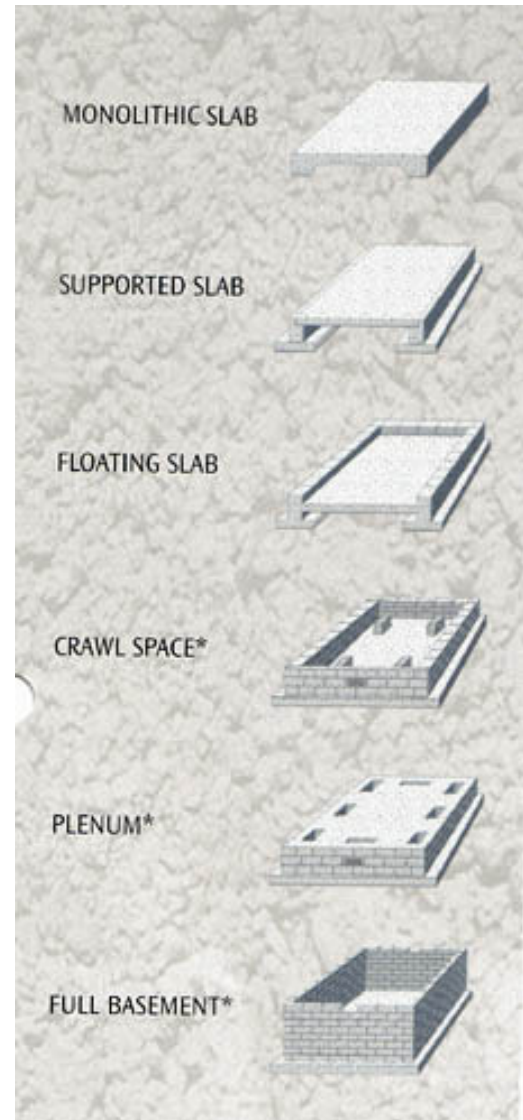
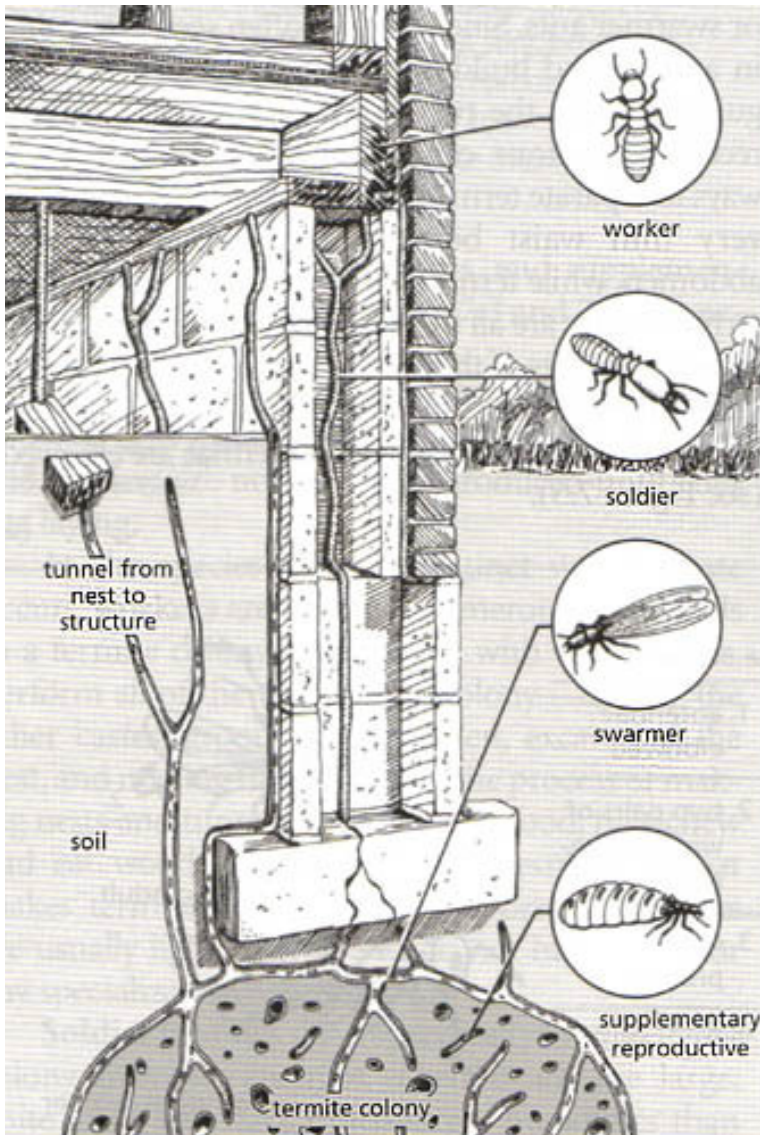
1.6 How Termites Ingress into Structures

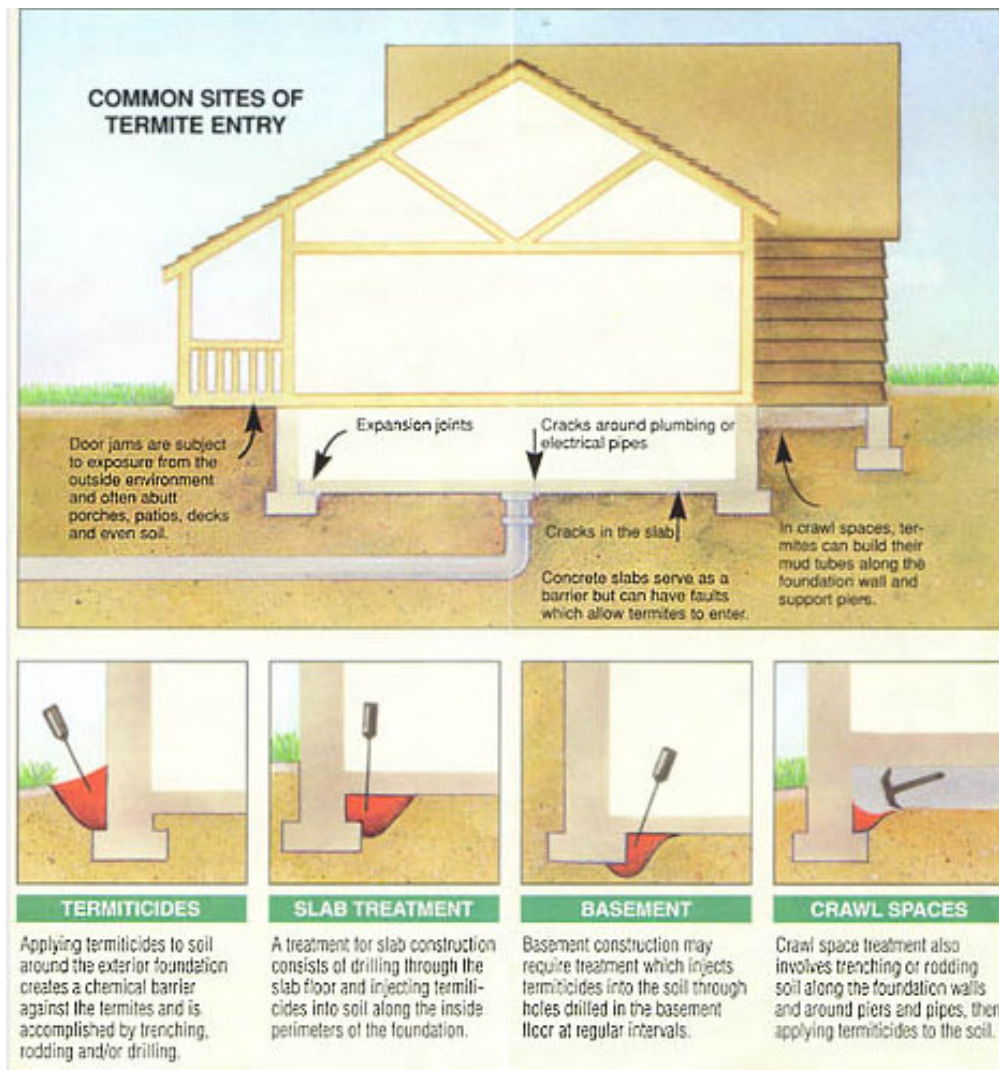
- These tunnels are usually made in the top 300mm of soil but may be deeper, especially in fill and under tree roots.
- Termites mostly enter buildings from underground tunnels.
- They can penetrate through expansion joints or uncontrolled cracks in concrete slabs and through shrinkage gaps between slabs and walls.

- They typically enter buildings through footings which are in contact with the ground.
- Other major areas of termite penetration are alongside service connections, such as water and gas pipes which pass through the floor or walls.
- Another favourite entry point is via garden beds or wood heaps that are built up against a buildings walls.
- If termites cannot tunnel directly from the ground to the food they have found, they will build above-ground galleries (mud tubes) to bridge over non-food obstructions. By moving inside these mud tubes they can safely reach their food.

1.7 Where Termites Get into the Structure

There are many potential points of entry as indicated in the diagrams here and over the page.





Module 1 Revision

1. Plasmite PVC termite management system is effective in blocking which group of termites?
2. Why do termites build earthen tunnels?
3. List three ways termites can enter a building.
4. Will termites damage non-timber materials in a building e.g. concrete?
5. Which members of the termite colony do you need to see to allow identification of the termite species? What physical characteristics are important?
6. Is Stainless Steel Mesh termite management system efficient in stopping termite ingress?

2 Student Training Briefing on Preventing Termite Access to Structures

Physical and chemical termite management systems rely on the same basic principles.

The fundamental feature of a termite management system is to install or construct some form of barrier through which termites will not pass. This barrier may, for example, take the form of a Bifenthrin (chemical) or Termifilm (physical) termite barrier.

2.1 Termite Management System (Chemical)

Chemical termite management systems use toxic termiticides which are applied to the area underneath and on/around a buildings footings and foundations. This poisons the ground and kills or repels termites as they try to tunnel through the soil to reach the cellulose food above.

Today there are two major groups of chemical termiticides used for new construction, the organophosphates and synthetic pyrethroids. Newer molecular groups are also being introduced for remedial control of termites. All chemical termiticide formulations have been developed from insecticides originally intended for agricultural use. None is specific to termites and all are active against a wide variety of non-pest species. Prior to 1995 long-life organochlorine chemicals were used. They are now banned in Australia and cannot be used.

2.1.1 Organochlorine Materials

Organochlorines are also known as cyclodienes. The best known termiticide examples are:

- Chlordane
- Heptachlor

Historically these chemicals were the most widely used termiticides. They were cheap.

Organochlorine termiticides could be used to form termite management systems as they take a very long time to break down. This lasting residual poison capacity in the soil could be effective even at relatively low concentration levels.

Organochlorines are, however, dangerous chemicals. Because of environmental and health concerns, their use has been banned in most developed countries. The last major use of organochlorines in Australia was as termiticides in the Northern Territory. Organochlorine residues are still commonly found in surveys of human breast milk.

The Australian Pesticides and Veterinary Medicines Authority enquiry recommended, on the advice of National Health and Medical Research Council reports, that organochlorines be completely banned for termite treatment in all parts of Australia, except the Northern Territory, from June 1995.

Other types of organochlorine termiticides, DDT, Dieldrin and Aldrin, have not been in use in the last 2 decades.

2.1.2 Organophosphate Materials

Chlorpyrifos is the only organophosphate currently registered for use against termites in Australia. Dursban™ is the main brand name of DowAgrosciences' chlorpyrifos products and is the best known of the dozens of brands on the Australian market.

Organophosphates are related to nerve gases. They are generally more toxic than organochlorines and are also more expensive. Organophosphates are considered to be safer than organochlorines because they are less persistent in the ground as they break down more rapidly. Breakdown occurs because the molecular bonds are not as strong as those of the organochlorines. Phosphates are widely sought by plants as nutrients.

In Australian experience, organophosphate termite management system breakdown has been reported in as little as 3 months. CSIRO tests on organophosphates (in ideal conditions) have indicated an effective working life of between 3 and 15 years.

Organophosphates need a consistent and complete coverage to be effective so operator skill in their use is paramount. The regular re-treatments required with organophosphates also depend on the applicator being able to achieve an even distribution of chemical and gain good access to the building sub-floor and perimeter areas.

Replenishment of degraded organophosphate termite management systems under concrete slabs can be achieved by drilling through the slab and injecting the chemical under pressure or installing a network of pipes during construction to reticulate the chemical into the ground beneath the slab. It is essential that slab drilling and reticulation systems provide an even and complete chemical distribution in order for the termite management system to be effective. The likelihood of achieving such a distribution will vary with differing foundation soil types and densities. Reticulation pipes can also be installed around a building perimeter as a means of distributing chemical directly into the soil.

Where there is adequate access under suspended floors and around building perimeters organophosphates termite management system can be replenished by hand-spraying.

2.1.3 Synthetic Pyrethroid Materials

Synthetic pyrethroids include Bifenthrin, Cypermethrin, Deltamethrin, Fenvalerate and Permethrin.

Examples of pyrethroid brand names available in Australia are:

- Dragnet™,
- Demon™,
- Torpedo™,
- Tribute™,
- Plasmite™,
- Biflex™.

In Australia, FMC's Biflex™ (Bifenthrin) has gained registration for termite management system sprays on the basis of field trials conducted over a period of many years.

Synthetic pyrethroids are artificial variations of the natural insecticides from *Pyrethrum* daisies and are sometimes used in household fly and flea control.

They are more expensive than chlorpyrifos. The high potency of synthetic pyrethroid termiticides means that they are effective at lower concentrations. Synthetic pyrethroids can sometimes repel rather than kill termites.

Permethrin has been reported as a suspected carcinogen.

Synthetic pyrethroids are used in the USA where they have been found to repel termites better than organochlorins or organophosphates, but their tendency to break down quickly limits their usefulness in building protection. Some chemical manufacturers hope to use reticulation systems to overcome the problem of short life span. The strong binding tendency of some synthetic pyrethroids to soil means that their effectiveness when applied through reticulation systems is likely to be limited by poor chemical distribution. Currently the APVMA labels Bifenthrin for use through reticulation systems.

Recent American studies pointing to permethrin as the most reliably persistent synthetic pyrethroid are not consistent with CSIRO's assessment of permethrin in Australia. Permethrin has not gained registration as a termite management system spray in Australia. This highlights the problems with unreliable performance of termite management system sprays across differing soil and climatic conditions.

Environmental concerns over the high toxicity of synthetic pyrethroids to freshwater and marine life are significant. Bifenthrin is around forty times more toxic to water life than chlorpyrifos.

Synthetic pyrethroids were originally developed for pest control in crops where a short life span was an important feature, the exact opposite of what is required for a termite management system. The need to regularly re-apply these chemicals and the difficulty of achieving full and consistent coverage hamper their long term effectiveness.

2.1.4 Impregnated Chemical Plastics and Geotextiles

A relatively new use of synthetic pyrethroids is the impregnation of plastic building products with termiticides. Two such products are Kordon™ and Trithor™, is a vapour termite management system geotextile impregnated with small quantities of the synthetic pyrethroid deltamethrin. termite management system life of fifty years is claimed, though no mechanism for replenishment is available. Without the deltamethrin, termites can easily penetrate the plastic layers.

2.1.5 Chemical Groups New to the Industry

Products, called Imidacloprid (sold as Premise™ against termites and Termidor™ against termites) has been introduced for remedial and preconstruction termite control. Highly water soluble, it does not bind to the soil like earlier groups and is actively taken up by plants and carried to their sap. Imidacloprid has a double-barrelled effect, lethal at high level, it remains debilitating at quite low concentrations.

A remedial termiticide is the phenyl-urea, Fipronil. Perhaps best known as the active ingredient of Goliath™ cockroach gel, Termidor™ and Fipronil has been used in France and the USA against *Reticulitermes* species and now in Australia for many years.

2.1.6 Measures for Biological Control

Not presently used in new construction, biological control agents are not chemicals, but are whole organisms which attack or repel termites. Bacteria, fungi, nematodes (worms) and viruses have been researched over the last 25 years with only nematodes and fungi finding minor use for remedial management of termites. They are not expected to ever find use as new construction termite management systems.

2.2 Termiticidal Chemicals and the effects

Environmentalists, health authorities and increasingly the greater community, object to the use of poisonous residual termiticide chemicals because they generally believe their use to be hazardous or unnecessary. In support of this belief the following reasons are often given:

The chemicals:

- Can kill non-target organisms,
- Can affect water supplies,
- Can affect water supplies,
- Get into the food chain and can contaminate human food,
- Can affect water supplies,
- Will probably get banned some time in the future thus making retreatment difficult.



Areas subject to regular reapplications can become heavily contaminated and could, in the future, be regarded as intractable waste sites.

In summary, people do not want to endanger their health and the environment. The new buildings of today and tomorrow must be safer to construct, live in and maintain, than the toxin-laden sites of yesterday.

2.3 Termite Management Systems (Physical)

2.3.1 How Physical Termite Management Systems Work

The fundamental principle of all physical termite management systems is a simple one: install an impenetrable material wherever termites might enter a building undetected, thereby blocking their access and forcing the insects to either look elsewhere for food or to build a visible mud tunnel through which they will attempt to by-pass the physical termite management system.

An effective physical termite management system forces the termites that threaten our buildings, ingenious engineers that they are, to build mud tunnels where there is no existing soil or timber or other material to allow them free access to their food. By blocking undetected access and forcing the termites to build visible tunnels to gain exterior access, physical termite management system, combined with thoughtful maintenance and inspections (to check for inspection zone obstructions and signs of tunnel building activity) provide an efficient means of termite protection.

Physical termite management systems, like Stainless Steel Mesh, thus rely on a few 'weaknesses' in the termites' otherwise impressive armour; namely their inability to survive prolonged sunlight or dryness and their unwillingness to move where they are exposed to predators (ants and birds for example). These weaknesses provide a simple, safe and effective way of managing termites.

There is an added advantage with the physical termite management system: the visible mud galleries which the termites build as they try to bridge the termite management system provides excellent access points for pest controllers to use the minimum-toxin termite control techniques of dusting and baiting.

2.3.2 Termite Strip Shielding and Ant Capping

As the oldest and most widely used termite management system, ant caps on piers and stumps and strip shielding in brick walls provide effective termite protection.

Proper installation, quality materials and regular and thorough inspections are essential with any termite management system. This includes ant caps and shielding.

The effective use of ant caps and shielding is, however, very difficult in most slab on ground designs where service penetrations, corrosion and fixing the concrete pose significant problems. Casting the strip shielding into infill slabs overcomes the fixing problem, but the long-term ability of this join to accommodate movement and remain termite-proof is a concern. Completely under laying the slab with strip shielding material to provide a full barrier is impractical, very expensive and unlikely to be completely effective in the long-term.

Effective treatment of slab joints is also awkward, particularly where joints cross or meet perimeter shielding.

Ant caps and shielding in many suspended floor designs are the cheapest way of providing a termite management system, ant caps and strip shielding do not however provide complete under-floor protection, so good access must be provided for inspections. Good sub-floor ventilation, drainage and natural light are also important when using ant caps and strip shielding to provide termite protection for suspended floors.



Subfloor piers

2.3.3 Stainless Steel Mesh

Stainless steel mesh is a newer version of the traditional strip shielding concept. More flexible and easier to handle than rigid strip shielding, this system is marketed as “Termi-Mesh” and Stainless Steel Mesh and is installed by licensed franchisees and installers.

Being stainless steel the mesh termite management system is less likely to corrode than traditional galvanised caps and shielding.

Great care is required to prevent metal on metal electrolysis and ensure that the mesh effectively collars service pipes. Fixing to concrete at slab edges and joints is achieved through the use of special termite resistant adhesives in a process known as *parging*. Parging requires very careful preparation of the surfaces and application of the products if an effective, long-lasting termite resistant bond is to be achieved. While curing, the adhesive cannot be subjected to any movement. The water-based parging material may take more than a day to cure in cool or damp weather. Care is also required on building sites to ensure that the fragile mesh (0.18mm-0.20mm thick) is not damaged or stretched.

The cost of the marine grade (316) stainless steel mesh means that full under-floor treatments with this product are very expensive. Less expensive protection is achieved by using the mesh in conjunction with other termite management systems or the slab itself.



Stainless steel mesh barrier

2.3.4 Termite Management Systems (Concrete Slab)

Historically, concrete slabs were not regarded as effective termite management systems. Termites can enter through cracks in slabs caused by any number of factors. It is also thought, although there is no scientific evidence to show, that termites can widen hairline cracks in poor quality concrete to gain access to the timber above. This is considered to be especially likely where the concrete is weakened by added water.

While there is on-going debate as to the ability of slabs to remain free of cracks that run the full depth of the concrete and the ability of termites to widen such cracks, there is little doubt that termites can enter through a crack that is little over 1mm or more wide. Of course a 1mm crack is not significant in terms of the cracked slab's structural integrity, but it will be very significant if termites enter the building through it and attack the house frame or fittings.

Australian Standard 3660.1 takes the view that the risk of a properly compacted, vibrated and cured slab, designed and reinforced in line with AS 2870 and AS 3600, cracking to more than 1mm is a small enough risk to permit such slabs to be employed to provide a minimum level of termite protection.

Thus in July 1995, when AS 3660.1 was released, concrete slabs could be used as termite management systems and the concepts of *partial* and *integrated composite* termite management systems were formalised.

The good performance record of concrete slabs as termite management systems since 1995 has proven that the view taken by Australian Standards in AS 3660.1 is correct. Since 1995, composite treatments have been very popular.

Partial concrete slab termite management systems may use other termite management systems to protect those parts of the footings deemed to be higher risk entry points, namely the building perimeter, slab penetrations and construction joints.



Concrete house slab

2.4 Quality Control

Termifilm is supplied by Quality Assured Company to ISO 9001:2015 and being CodeMark™ approved has past stringent quality checks and audited by JAS-ANZ.

2.5 Australian Standards Relating to the Control of Termites

There have been several Australian Standards relating to the control of termites.

AS 1694-1974 The Standard for physical barriers used in the protection of new buildings against subterranean termites.

AS 2057-1986 The Standard for chemical soil treatment for protection of new buildings against subterranean termites.

AS 2178-1986 The Standard for detection and treatment of termite infestation in existing buildings.

In October 1993, Standards Australia repealed these three Standards and replaced them with **AS 3660-1993** which deals with protection of new and existing buildings and termite infestation, detection and treatment.

AS 3660-1993 was not called up into the Building Code of Australia. For building Code Purposes another Standard, AS 3660.1, was developed. AS 3660.1 relates only to new buildings.

AS 3660.1 1995 is the Standard that first recognised concrete slabs that comply with AS 2870 or AS 3600 as termite management systems. AS 3660.1 allowed the integration of Termifilm with other recognised termites management systems to provide a “partial” or “composite” barrier. This use of these integrated systems is discussed later.

AS 3660-1993 is being updated, it is anticipated that the update Standard will become the relevant Standard for treatment of existing buildings and termite infestations. This revised Standard will be **AS 3660.2**, and should be released in 2000.

AS 4349.3 relating to timber pest inspections describes minimum requirements for inspection of building to determine the presence and risk to buildings from insects and fungi.

AS 3660.1 1995 is currently being updated. Working drafts of the new 3660.1 are largely the same as its predecessor. These drafts reflect the installation techniques described in this manual.

A third part of the Standard suite relating to termites is **AS 3660.3**, which describes the evaluation and testing protocols for the assessment of termite barrier systems.

Note: The 3660 series has now been updated to include – AS3660.1.2014, AS3660.2.2017 & AS3660.3.2014

2.6 Accreditation of Termifilm

Before being accepted for use by building authorities and thus professional architects, drafts people, builders and pest controllers, Termifilm, like any good building product, had to be fully tested be recognised independent authorities and then appraised, assessed and finally approved and accredited by the appropriate experts and committees. The end result is full recognition of the Termifilm system as outlined below. This recognition means that Termifilm can be used with complete confidence as the Termifilm physical termite management system meets the requirements of the Building Code of Australia (BCA/NCC) when it is installed in line with the accreditation specifications included in this manual. Termifilm has gained full accreditation of code mark certificate of conformity issued by CodeMark Australia.

PROTECTION INSTALLATION METHODS

OPTION 1:

Once all plumbing pipes and PVC/copper conduits have been installed the appropriate method of application of Termifilm must be carried out prior to pouring the concrete slab, if this is the chosen method of installation.

Make sure any support materials up the side of the pipe are removed before installing the Termifilm.

- *Take 1 piece of Termifilm 300mm x 300mm square and place over the top of the pipe diameter and cut out a X then squeeze over the pipe down to the plastic.*
- *Wrap a piece of Termifilm 100mm wide around the pipe and zip tie to the pipe and seal around the top of the Termifilm with duct tape to moisture seal the pipe.*

NOTE: Multiple penetrations can be done in the manner with all pipes coming through the square of Termifilm.



OPTION 1 Photo

OPTION 2 (wrap collar, suitable for plumbing / electrical pipes and steel columns):

- *Place Termifilm against pipe penetration 100mm then turn up at the bottom.*
- *Zip tie Termifilm to the pipe penetration and also duct tape at the top as per picture below. Refer to The Bug Shop for any further clarification and details.*



OPTION 2 Photo

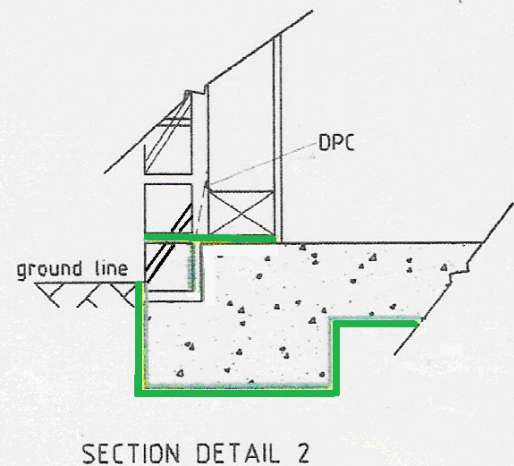
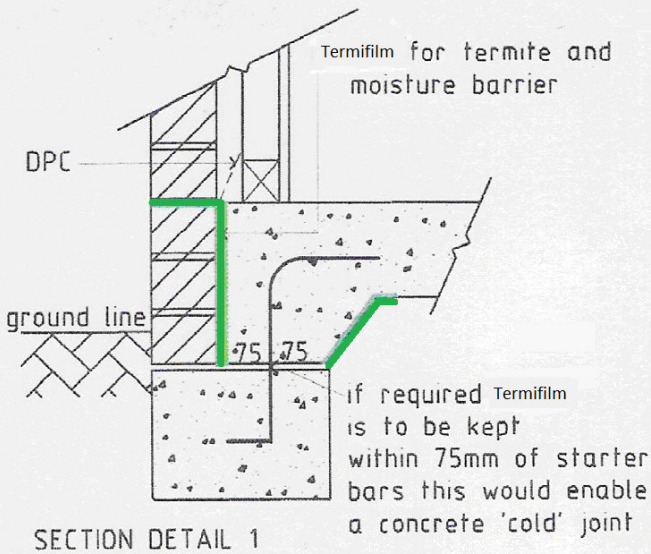
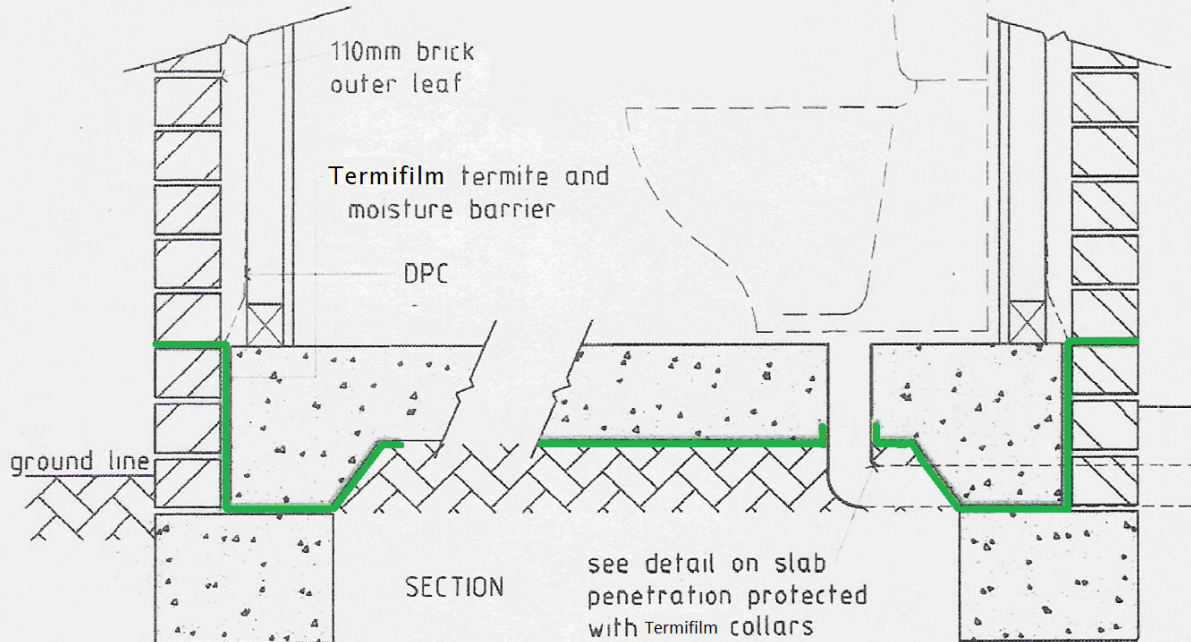
Termifilm has been designed as a conventional vapour barrier for under concrete slabs as well as a termite barrier. The Termifilm is installed to the building site in place of conventional vapour barriers and commences after all plumbing and service penetrations have been completely installed.

The Termifilm is installed with overlaps of 200mm using good quality duct tape as used normally by construction workers/concreters. The type of the footings system and method of construction will influence the method of installation required.



LEGEND

 Termifilm



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Email creative@pg.com.au
ABN 96071786548

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TOOWOOMBA 4350



CLIENT

THE BUG SHOP

DESIGNER

S. Davies

DESIGNER REVIEW

Q.B.S.A. Lic. No.75619

TITLE

**STANDARD INSTALLATION DRAWINGS
FOR TERMIFILM
FULL UNDER SLAB**

SCALE

NTS

DRAWING NO.

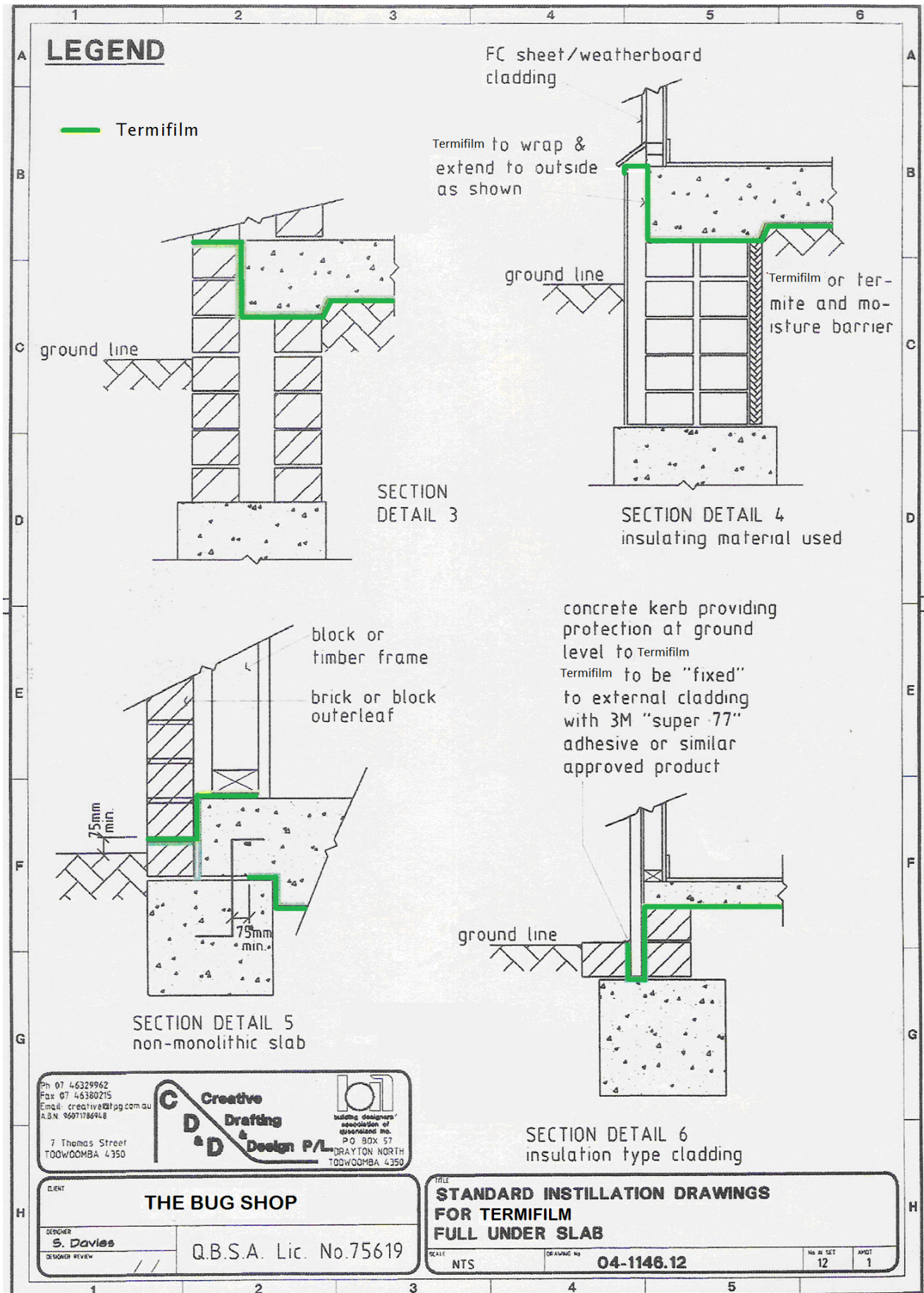
04-1146.13

NO. IN SET

13

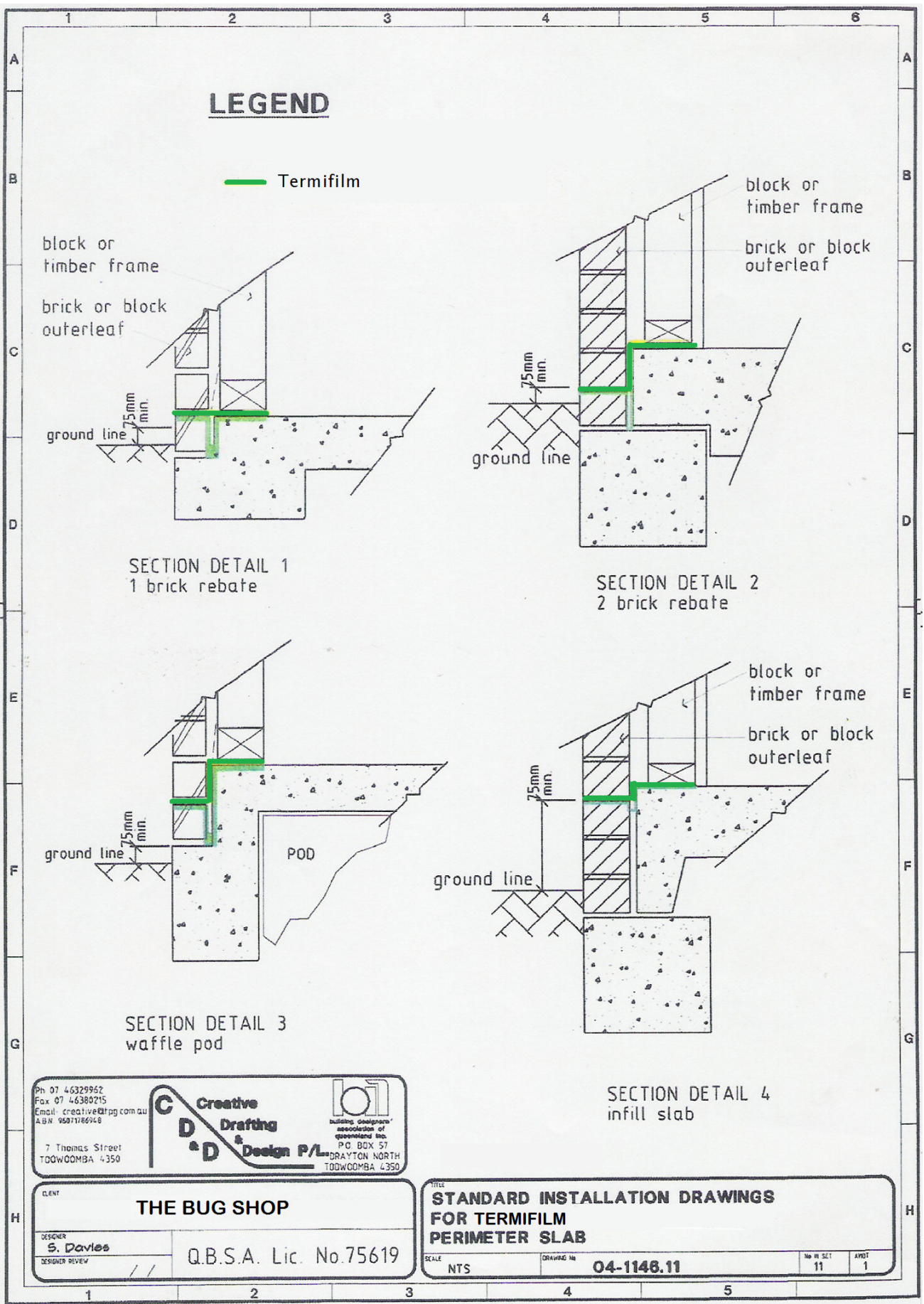
SHEET

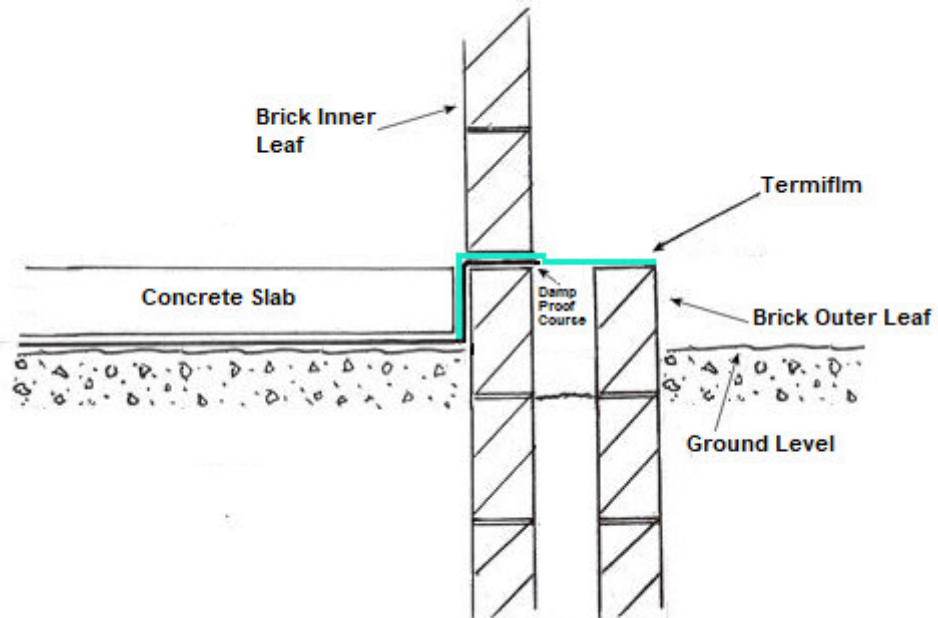
1

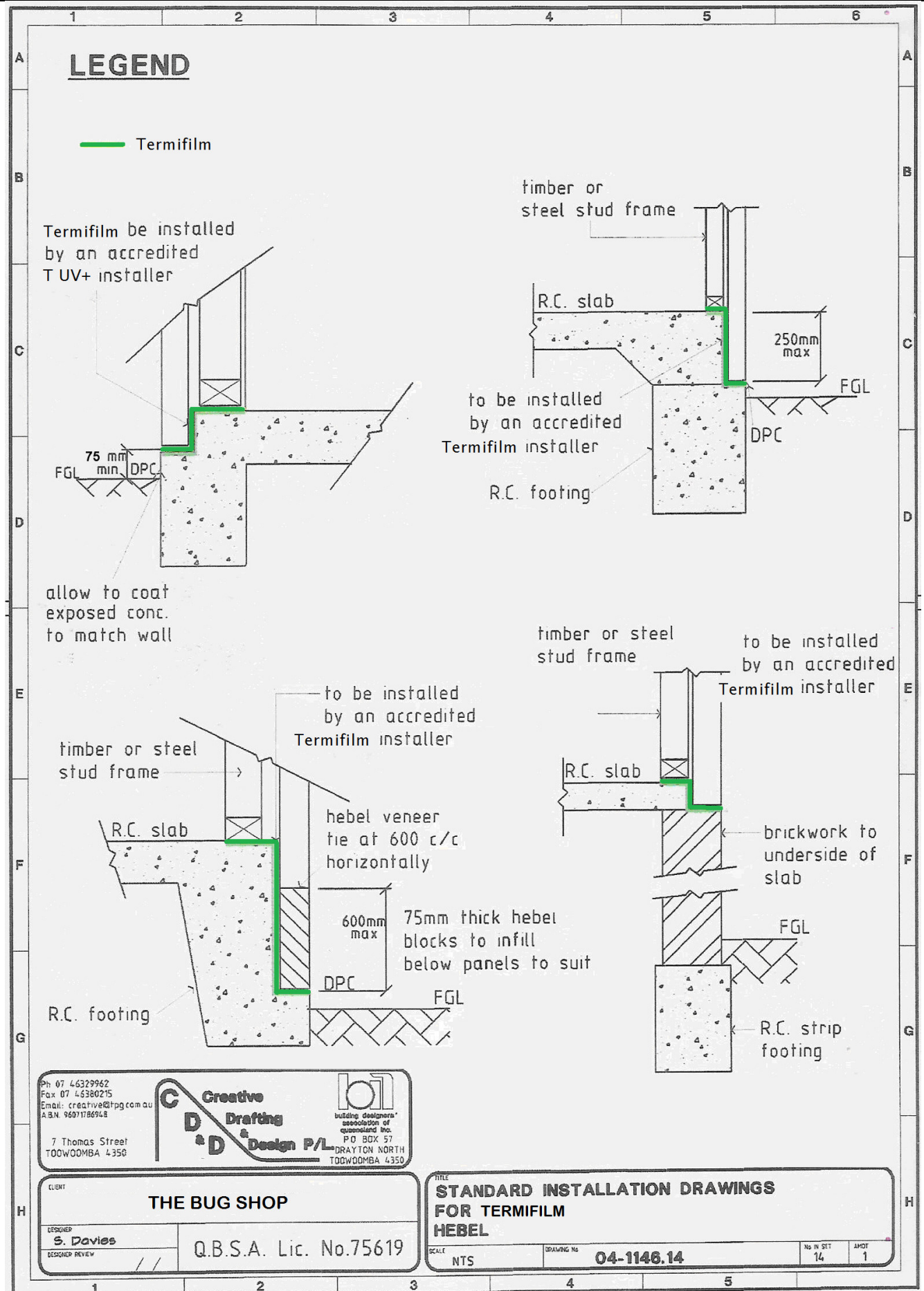


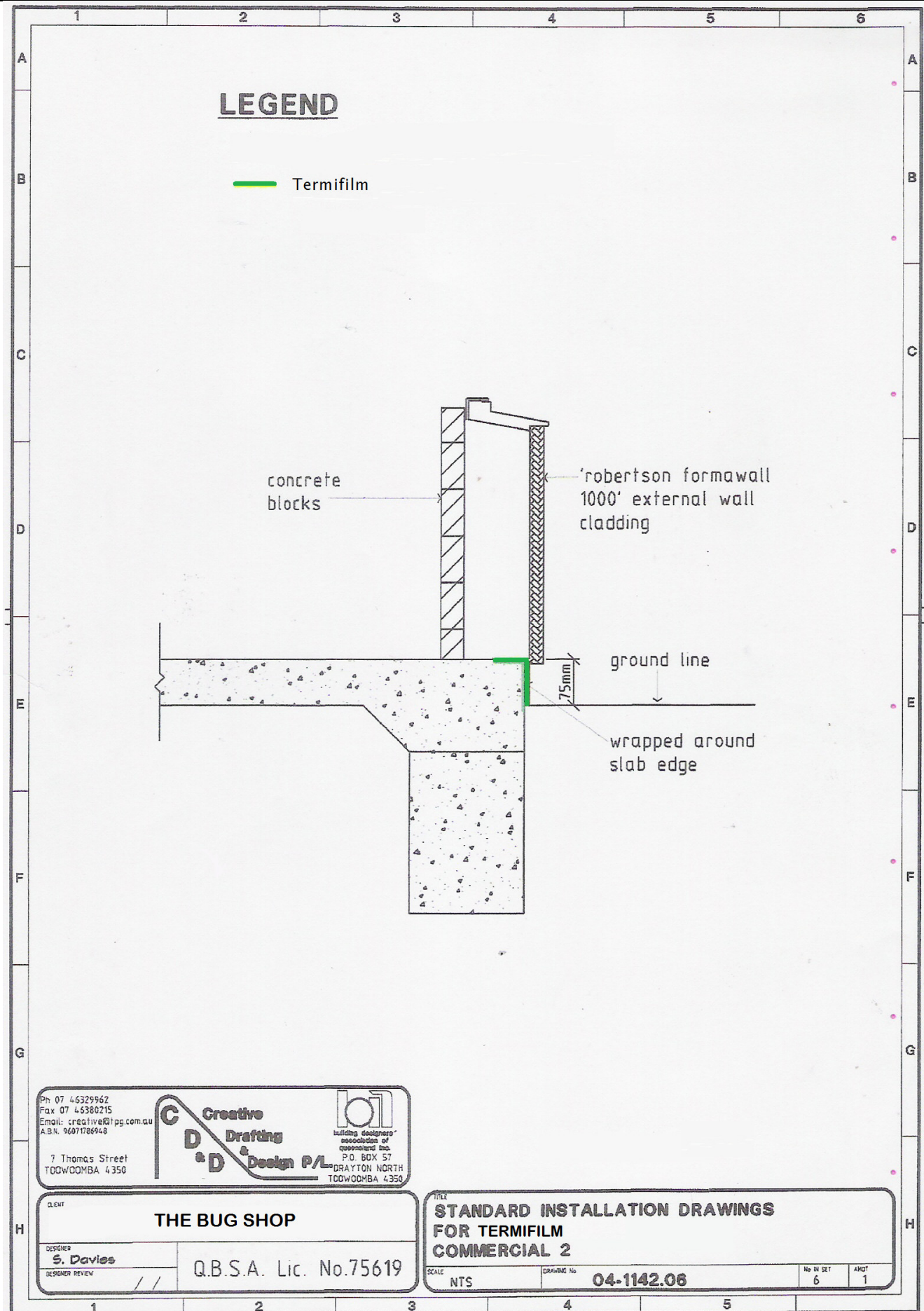
Cut outs in slabs are carried out from time to time because of defects in concrete or plumbing service pipes. This cut out in the slab will need protection to control joints between new and old/existing concrete. A full sheet of Termifilm is to be applied to the entire area and extension at a minimum of 50 mm up the cut out edge between new and old slab joints.

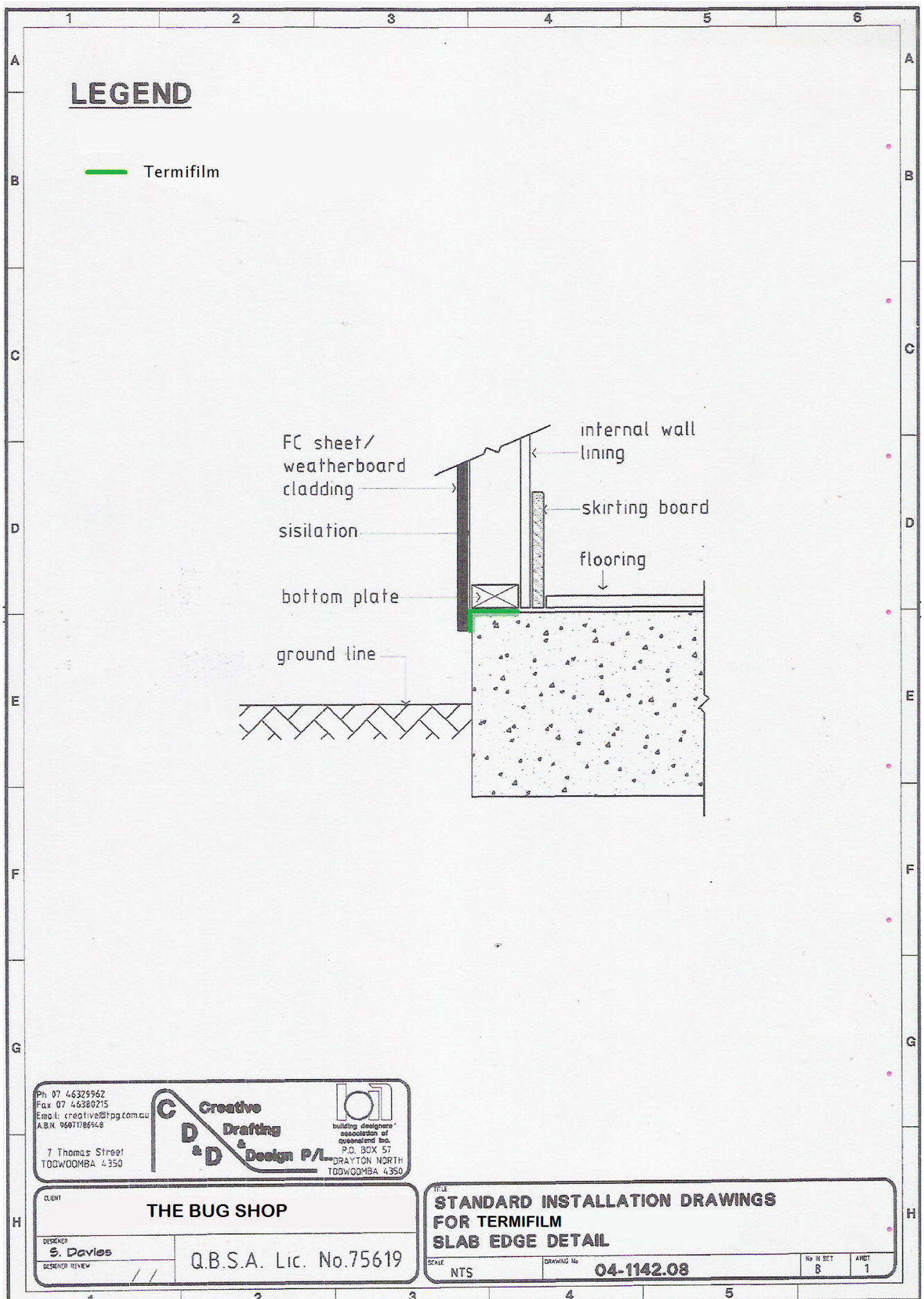


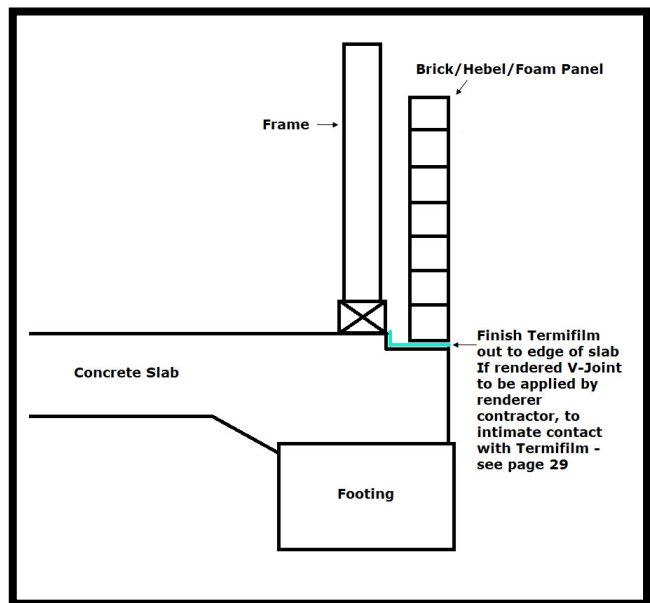
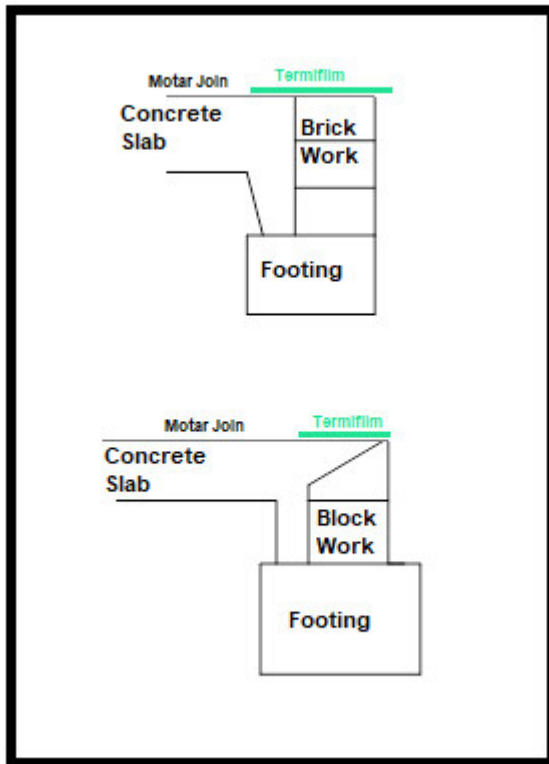






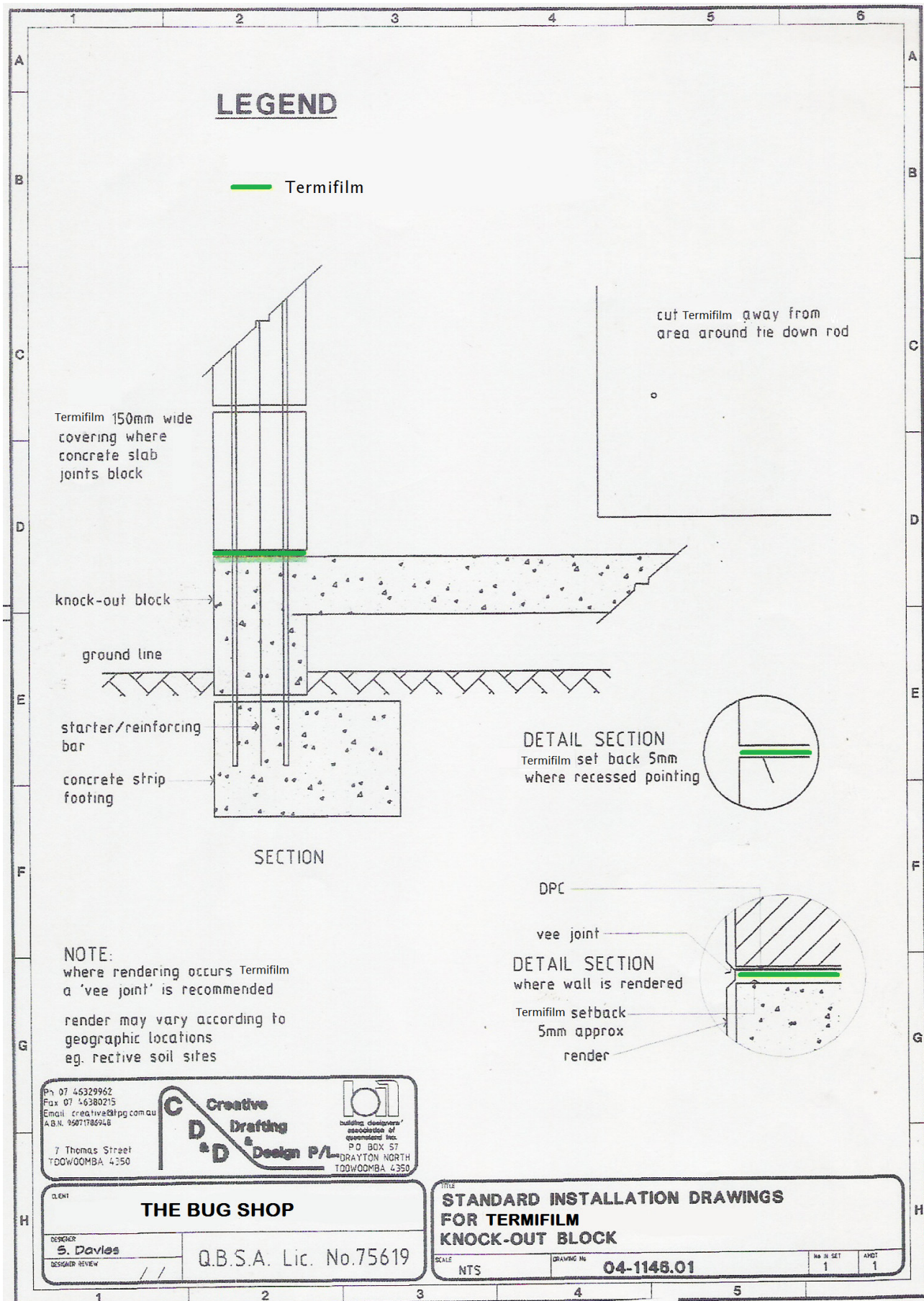


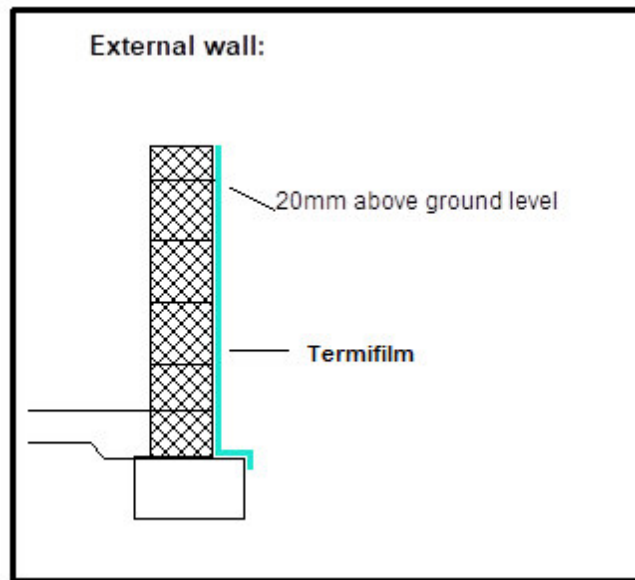




Apply Termifilm to cover entire top of block work to extend to exterior of mortar joint.
Apply prior to laying of next course.



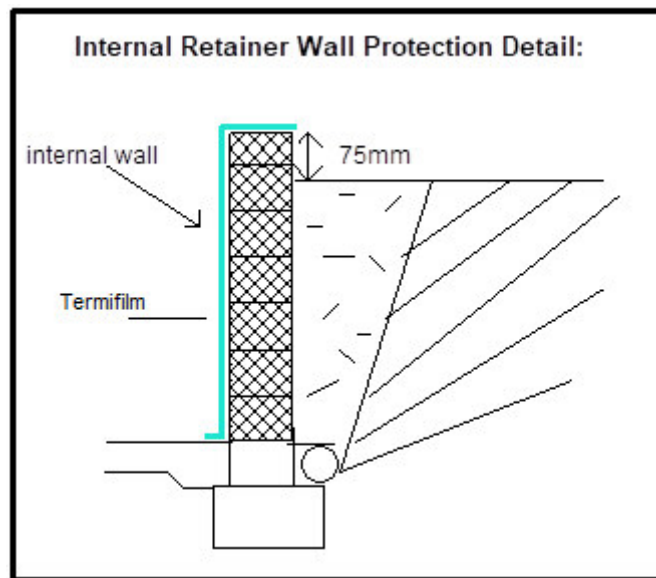




NOTE: Termifilm is to be installed 20mm above finished ground level



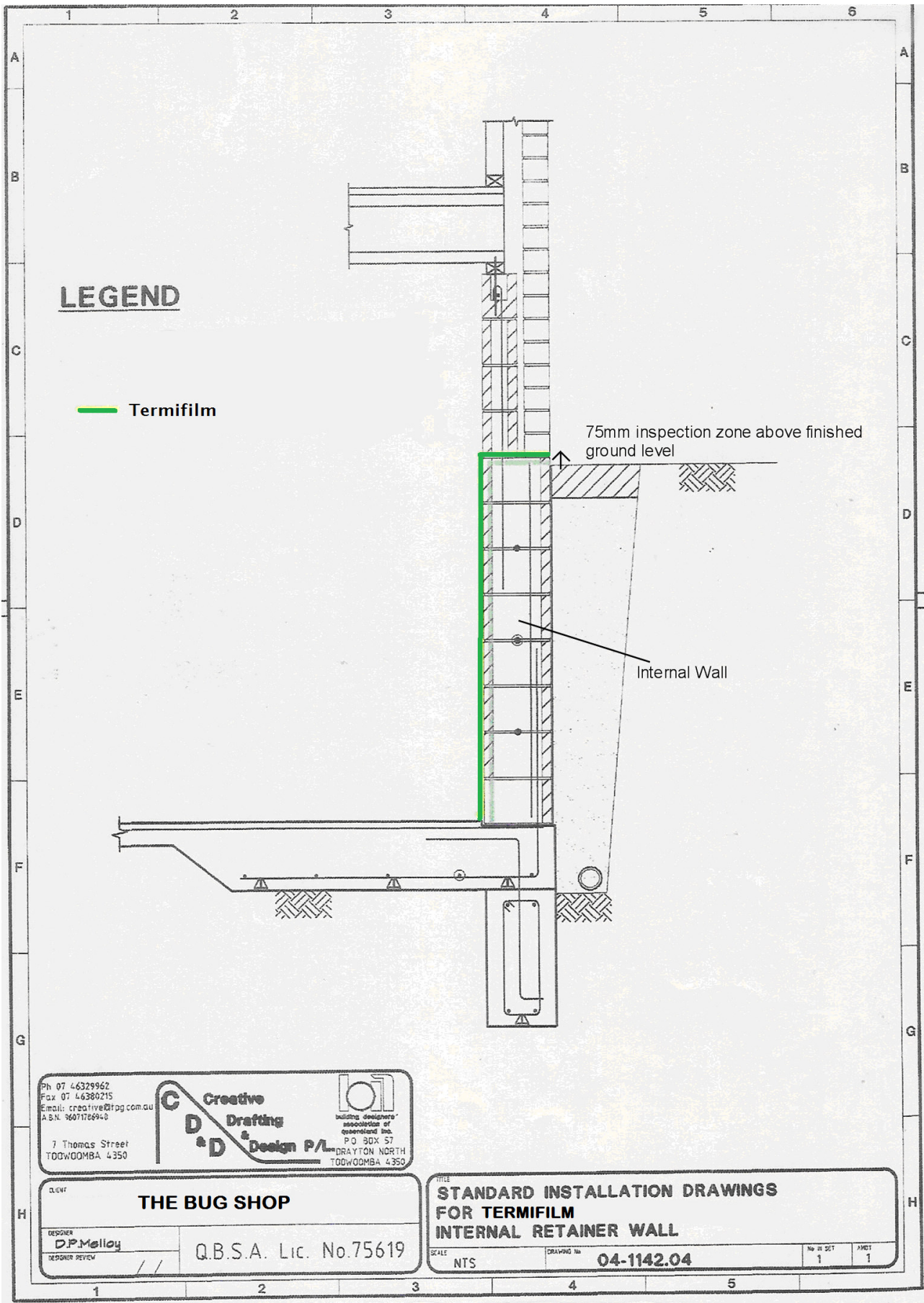
NOTE: Please refer to next page (Page 18) for technical drawing representing above photo



NOTE: An inspection zone of 75mm above finished ground level must be maintained

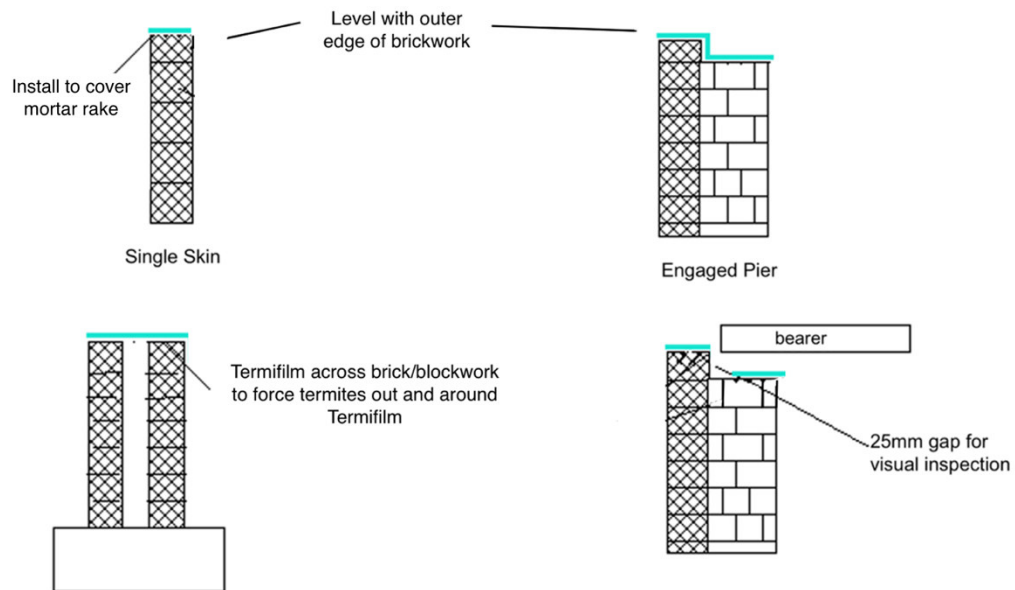


NOTE: Please refer to next page (Page 20) for technical drawing representing above photo



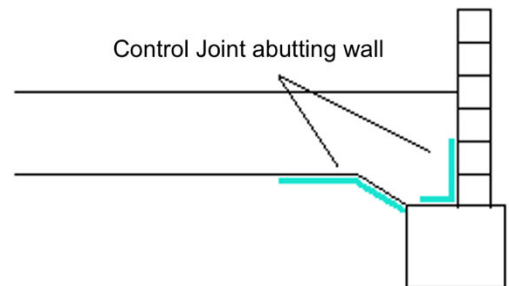
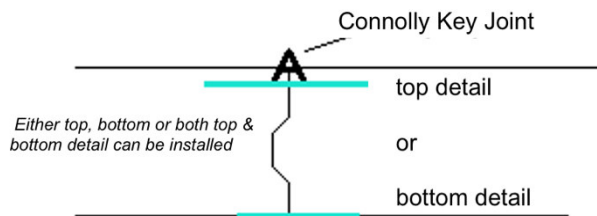
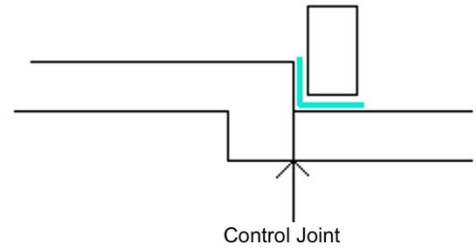
Timber pole plates may need protection to itself as a food service to subterranean termites or provide hidden access to termites to the structure above.





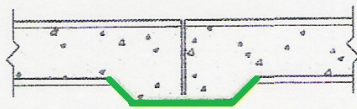


Termifilm or Codemark approved paint/sealant
to slab edge, between both abutting slabs

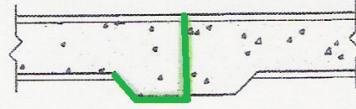


LEGEND

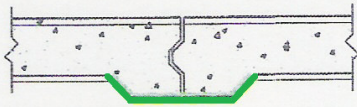
 Termifilm



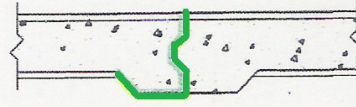
TERMIFILM
DOWEL JOINT-OPTION A



TERMIFILM
DOWEL JOINT-OPTION B



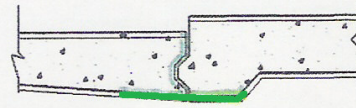
TERMIFILM
KEY JOINT-OPTION A



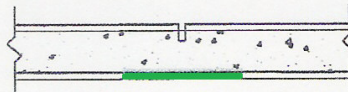
TERMIFILM
KEY JOINT-OPTION B



TERMIFILM
TAPED ON TOP
OF DPM-OPTION A



TERMIFILM
TAPED ON TOP
OF DPM-OPTION B



TERMIFILM
SAW JOINT

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CLIENT

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DESIGNER

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DESIGNER REVIEW

Q.B.S.A. Lic. No.75619

**STANDARD INSTALLATION DRAWINGS
FOR TERMIFILM
C5/05/KEY JOINTS**

SCALE

NTS

DRAWING NO.

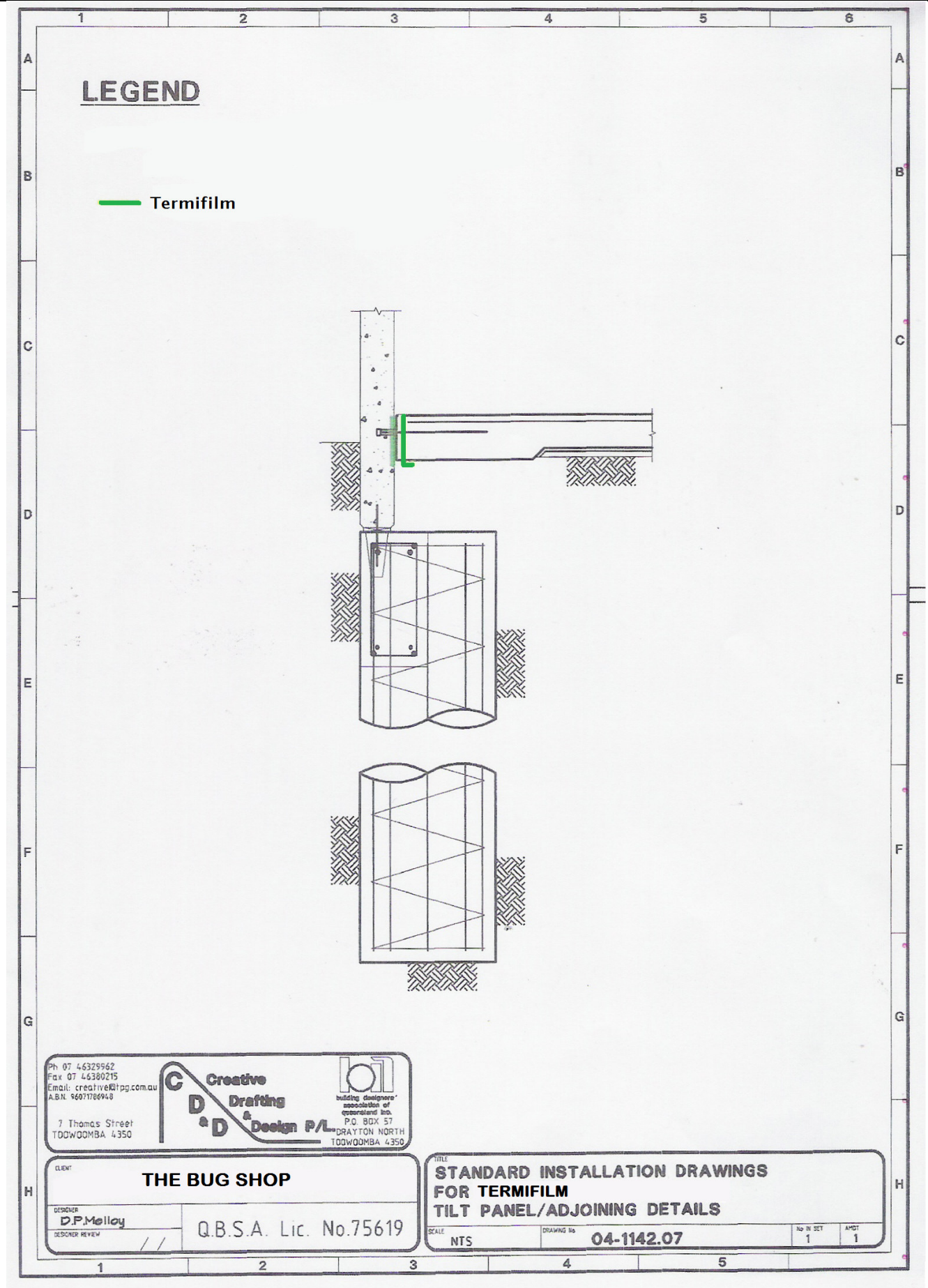
04-1142.03

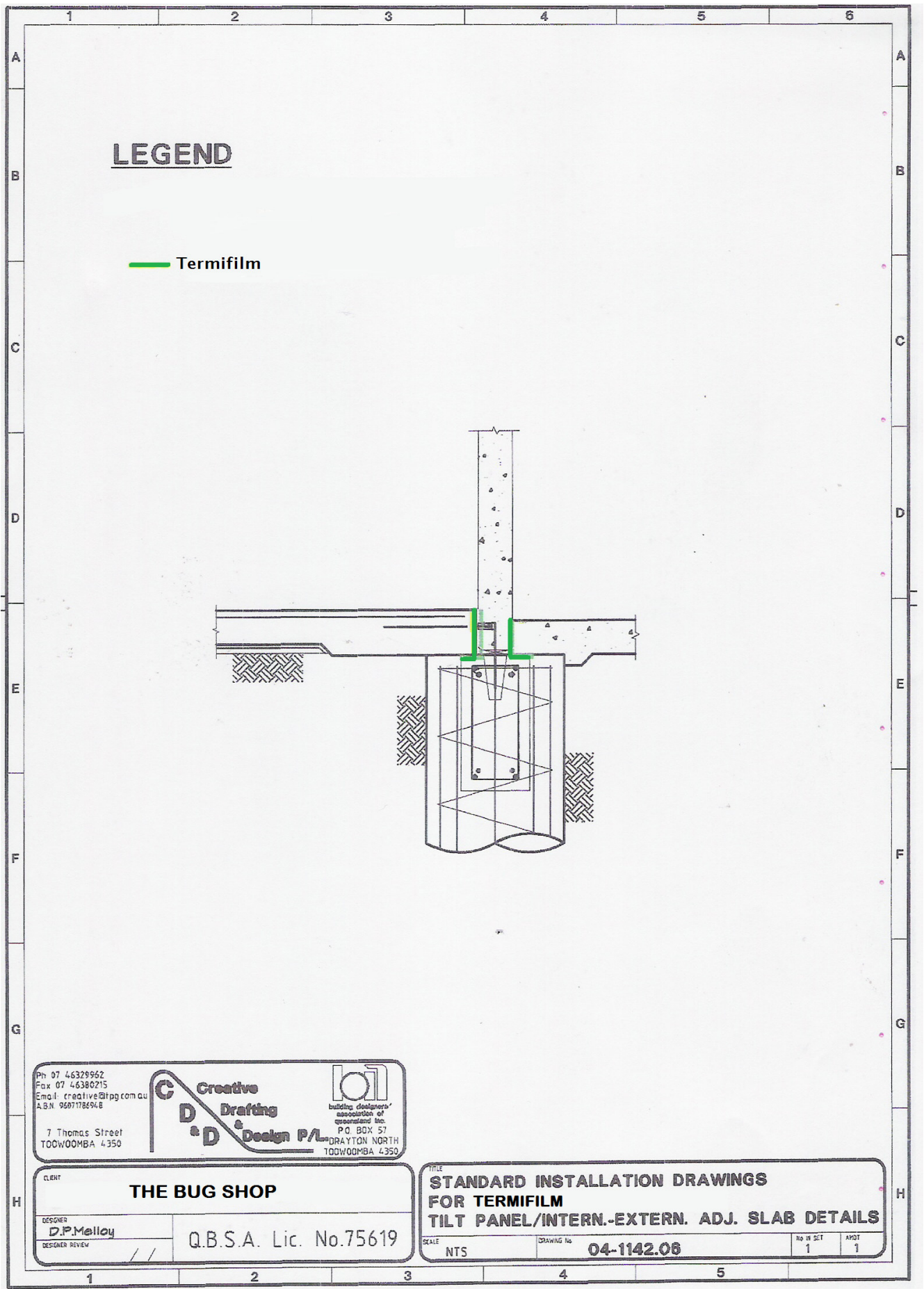
NO IN SET

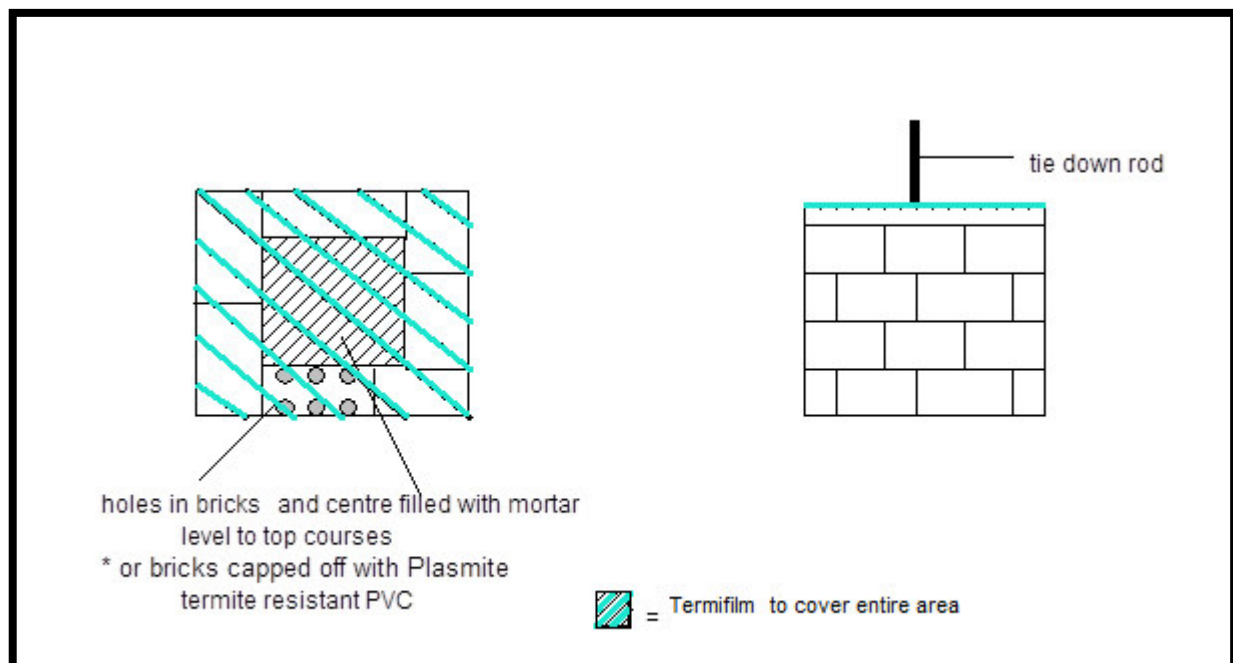
3

SHEET

1







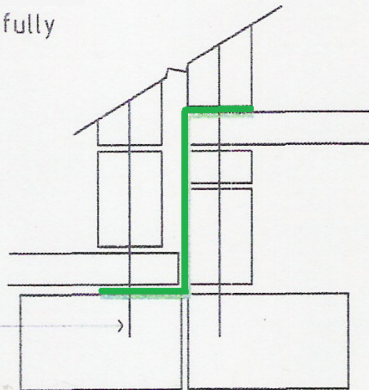


LEGEND

 Termifilm

Termifilm 200mm wide fully
under block

starter/reinforcing
bar

**NOTE:**

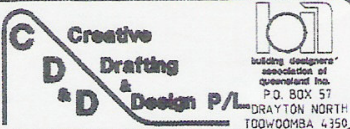
-step downs should be completely protected
with Termifilm

sketch shows a particular type of 'step down'
installation.

there are a number of variations which also
follow the basic design criteria of Termifilm

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**STANDARD INSTALLATION DRAWINGS
FOR TERMIFILM
2 SLAB LEVELS**

SCALE

NTS

DRAWING No

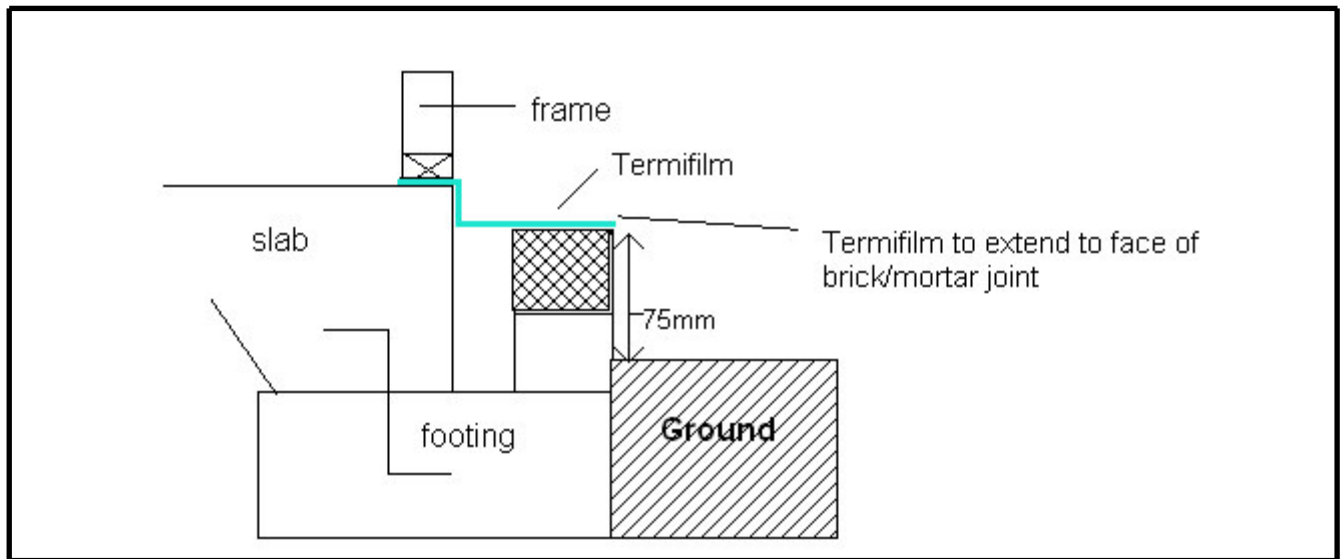
04-1146.09

No in SET

9

AMDT

1



Prior to laying sill tiles it is recommended to apply the PCV grip strip or mesh to allow for adhesion of tiles to brick work (optional protection and tile adhesion aid).

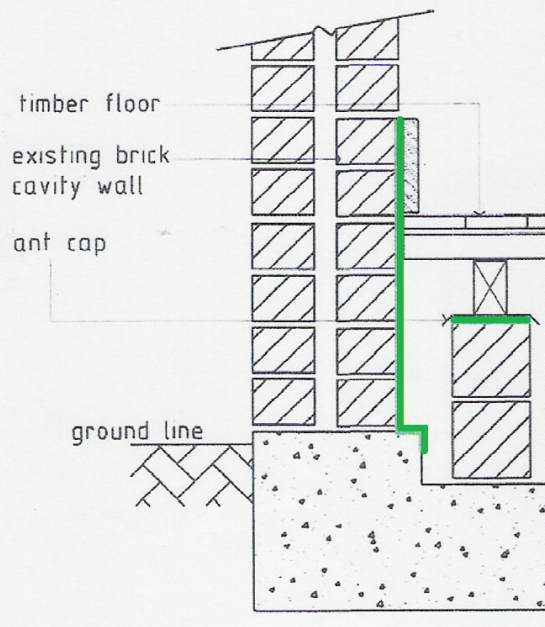


LEGEND

 Termifilm

NOTE:

before any new work commences
it is a condition of Australian
building standards to have completed
a termite inspection of the existing structure



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Client

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Q.B.S.A. Lic. No.75619

TITLE
**STANDARD INSTALLATION DRAWINGS
FOR TERMIFILM
RENOVATION**

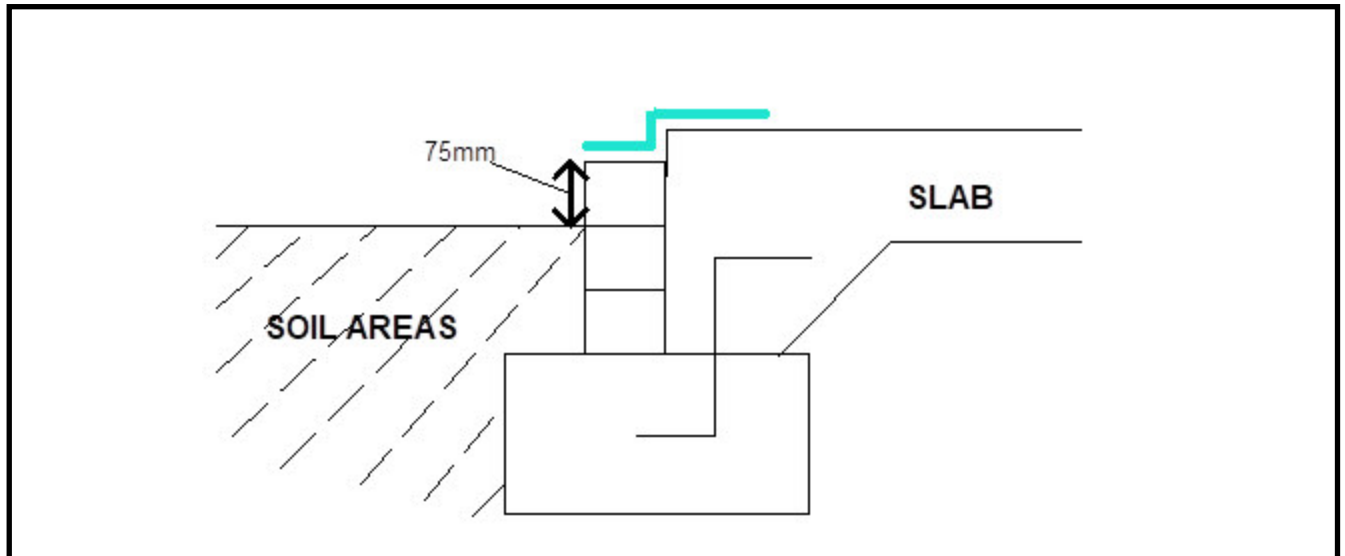
SCALE
NTS

DRAWING No

04-1146.17No. in SET
17SHEET
1

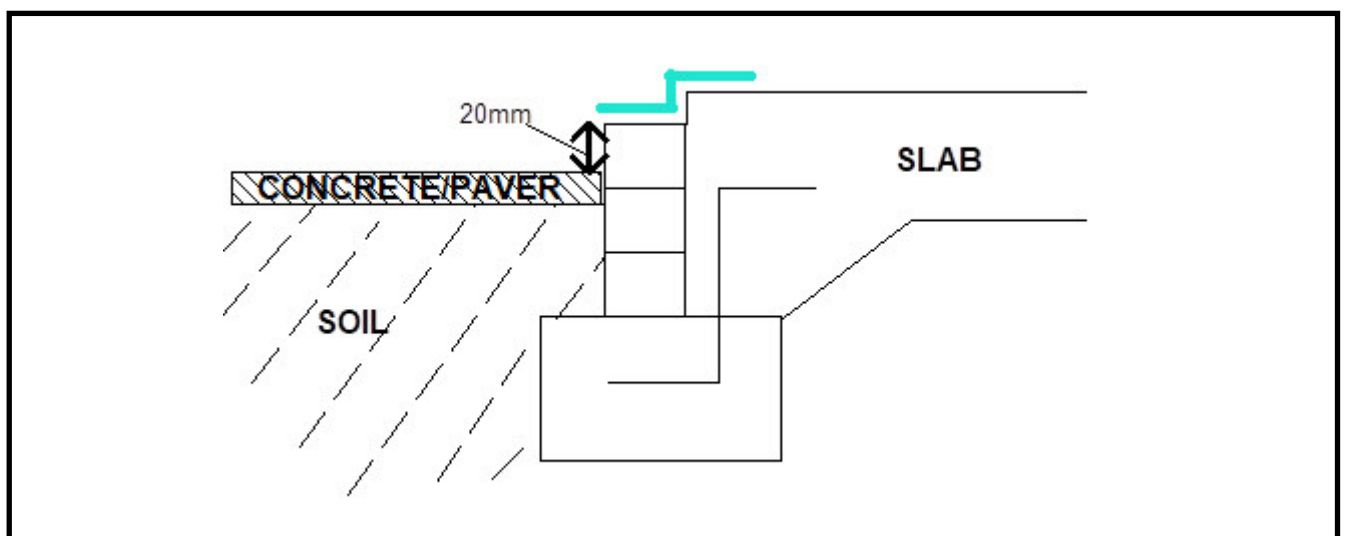
Exterior soil, concrete and/or pavers:

DETAIL 1 (SOIL):

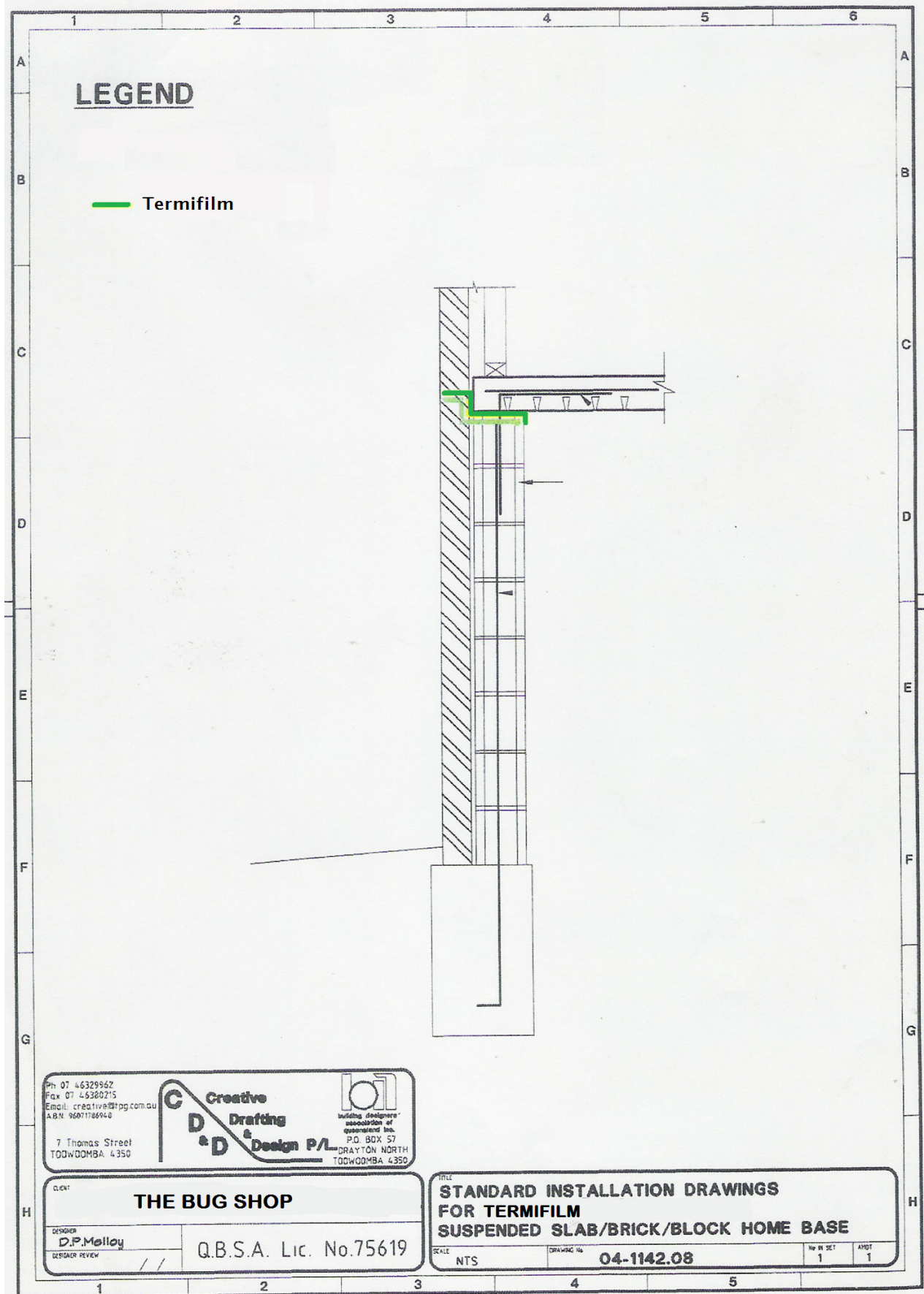


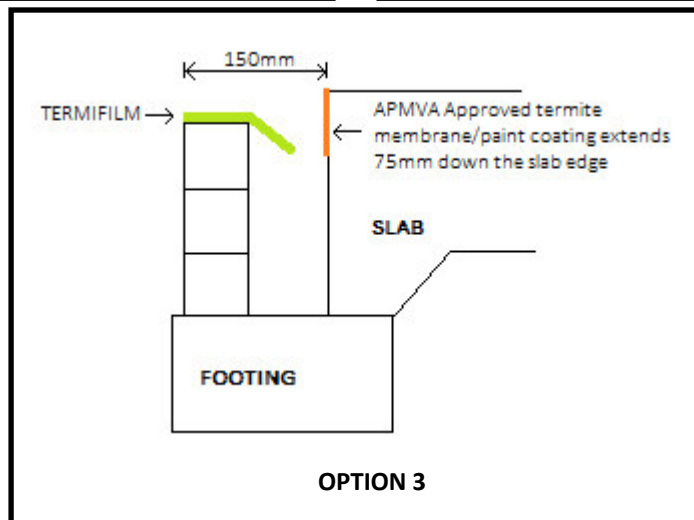
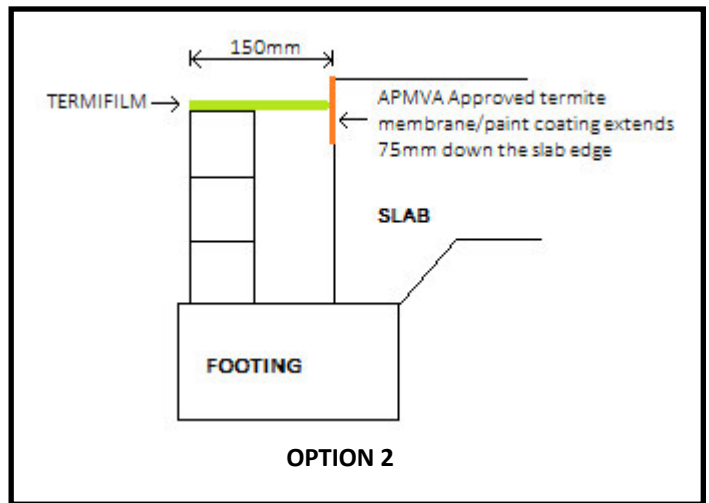
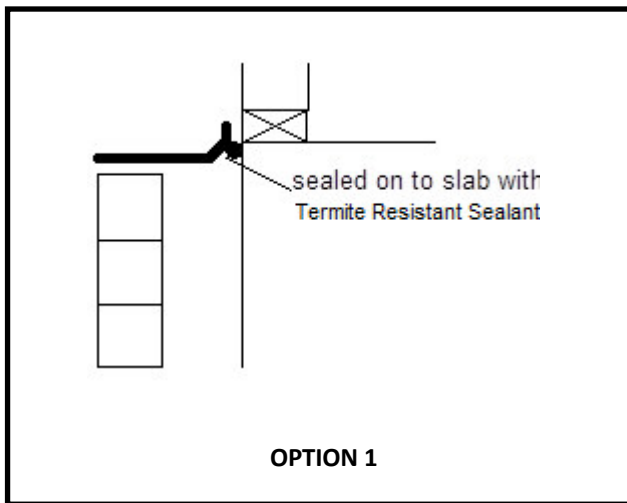
Termifilm must be 75mm above finished soil/ground level (unless placed externally).

DETAIL 2 (CONCRETE/PAVERS):



Termifilm must be 20mm above finished concrete/paver areas (unless placed externally).



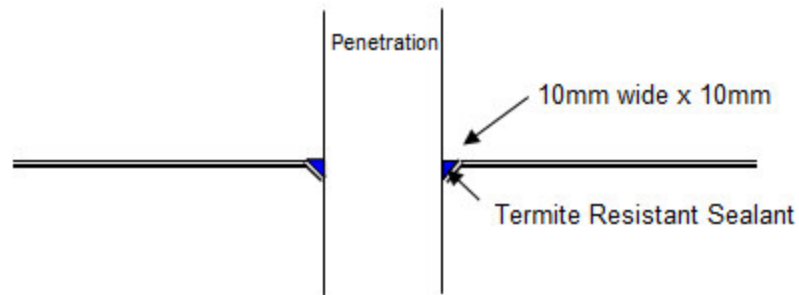


Termite Resistant Sealant can be used to prevent termite ingress between any two adjacent termite resistant materials in any combination, including: concrete to concrete, Termifilm to concrete, concrete to PVC/Dshore80, plasmite PVC, woven stainless steel mesh to concrete, etc

NOTE: Option 2 & Option 3 examples of installations, termites cannot ingress over the Termite Resistant Membrane on the slab edge nor around the Termifilm. If Termites ingress the only path is up the outside brick/block work and this will make them be visible in doing so.

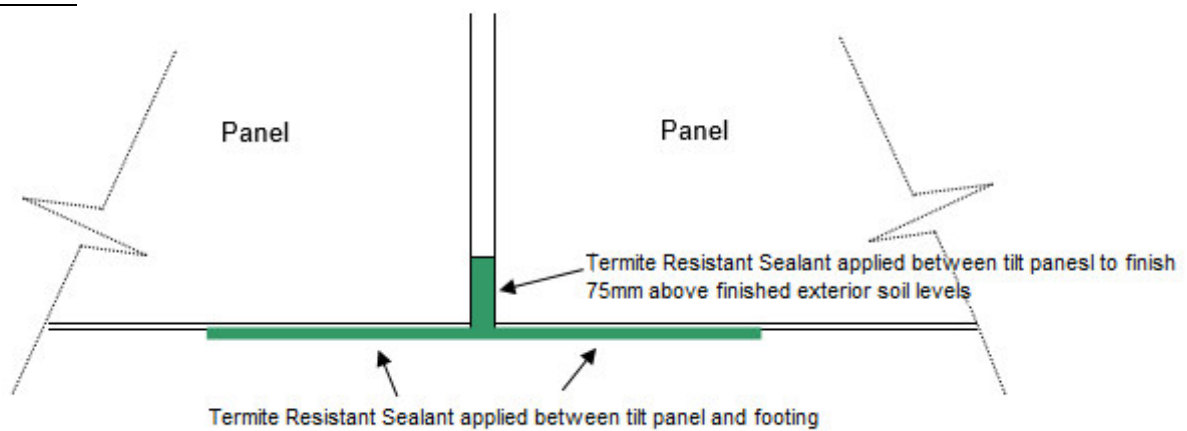
Installation Details as Below:

PIPE PENETRATION



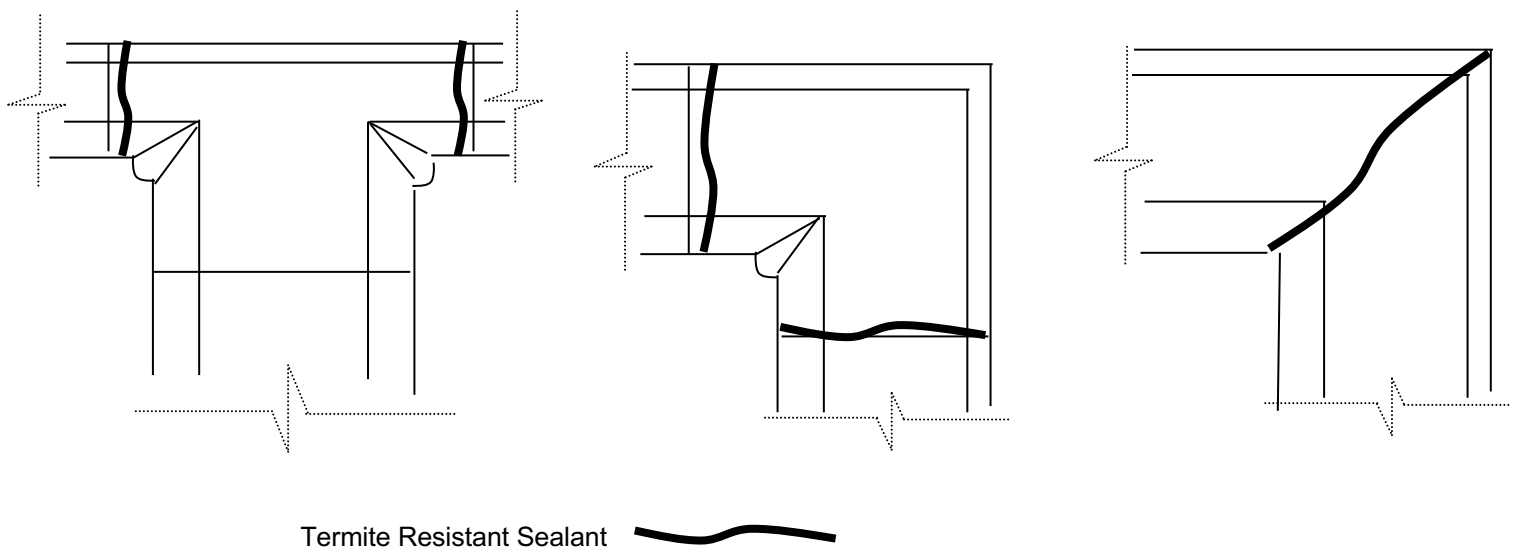
NOTE: Once pipe is chipped out no dust is to be present at time of applying termite resistant sealant

TILT UP PANEL



NOTE: Applying a backing foam rod and provide sealant depth of 6-10mm making sure no air bubbles are formed as applied

ANTCAPPING/TERMIFILM OVER LAPS AND JOINTS

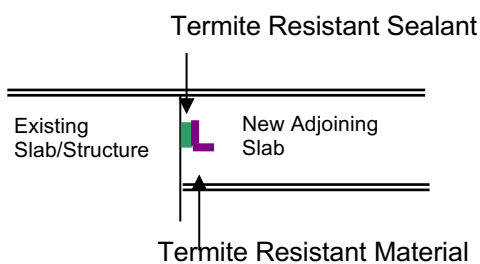
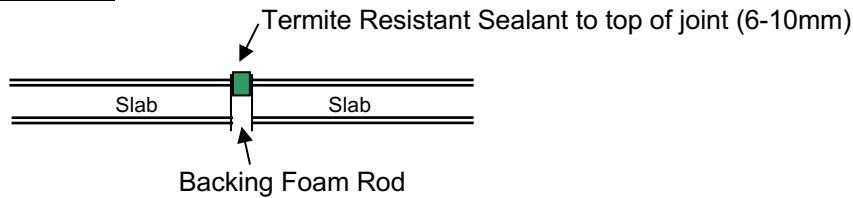


The above detail can be conventional antcapping or any termite resistant materials.

NOTE: All areas to where sealant is to be placed must be clean and dry. There must be a bead of termite resistant sealant a minimum of 6-10mm and termite resistant material overlapped a minimum of 35mm.

When capping piers with termite barriers the tie down rod can be sealed with plumb sealant prior to screwing the nut down tight.

CONTROL JOINTS

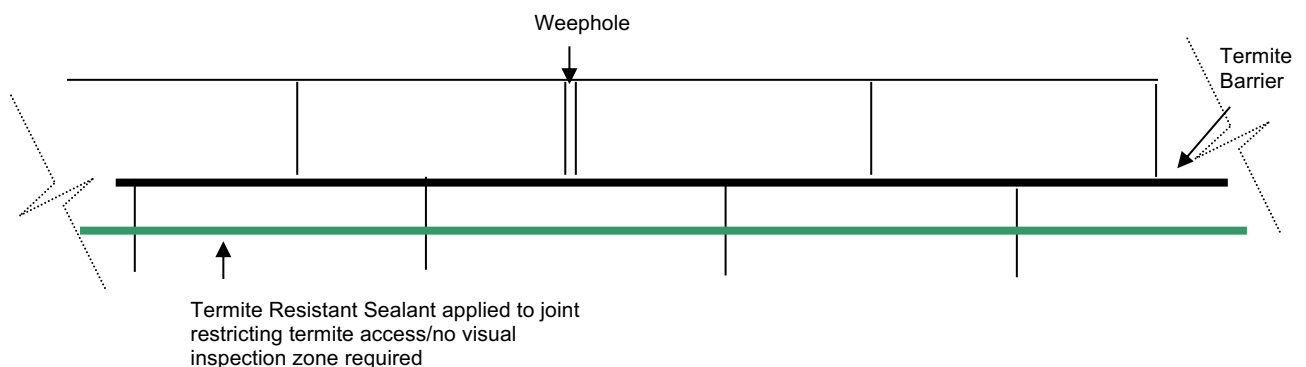


Connolly key joints, dowel joints, saw cut joints can all be sealed up using Termite Resistant sealant

NOTE: All areas to where sealant is to be placed must be clean and dry before application

INSPECTION ZONES

By using Termifilm sealant between concrete paths, driveway slabs and brickwork, it can reduce the need for required inspection zones as termites can not travel through the Termifilm sealant at any given height of application



NOTE: Termite Resistant Sealant can be applied at any given height upto and including the height of the termite barrier

NOTES:

1. All overlaps of Termifilm are to be a minimum of 200mm and can also be sealed with Termite Resistant Epoxy or Sealant. Overlaps on full under-slab applications are to be 200mm and should be sealed with good quality duct tape (3M Performance Plus is recommended).
2. Termifilm is to be attached to structure by nailing or gluing into place.
3. Do not nail Termifilm to the water proofing (tanking to retaining walls and basement walls). Only nail to top of retainer wall if necessary.
4. Termifilm is to be attached to the slab/brick face by Termite Resistant Sealant or Epoxy or 3M High Tact Multipurpose adhesive.
5. If an Installation detail is not covered in this Manual it is not to Hinder an installation method to be carried out to a structure in any given structure. It will be up to the Qualified Installer to explain his method of protection with Termifilm and how the Installation method will restrict hidden access for Termites into the structure.

Note: Termifilm UV+ is Tradename used in France



PREVENTIVE ANTI-TERMITE BARRIER PROTECTION

11th of January 2016



Formulation, production and supply of wood preservation solutions in a liquid form

Development and supply of solutions for the protection of wood, hard materials in liquid, gel, physical chemical form

Supply of solutions for the preparing, machining and treating wood – solutions for treating metals

Research & Development of vegetal extraction processes – Production of vegetal extract ingredients

1^{ary} and 2^{ary} wood processing

Construction Renovation - Maintenance

1^{ary} and 2^{ary} wood processing Renovation - Maintenance



Facts & Figures



Since 1964, French SME
In the Chemical Sector

Today,
140 collaborators

CA de 37M€

3M€ per year dedicated to R&D

Sarpap & Cecil Industries is one of the companies of the Berkem Group

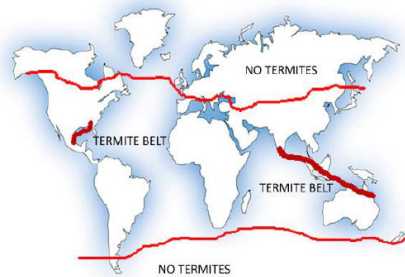


Version 8: FEB 2025
Controlled Document

Page 49 of 67

Termite Infestation Map

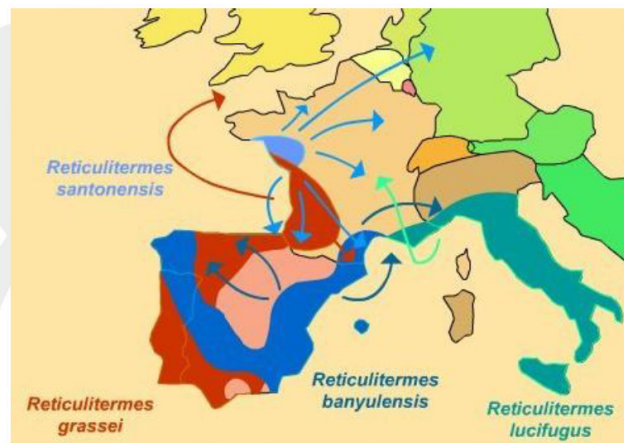
- World Wide Infestation



- Tropical, sub tropical and temperate areas
- Optimal conditions: 25-35°C + humidity
- USD 30 Billions worth of damages



Termites in Southern-Europe



Preventive Action

- Pioneer solution developed in 1994
- Preconstruction:
Anti-termite physical chemical barrier
150 µm polyethylene film grafted with 1% permethrin
- Renovation: under tiling, concrete, or wooden floors
- Can be used as a humidity / termite post-construction perimeter vertical barrier





Granulates manufacturing

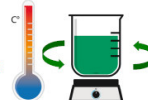
1/ Weighing of the different components: polymer + active ingredient + formulation additives



2/ Adding in a precise order



3/ Mixing at elevated and controlled speed and temperature
Managing of the permethrin adsorption onto the polymer



4/ Cooling off : obtaining a compact melted mass



5/ Pushing through a drilled plate and cutting into cylinder granulates (approx. 4 mm in diameter, 2mm thick)

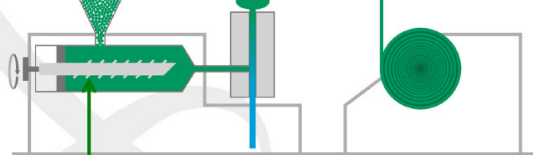


Film manufacturing

Extrusion process :

3/ Extrusion die : gives the product the requested shape

1/ Feeding the polymer into the extruder



2/ Extrusion = polymer melting, pressurisation and constant material flow at constant temperature

4/ At the exit of the manufacturing tool, a uniform product of given dimensions is obtained



Product advantages linked to this process

• Environmental :

This physical chemical is **not dangerous** for the environment.

The grafting of the molecule means the film is **non leachable** thus preventing its release in the soil

• Durable :

The grafting of the permethrin molecule does not modify its efficacy. It lasts in time.

Today, field trials, which started more than **21 years ago**, independently monitored (test report), show its efficacy is not altered





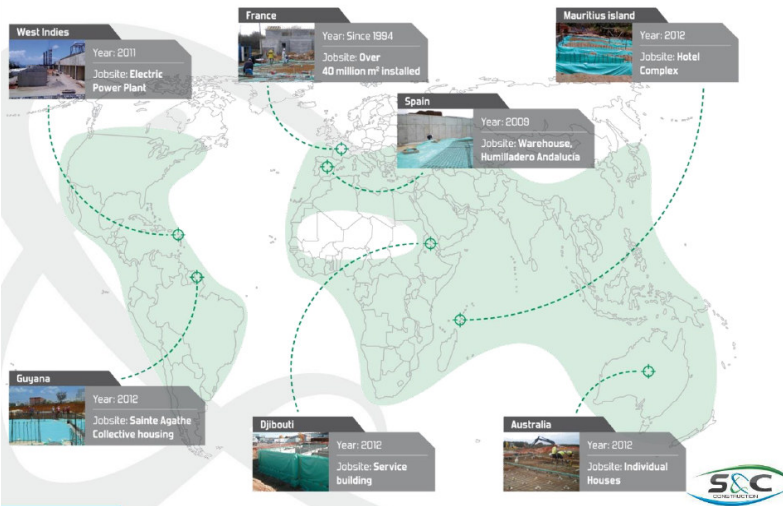
- **Composition :** 150 to 300 µm polyethylene film grafted with an insecticidal molecule : PERMETHRIN (1% m/m)
- **Packaging :**
 - 30 to 150 m² rolls :
 - Width : 0,25 to 6 m ; Length: 450 down to 5 m
- **CTB-P+ certified** n° 58-2491-58 & **SOCOTEC** (successful field trial since 1994), Australia & New-Zealand CodeMark certification CMA-CM40025
- **Respectful to the environment:**
Non smelling, non pollutant, does not leach out in the soils
Perfectly adapted to High Quality Environmental buildings



* As long as this application is done according to the technical datasheet specifications and to the rule book



Global References



Villeneuve sur Lot Hospital, France

- Year : 2012
- Area : 13 500m²



Hospital: Bergerac, France

Year: 2015

Area: 3000 m²



Hospitals: La Reole / Carcassonne

2011: La Reole

2 800 m²



2012: Carcassonne

14 000 m²



Warehouse, Humilladero Andalucía, Spain

- Year : 2009

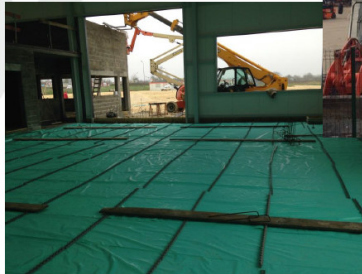
- Area : 12 000m²



Warehouse, Bergerac, France

Year: 2015

Area: 600 m²



Helicopter shelter

Year: 2012

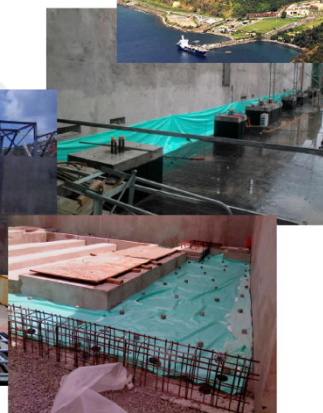
Cazeaux Airbase

13 000 m²



Electric Power Plant, West Indies

- Year : 2011
- Area : 20 000 m² built



National Weather Forecast Offices in Toulouse (Meteo France)

- Year : 2011
- Area : 3 000 m²



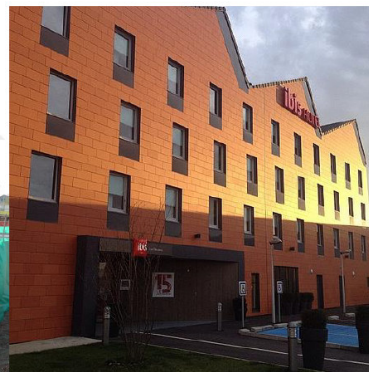
Kyriad Hotel, Jonage, France

- Year : 2013
- Area : 800 m²



Ibis Hotel, Chaponnay, France

- Year: 2012
Area: 1200 m²



Underground car park



Crillon Hotel - Paris

Renovation - 2015 still on-going



Individual Houses

- Since 1994
- Area : Over 40 millions m² installed



Australia



France



Africa



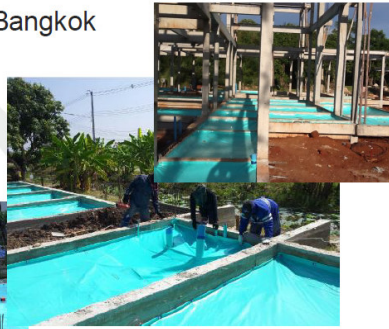
Over One Thousand Individual Houses in Queensland

100 000 m²



Individual Houses in Thailand

- 2014 / 2015 Khao Yai & Bangkok
10 000 m²



Housing Estate –Bordeaux, France



"Allées de France"
Mérignac

Year: 2014
Area: 4400 m²



Large Residence Estate in Mauritius I

2014 Azuri
35 000 m²



Large Residence Estate in Mauritius II

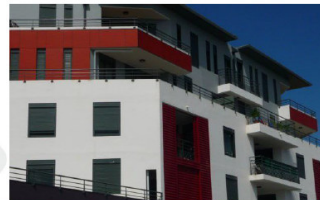
2014 Azuri
35 000 m²



Residence Estate in Reunion Island

Year : 2014
Area: 4000 m²

Les Portes du Lagon Residence



High schools in France

Pontchateau 2015
Area: 4000 m²



Clisson 2012
Area: 4000 m²



Universities

- 2013 IEP Bordeaux University
4 500 m² (renovated)



Wine cellars, Museums

- 2010: Château Cheval Blanc, St Emilion 6500 m²
- 2013: Château Lafitte-Rotschild, Pauillac, Medoc, 2000 m² new cellars
- 2014: Lascaux Prehistorical Museum 8000 m²



Cinemas, shopping malls

- 2012 Movie theater UGC Paris 5 000 m²
- 2012 Mall Le Mans 30 000 m² and Espace Bonnac



Advantages

- ✓ **Efficient** ➤ Independent field testing for over 21 years
- ✓ **Safe** ➤ Not classified as dangerous to the environment nor toxic, non leachable termiticide
- ✓ **Easy**
 - Can be installed by trained contractors
 - Technical installation manual and QR code linked videos
 - Online jobsite declaration



TERMIFILM - 101054500001001



SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2015/830)

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : TERMIFILM
Product code : 101054500001001.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Protection of buildings and structures from subterranean termites. Professional use.

1.3. Details of the supplier of the safety data sheet

Registered company name : S&C Construction - Groupe Berkem.
Address : Le marais ouest, 24680, GARDONNE, FRANCE.
Telephone : +33 5 53 63 81 00. Fax : +33 5 53 63 81 01.
contact@sarpap-ceil.com
www.sarpap-ceil.com

1.4. Emergency telephone number : +33 (0)1 45 42 59 59.

Association/Organisation : INRS / ORFILA <http://www.centres-antipoison.net>.

Other emergency numbers

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In compliance with EC regulation No. 1272/2008 and its amendments.

May produce an allergic reaction (EUH208).

This mixture does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.
This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

2.2. Label elements

Biocidal mixture (see section 15).

In compliance with EC regulation No. 1272/2008 and its amendments.

Additional labeling :
EUH208 Contains PERMETHRIN. May produce an allergic reaction.

Precautionary statements - General :

P102 Keep out of reach of children.

Precautionary statements - Prevention :

P281 Use personal protective equipment as required.

Precautionary statements - Disposal :

P501 Dispose of contents/container in accordance with all local, regional, national and international regulations.

2.3. Other hazards

The mixture does not contain substances classified as 'Substances of Very High Concern' (SVHC) $\geq 0.1\%$ published by the European Chemicals Agency (ECHA) under article 57 of REACH: <http://echa.europa.eu/fr/candidate-list-table>

The mixture satisfies neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Composition :

Identification	(EC) 1272/2008	Note	%
CAS: 52645-53-1 EC: 258-067-9 PERMETHRIN	GH507, GH509 Wng Acute Tox. 4, H302 Skin Sens. 1, H317 Acute Tox. 4, H332 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		1 <= x % < 2.5

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.
NEVER induce swallowing by an unconscious person.

4.1. Description of first aid measures

In the event of exposure by inhalation :

In the event of an allergic reaction, seek medical attention.

In the event of splashes or contact with eyes :

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.
If there is any redness, pain or visual impairment, consult an ophthalmologist.

In the event of splashes or contact with skin :

Watch out for any remaining product between skin and clothing, watches, shoes, etc.
In the event of an allergic reaction, seek medical attention.
Wash with lukewarm soapy water.

In the event of swallowing :

Seek medical attention, showing the label.

4.2. Most important symptoms and effects, both acute and delayed

No data available.

4.3. Indication of any immediate medical attention and special treatment needed

Information for the doctor :

No specific antidote known. Symptomatic treatment.

SECTION 5 : FIREFIGHTING MEASURES

Non-flammable.

5.1. Extinguishing media

Suitable methods of extinction

In the event of a fire, use :
- sprayed water or water mist
- foam
- powder
- carbon dioxide (CO2)

Unsuitable methods of extinction

In the event of a fire, do not use :
- water jet

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.
Do not breathe in smoke.

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In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

5.3. Advice for firefighters

To be translated (XML)

Gloves, protective clothing and respirator to protect from fumes.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Retrieve the product by mechanical means (sweeping/vacuuming).

6.4. Reference to other sections

No data available.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.

7.1. Precautions for safe handling

Always wash hands after handling.

Remove and wash contaminated clothing before re-using.

Good standards of hygiene should be maintained at all the times. Avoid contact with skin, eyes and clothes. Avoid inhalation of fog and vapors. Do not eat, drink, smoke while working. In addition to the measures taken usually in the chemical works like splashproof filling and measuring equipment further personal protection measures may have to be implemented to avoid possible contact with the product.

Fire prevention :

Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the mixture is used.

7.2. Conditions for safe storage, including any incompatibilities

keep the product in well closed original package in a dry and well ventilated place, away from food and stimulants. Protect from light and humidity.

Storage

Keep out of reach of children.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

No data available.

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

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Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

- Hand protection

Wear suitable protective gloves in the event of prolonged or repeated skin contact.

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN374.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

Type of gloves recommended :

- Natural latex
- Nitrile rubber (butadiene-acrylonitrile copolymer rubber (NBR))
- PVC (polyvinyl chloride)

Recommended properties :

- Impervious gloves in accordance with standard EN374

- Body protection

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

Working clothing in heavy duty cotton or in synthetic fabric. Heavy duty shoes or boots. Change working clothes every day.

- Respiratory protection

Avoid breathing dust.

Type of FFP mask :

Wear a disposable half-mask dust filter in accordance with standard EN149.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

General information :

Physical state : Solid.

Important health, safety and environmental information

pH : Not relevant.

Boiling point/boiling range : Not relevant.

Flash point interval : Not relevant.

Vapour pressure (50°C) : Not relevant.

Density : Not stated.

Water solubility : Insoluble.

Melting point/melting range : Not relevant.

Self-ignition temperature : Not relevant.

Decomposition point/decomposition range : Not relevant.

9.2. Other information

No data available.

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

This mixture is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

This product is considered stable under standard conditions.

10.5. Incompatible materials

Keep away from :

- combustible material

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

No indication of degradation was found after storage under the investigated conditions.

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

No data available.

11.1.1. Substances

Acute toxicity :

PERMETHRIN (CAS: 52645-53-1)

Oral route :

300 < LD50 ≤ 2000 mg/kg

Species : Rat

Dermal route :

LD50 > 2000 mg/kg

Species : Rat

Inhalation route (Vapours) :

LC50 > 0.24 mg/l

Species : Rat

11.1.2. Mixture

Respiratory or skin sensitisation :

Contains at least one sensitising substance. May cause an allergic reaction.

Monograph(s) from the IARC (International Agency for Research on Cancer) :

CAS 52645-53-1 : IARC Group 3 : The agent is not classifiable as to its carcinogenicity to humans.

SECTION 12 : ECOLOGICAL INFORMATION

12.1. Toxicity

Because of the undischarged biocides into the environment, this product isn't classified dangerous for the environment.

12.1.1. Substances

PERMETHRIN (CAS: 52645-53-1)

Fish toxicity :

LC50 = 0.0089 mg/l

Species : *Poecilia reticulata*

Duration of exposure : 96 h

Crustacean toxicity :

EC50 = 0.020 mg/l

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Algae toxicity : Species : *Daphnia magna*
Duration of exposure : 24 h
EC50 > 0.011 mg/l
Species : *Scenedesmus subspicatus*
Duration of exposure : 72 h

12.1.2. Mixtures

NOEC > 1 mg/l
EC50 > 1 mg/l

12.2. Persistence and degradability

12.2.1. Substances

PERMETHRIN (CAS: 52645-53-1)
Biodegradability :

Non-rapidly degradable.

12.2.2. Mixtures

Biodegradability :

no degradability data is available, the substance is considered as not degrading quickly.

12.3. Bioaccumulative potential

12.3.1. Substances

PERMETHRIN (CAS: 52645-53-1)
Octanol/water partition coefficient :

log K_{ow} >= 4.

Bioaccumulation :

BCF >= 500.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Other adverse effects

No data available.

SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

Codes of wastes (Decision 2001/573/EC, Directive 2006/12/EEC, Directive 94/31/EEC on hazardous waste) :

17 09 03 + other construction and demolition wastes (including mixed wastes) containing dangerous substances

SECTION 14 : TRANSPORT INFORMATION

Exempt from transport classification and labelling.

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2015 - IMDG 2014 - ICAO/IATA 2015).

SECTION 15 : REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

- Classification and labelling information included in section 2:

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 487/2013.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 758/2013.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 944/2013.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 605/2014.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 1297/2014.

- Container information:

No data available.

- Particular provisions :

No data available.

15.2. Chemical safety assessment

No data available.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

Wording of the phrases mentioned in section 3 :

H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Abbreviations :

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.