

METHOD AND MEANS FOR PREVENTING OR MINIMISING TERMITE ATTACK OR INFESTATION

Technical Field

This invention relates to a method and means for preventing or
5 minimising termite attack or infestation which is particularly but not exclusively
suited to applications in buildings.

Background Art

Due to recent changes in government regulations, past methods of
preventing termite attack or entry in buildings which have involved the use of
10 pesticides under the slab and around the outside periphery of a building are now
no longer possible to employ because of the detrimental effects of the residual
chemical poisons. Whilst new chemicals have been introduced to overcome this
problem, such chemicals prove considerably more expensive to use. As a result,
a number of different methods have been proposed or are now used with the aim
15 of combatting termite infestation or migration. One such method involves the use
of a product known as Termimesh which comprises a mesh of stainless steel
which has pores of sufficiently small size to prevent the passage of termites
therethrough. Whilst such a material is effective, it is required to be "parged" at
one edge to secure it in position. This is difficult to accomplish in certain
20 positions and furthermore a number of inspections must be undertaken to ensure
that the mesh is effectively secured in position by the parge and/or to ensure that
no damage has been caused to the mesh. In addition, the use of this product
tends to be particularly expensive.

The present invention aims to overcome or alleviate the above
25 disadvantages by providing improved method and means for preventing the
passage or migration of termites or other insects into a building. The present
invention, in a further aspect aims to provide a method and means which may be
applied to protect building products and components from termites or other
insects. Other objects and advantages of the invention will become apparent
30 from the following description.

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Summary of the Invention

The present invention thus provides in a first aspect, a method for preventing or precluding migration of termites or insects, said method including the step of applying to a possible area of migration, a settable or curable barrier material, said material defining a barrier to termite or insect migration through
5 said area.

The barrier material may define when cured or set a physical barrier or a chemical barrier or a combination thereof.

The area for migration may comprise a crack, fissure, joint,
10 opening, perpend or the like and the settable or curable barrier material, after application, may cure to define a permanent barrier to termites or insects. The barrier may be flexible or rigid.

The present invention, in one aspect is particularly applicable to buildings having concrete slabs and brick walls in which or adjacent to which,
15 cracks, fissures, perpend or joins may be created. In accordance with a method of the present invention, such fissures, cracks or joins are filled or sealed by the settable or curable barrier material referred to above, so as to prevent termite or insect passage therethrough. In one particular application where a concrete slab is formed, to be supported on a footing about the periphery of a building, the
20 junction between the slab and footing is sealed with the barrier material as referred to above to prevent passage of termites or insects from the ground beneath the slab through the junction between the slab and footing. In addition, the inner and top of the brickwork and/or outer faces of the brick foundation may be sealed with a layer of the compound liquid or substance. This will prevent
25 termites or insects from entering through imperfect mortar between the brick courses, joints or the brick perpend.

In a further application, where external brickwork of a building defines the peripheral formwork for the slab of a building, the upper surface of the brickwork and adjacent recessed portion of the slab, or an inner course of
30 bricks in the case of a cavity brick construction, is sealed with a layer of the



settable or curable barrier material as referred to above to prevent the passage of termites or other insects between the outer brick course and slab.

The settable or curable barrier material which forms the termite or insect barrier may be selected from a range of different products or combinations
5 of products. It may be in the form of a paste, gel, liquid or a matrix mix. As an example, the barrier material may define a unicellular membrane, that is a membrane in which a cellular chemical agent such as a termiticide is encapsulated.

In one form, the settable or curable barrier material may comprise a
10 product, material or chemical or a mixture thereof which creates a fusion reaction or adhesion between or with the materials of the building or component to which the settable or curable barrier material is applied.

In another form, the settable or curable barrier material is formed from a mixture of products, materials and/or chemicals which themselves form a
15 physical barrier, for example by adhesion.

The barrier material may include polymer binders, mineral extenders, biocides, fungicides, mould inhibitors, acrylic resins, acrylic emulsion powered acrylic polymers, and or moisture control and plasticising agents. The settable or curable barrier material may additionally include a chemical or
20 chemicals which comprises a termiticide or insecticide or other insect or termite deterrent.

The settable or curable barrier material may, after application, be either flexible or rigid and may be applied to a building or component in any suitable manner, for example by being sprayed, painted, trowelled, brushed or by
25 splatter machine. Alternatively, where appropriate, the settable or curable barrier material may be supplied in a cartridge tube or the like for application in the nature of a mastic.

The settable or curable barrier material may also be applied to other building products, such as timber poles or posts to fill cracks or fissures in the
30 post or poles to prevent termite or insect passage therethrough. In the case of



concrete slabs, the settable or curable barrier material may also be applied around slab penetrations, such as around penetrating pipes at the upper side of the slab to prevent termites or insects from passing between the pipe and slab material.

Alternatively, the settable or curable barrier material may be applied as a flexible
5 bead about the penetrating pipe and within or adjacent to the concrete slab to prevent insects or termites passing along the penetration and through the slab.

The settable or curable barrier material may when installed to brick walls also preferably provides a certain degree of water repellent or water resistant properties.

10 The settable or curable barrier material may also be applied to draft walls or retaining walls and on either side thereof to prevent entry of the termites or insects through the joints and perpend.

In one particular form, the settable or curable barrier material may being the nature of a liquid or a material with flowable properties, such that it
15 flow into and thereby block cracks which may be formed. The settable or curable barrier material in this form may also have properties which allow it to expand within the cracks to fill the cracks to prevent termite or insect passage through the cracks.

Brief Description of the Drawings

20 In order that the invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings which illustrate a preferred embodiment of the invention and wherein:-

Fig. 1 illustrates in sectional view typical applications of the method and means of the invention in a bricked up slab construction;

25 Fig. 2 illustrates in sectional view further typical applications of the method and means of the invention in a boxed up slab construction;

Fig. 3 illustrates in sectional view, the termite sealing arrangement at the external wall of a bricked up slab;

30 Fig. 4 illustrates in sectional view, the termite sealing arrangement at the external wall of a boxed up slab application of the invention;



Figs. 5, 6, 7 and 8 illustrate the application of the invention to new or extension slabs;

Figs. 9 and 10 illustrate the application of the invention to isolated brick piers and brick walls with engaged piers respectively;

5 Fig. 11 is a view in the direction A-A of Fig. 10;

Fig. 12 illustrates the application of the invention to ground installed poles or posts;

Fig. 13 is a sectional view of the pole of Fig. 12 along line B-B;

10 Figs. 14 to 17 illustrate the application of the invention to pipe penetrations; and

Figs. 18 and 19 illustrates an application of the invention to construction joints between slabs.

Detailed Description of the Embodiments

Referring to the drawings and firstly to Fig. 1, there is illustrated
15 the general layout of a brick-up building foundation construction 10 which in this instance includes a footing 11 which extends about the periphery of the building to support the peripheral beam 12 of a concrete slab 13 and an outer brick course 14 which defines the formwork for the slab 13 and which may support the beam 12 onto the footing 11. Slab and footing reinforcement is not shown for the
20 purposes of clarity. The slab 13 is also formed with a recess 15 in its outer periphery which is at the level of the upper level of bricks 16 in the course 14. It will be apparent in this construction that a crack or fissure 17 is created in the join line between the inner face of the course of bricks 14 and the slab beam 12. Similarly, a join line 18' is created between the slab beam 12 and the bricks
25 which support the beam 12 on the footing 11. If untreated, the join lines 17 and 18 define a passage for termites or other insects into the building. In addition in this construction, a penetration such as a waste pipe 19 penetrates the slab 13 forming another area of possible penetration of termites. The construction 10 also includes a brick wall 20 forming a step down to a further slab 21. This
30 creates further join lines 22 providing possible areas for termite penetration



between the wall 20 and slabs 13 and 21. The joints 23 between the bricks 24 forming the wall 20 form other possible termite penetration paths.

In accordance with an embodiment of the present invention, and as shown in Fig. 3 which illustrates a slightly different form of brick-up construction where the slab 13 is supported directly on the footing 11, a layer 25 which forms a termite barrier is applied over the top of the top brick 16 in the course 14 to extend into and cover the adjacent recess 15 in the periphery of the slab 13. It will be apparent that the layer 25 therefore spans the join line 17 between the brick course 14 and slab beam 12 and slab 13 as well as sealing the extrusion openings in the bricks 16 to thereby act as a barrier to prevent termite or other insect migration through and along the join lines 17 and 18. The layer 25 may also be applied over the external faces of the bricks 16 and the joints between the bricks 16 to seal the bricks 16 and the joints 23 (and perpend) between the bricks 16 as shown in dotted outline in Fig. 3. The layer 25 may be applied by brushing, spraying, trowelling or any other suitable application means. The layer 25 may also be sufficiently fluid to partially flow into the join 17 to act as a barrier to termite migration. As an example, the layer 25 may be in the nature of a mortar, a hardenable liquid or a resin such as an epoxy resin to form a physical barrier. The mortar, a hardenable liquid or a resin may also incorporate a termiticide or other poison or repellent for example an organic phosphate. One or more layers 25 may be applied to the areas to ensure the possibility of termite penetration is minimised. The layer 25 may also have additional water sealing properties to seal the bricks 16 or act as a flashing. Alternatively or additionally, a conventional flashing 26 may be used over the layer 25 below the weep hole course 27 of the external wall 28.

After the layer 25 has cured, the external and internal walls 28 and 29 of the building may be erected in a known manner to be supported on the course 14 of bricks 16 or beam 12 and slab 13. In the illustration, a brick veneer construction results with the outer wall 28 being a single layer of bricks and the inner wall 29 being a wooden frame to which cladding may be applied.



Fig. 2 illustrates an alternative form of building foundation 30 in which in this case, the slab 31 is boxed up using formwork and is spaced from the outer course 14 of bricks, the slab 31 and brick course 14 being supported on the footing 11. Again, however, the slab 31 which has a perimeter beam 32 supported on the footing 11 defines a join line 33 which may create a passage to insects or termites. A similar arrangement is shown in Fig. 4.

In this instance, a layer 34 according to the invention is applied at the junction of the slab beam 32 and footing 11 to seal off the join line 33 to thereby prevent the passage of termites and insects through the join line 33.

10 A further layer 35 may also be applied to the inside vertical faces of the brick course 14 and the joint between the brick course 14 and footing 11. The layer 35 may also be continued over the top of the uppermost brick 16 in the course 14. This will prevent termites from entering through imperfect mortar between the brick 16 at the joints between the bricks or perpend and sealing the
15 extrusion openings in the bricks 16. The layers 34 and 35 may also have additional water sealing properties for sealing the bricks 16 or act as flashings. As shown in Fig 2, the layers 34 and 35 may merge into each other or be separate as shown in Fig. 4. Outer and inner walls 36 and 37 may be erected as before to form a brick veneer construction.

20 The brick or block draft wall 20 which is provided between upper and lower slabs 13 and 21 in Fig. 1 may also be sealed in accordance with the invention. In this instance, a layer 38 of the barrier material of the invention may be applied to the inner and outer sides of the wall 20. The layers 38 are extended upwardly and downwardly to cover the join lines 22 between the slabs 13 and 21
25 and bricks or blocks which are at the upper and lower sides of the wall 20. The layer 38 may also have additional water sealing properties for sealing the wall 20. The arrangement described above prevents the passage of termites or insects into the building from the ground beneath the slabs 13 and 21 by blocking the passages between the bricks or blocks or along the join line 22 which defines a
30 passage for termites or other insects into the building. If desired also layers of



the material may be provided along the join lines 22 between the wall 20 and slabs 13 and 21.

Fig. 2 also shows an arrangement where a retaining wall 39 of blocks or bricks is erected on the slab 31. In addition to a protective water proof
5 sheeting 40 between the wall 39 and adjacent earth 41, the face of the wall 39 is provided with a layer 42 of the barrier material according to the invention which seals the joints between the bricks or blocks forming the wall 39 and the joint between the wall 39 and slab 31, the layer 42 extending downwardly beyond the lowermost block in the wall 39 and over the slab 31.

10 Referring now to the embodiment of Fig. 5, there is illustrated an extension slab 43 constructed adjacent an existing wall 44 and slab 45, in this case a slab 45 on a waffle pan foundation. A rebate 46 is formed in the upper edge of the slab 45 adjacent the brick wall 44. The barrier material 47 of the invention is applied to fill the rebate 46 and seal the space between the slab 43
15 and brick wall 14 for preventing termite or insect passage from the ground and between the slabs 43 and 45 and wall 44. If desired for additional protection, a bead of the barrier material 46 may also be provided between the slabs 45 and 43 to prevent termite penetration from below, the bead 46 extending along the periphery of the slabs 45 and 43 and between the slabs 45 and 43 to provide a
20 complete seal.

Figs. 6 and 7 illustrates a further embodiment of extension slab 48 applied to a construction where an existing or new slab 49 and a brick course 50 is supported on a footing 51. In this instance, the new slab 49 is erected adjacent the existing slab 48 on the footing 51. Again a rebate 52 is provided in the edge
25 of the slab 48 adjacent the brick wall 50 and is filled with the substance or material 53 which fills the rebate 52 and seals the space between the slab 48 and brick wall 50. A similar arrangement is provided between the slab 49 and wall 50 wherein a rebate 52' is filled with material 53'. Further material 54 in the form of a layer may be provided to extend continuously from the material 53 and 53'
30 applied to the rebates 52 and 52' along the side of the brick wall 50 and over the



top thereof for providing a complete seal for preventing termite or insect passage from the ground.

Fig. 7 illustrates an alternative sealing arrangement wherein layers 55 and 56 are provided on opposite sides of the wall 50 to extend downwardly and continuously from the materials 53 and 53' in the rebates 52 and 52' in the slabs 48 and 49 to the footing 51.

In the arrangement of Fig. 8, the add-on slab 48 is erected on a further footing 51' adjacent the existing footing 51. Again a rebate 52' is formed in the add-on slab 48 adjacent the existing slab 49 which is filled with the barrier material 52' which also extends downwardly between the slabs 48 and 49 as illustrated. In each of the above embodiments, the rebates formed in the slab preferably extend continuously along the edge of the slab to ensure that a complete seal is established by the barrier material.

Where an isolated brick pier 58 is erected, as shown in Fig. 9, the upper portion of the pier 58 may be sealed with a layer 59 of material according to the invention, the layer 59 extending over the top of the pier 58 and down the sides of the pier 58, usually a distance of 150mm to 400mm. The layer 59 may terminate in a bead 60 of the material surrounding the pier 58.

A similar arrangement is shown in Figs. 10 and 11 where a brick wall 60 with engaged pier 61 is sealed by a layer 62 of barrier material according to the invention, the layer 62 extending over the top of the wall 60 and pier 61 and down the sides thereof, in this case usually to a distance of 150mm to 400mm to again terminate in a bead 63.

Fig. 12 illustrates the application of the invention to a pole or post 63 which is located in the ground 64. A layer 65 of material, according to the present invention is applied about the lower end of the pole 63 to enter any cracks or fissures 66 within the pole 63 as shown in Fig. 12 or 13 to prevent termites forming their galleries in the cracks or fissures 66 and being undetected. The layer 65, as shown in Fig. 11 or 12 is applied to the end of the pole 63 to a sufficient height such that it extends above the ground 64.



Fig. 14 illustrates a typical application of the invention where pipes 19 (as in Fig. 1) penetrate a slab 67. A recess 68 of annular form may be formed in the slab 67 around the pipe 19 to receive the liquid or substance 69 according to the present invention which seals about the pipe 19 and between the pipe 19 and slab 67 to provide a termite and insect barrier. The recess 68 may be formed during slab construction or after curing of the slab 67.

Fig. 15 illustrates a further application of the invention to a pipe 19 penetrating a slab 67. In this instance, the material 69 is simply applied around the upper side of the slab 67 to seal against the penetrating pipe 19.

Fig. 16 illustrates an application of the invention again where a pipe 19 penetrates a slab 67. In this instance, the sealing material 68 in accordance with the invention in the form of one or more beads is located in situ within the slab 67 to surround and seal against the penetrating pipe 19. The beads of sealing material 68 are applied prior to pouring of the slab 67 so as to be embedded within the slab.

Fig. 17 illustrates an application where a pipe 19 which is provided with lagging 69 penetrates a slab 67. As in the embodiment of Fig. 16, the material 68 in the form of beads around the pipe 19 are provided within the slab 67 to provide a termite or insect barrier between the pipe 19 and slab 67. For installation, the lagging 69 is provided in sections 69' and 69". The upper and lower sections 69' and 69" may be removed to allow application of the barrier material 68 and thereafter the sections 69' and 69" are reinstalled as shown.

The barrier material as described is used in specific building applications associated with building slabs. It may, however, be applied to other applications where a crack or join line appears or for example in openings through bricks or blocks including extrusion openings which may be sealed with a layer or compound according to the present invention to block insect or termite passage.

Referring now to Fig. 18, there is illustrated an application of the invention to a construction joint 70 between adjacent building slabs 71 and 72.



On the upper side of the slabs 71 and 72 and along the joint line 70, recesses or rebates 73 and 74 are provided in the respective slabs 71 and 72, the rebates 73 and 74 defining a recess 75 extending along the joint line 70. The barrier material 76 in accordance with the invention is deposited into the recess 75 to

5 substantially fill the recesses 73 and 74 and also extend into the joint 70. This will prevent passage of insects and termites from the ground beneath the slabs 71 and 72 through the joint line 70.

Where larger cracks or fissures are encountered additional support may be required to be provided to the compound liquid or substance which forms

10 the termite barrier. Additional support may be provided by a matting, such as a fibreglass matting or other material which may initially be laid over the larger crack or fissure and thereafter the compound liquid or substance deposited upon the mat. This will provide sufficient support to the compound liquid or substance to act as a barrier for termites and insects. An example of such an arrangement is

15 shown in Fig. 19 where the matting 77 spans the joint line 70 between slabs 71 and 72. This arrangement may be provided in any of the applications described above.

The present invention thus provides an arrangement where a complete termite barrier is created for a building. All potential entry points

20 within the slab and perimeter area are treated in the manner described above.

Whilst the above has been given by way of illustrative embodiment of the invention, all such modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of the invention as defined in the appended claims.

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**CLAIMS**

1. A method for preventing or precluding migration of termites or insects, said method including the step of applying to a possible area of migration, a settable or curable barrier material which defines a barrier to termite
5 or insect migration through said area.
2. A method according to Claim 1 wherein said area of migration is defined by cracks, fissures, perpendes or joins in a building having a concrete slabs and brick walls and wherein said fissures, cracks perpendes or joins are
10 filled or sealed by said settable or curable barrier material.
3. A method according to Claim 2 wherein said concrete slab is supported on a footing and wherein the junction between said slab and footing is sealed with said settable or curable barrier material to prevent passage of termites
15 or insects from the ground beneath the slab through said junction between said slab and footing.
4. A method according to Claim 3 wherein a brick foundation course is associated with said slab and wherein the inner and top of said brick course
20 and/or outer faces of the brick foundation are sealed with said barrier material.
5. A method according to Claim 2 wherein external brickwork of said building defines the peripheral formwork for the slab of a building, said slab being recessed adjacent the upper level of said brickwork and wherein said upper
25 surface of said brickwork and adjacent recessed portion of the slab, is sealed by a layer of said settable or curable barrier material.
6. A method according to Claim 1 wherein said area of penetration is defined in a timber poles or posts and wherein said material is applied to fill
30 cracks or fissures in the post or poles to prevent termite or insect passage there





through.

7. A method according to Claim 1 wherein said area of penetration is defined in a slab penetration and wherein said barrier material is applied around
5 penetrating pipes at the upper side of the slab to prevent termites or insects from passing between the pipe and slab material.

8. A method according to Claim 1 wherein said barrier material is applied as a flexible bead about said penetrating pipe and within or adjacent to
10 said the concrete slab to prevent insects or termites passing between said penetrating pipe and slab.

9. A method according to Claim 1 wherein said possible area of migration comprises a an area along or over a brick pier and wherein said barrier
15 material is applied as a layer to the top of said pier and the sides thereof.

10. A method according to Claim 1 wherein said possible area of migration comprises an area along or over a retaining wall and wherein said barrier material is applied to at least one side of said retaining wall.
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11. A method according to Claim 1 wherein said possible area of migration comprises a join line between an existing building slab and a new building slab and wherein said barrier material is applied between said slabs.

25 12. A method according to Claim 11 wherein a recess is formed in an edge of one slab adjacent the other slab and wherein said barrier material is applied to said recess to seal the join line between said slabs.

