पूर्व निर्मित भवनों मे दीमक अवरोधक उपचार

Anti Termite treatment in Existing Building

1. सामान्य/ General

This pamphlet is prepared in accordance with IS: 6313 (Code of Practice for Anti Termite Measures in Buildings Part 3 Treatment in Existing Buildings).

According to their habits, termites can be divided into two well-defined groups.

(A) Subterranean or ground nesting termites
(B) Non-subterranean or wood nesting termites

A - Subterranean or ground nesting termites

- Are most destructive.
- Mainly responsible for the damage to be caused in building.
- They require moisture to sustain their life.
- They build tunnels between their nest and source of food through covered runways.
- These covered tunnels provide humid conditions and darkness necessary for their movement and for maintaining contact with earth.
- The subterranean termites enter a building from ground level, under the foundation, working their way upwards through floors, destroyed all before them.



B - Non-subterranean or wood nesting termites
This comprises of

- Dry wood and damp wood termites.
- Dry wood termites, which predominate, are able to live even in fairly dry wood and with no contact with soil.
- They frequently construct nests within large dimensional timbers such as rafters, posts, door and window frames, etc. which they destroy, if not speedily exterminated. However, they are not as prevalent and common as subterranean termites.

Once the termites have an ingress into building, they keep on multiplying and destroy the wooden and cellulosic materials.

Periodic inspection and control measure are the most important steps in checking termite damage in building.

2. उपयोगी उपकरण/ Equipment used:

Following equipment and tools are used for anti termite treatment:-

- Pressure Gun
- Power drills of different sizes and dia
- Sharp knife
- Safety equipment
- Flash light etc.





3. उपयोगी रसायन/ Chemical used:

Chemicals mentioned in Table -1 may be used:-

- In water emulsion for soil treatment in order to protect a building from termite attack.
- In Mineral Oil or Kerosene for treatment of wood to protect from termite attack.

Chemical	IS	Concentration by Mass % Active ingredient	Dosage
Chlorpyrifos 20 EC	IS 8944	1.0	250 ml in 5 litre
Imidacloprid 30.50 SC	IS 16131	0.075	10.5 ml in 5 litre

Table-I



4. उपचार की पद्धति/ Procedure of treatment:

Procedure of Treatment consist three parts i.e.

(i) Inspection
(ii) Extermination of termite
(iii) Preventive measures to be adopted.

(I) Inspection:

- Before undertaking any type of treatment, a thorough inspection shall be made of the infestation in the building with a view to determine the extent to which it has spread, and the routes of entry of termites into the building.
- A study of structure of the foundation and the ground floor helps in finding out the routes of entry of termites from the soil and also in deciding the mode of treatment.

(II) Extermination of termites in building:

- This operation shall be carried out in a thorough manner, seeking the termites in their hideouts, such as ceilings behind wooden panelling, inside electrical wiring battens, conduits, switchboards and similar locations.
- Recourse shall be taken to inject chemicals as given in (III) Preventive Measures below.
- All traces of termite tubes shall be removed so that any fresh infestation, which might occur at a later date, may be easily detected.

(III) Preventive Measures:

Preventive measures are as under:-

(a) Soil Treatment:

- The object of soil treatment is to establish chemical (toxic) barrier between the termites in the soil and the building to be protected.
- Basically, it consists of treating the soil adjacent to or under the building with a chemical toxicant, which kills or repels termites.
- Water emulsions of one of the chemical given above shall be used in soil treatment and applied uniformly at the prescribed rate.

(b) Treatment along the out side of foundation:

- The soil in contact with the external wall of the building shall be treated with chemical at the rate of 7.5 litres/m2 of the vertical surface of the sub-structure to a depth of 300 mm.
- To facilitate this treatment a shallow channel shall be excavated along and close to the wall and chemical emulsion shall be poured at 1.75 litres per running metre of the channel.
- Roding with 12 mm diameter mild steel rods at 150 mm apart shall be done in the channel if necessary for uniform dispersal of the chemical to 300 mm depth from the ground level.
- The balance chemical of 0.5 litre per running metre shall then be used to treat the backfill earth as it is returned to the channel directing the spray toward the wall surface.
- If there is a concrete or masonry apron around the building, approximately 12 mm diameter holes shall be drilled as close as possible to the plinth wall at 300 mm apart, deep enough to reach the soil below, and the chemical emulsion pumped into these holes to soak the soil below at a rate of 2.25 litre per linear metre.

Note :

- In soil which do not allow percolation of chemicals to the desired depth, the uniform dispersal of the chemical to a depth of 300 mm shall be obtained by suitably modifying the mode of treatment depending on the site condition.
- The dosage of 2.25 litres per linear metre shall however remain the same.
- The treatment described in above applies to masonry foundations. In the case of RCC foundation, the soil (backfill earth) in contact with the column sides and plinth beams along the external perimeter of the building shall be treated with chemical at the rate of 7.5 l/m2 of the vertical surfaces of the structure.
- To facilitate this treatment, trenches shall be excavated equal to the width of a shovel exposing the sides of the column and plinth beams up to a depth of 300 mm or up to the bottom of the plinth beam if this level is less than 300 mm.
- The chemical shall be sprayed on the backfill earth as it is returned in to the trench directing the spray against the concrete surface of the beam of column as the case may be.

(c) Treatment of soil under floor:

The points where the termites are likely to seek entry through the floor are the cracks at the following locations:

a. At the junction of the floor and walls as a result of shrinkage or the concrete;
b. On the floor surface owing to construction defects;
c. At construction joints in a concrete floor, cast in sections; and
d. Expansion joints in the floor.

- Chemical treatment should be provided within the plinth area of the ground floor of the structure wherever such cracks are noticed, by drilling vertically 12 mm holes at the junction of floor and walls, constructional and expansion joints mentioned above at 300 mm interval to reach the soil below.
- Chemical shall be squirted into these holes using a hand operated pressure pump until refusal or to a maximum of one liter per hole. The holes shall be sealed. In general, the idea is to treat the soil below the floor at the locations of cracks with toxicants so that termites in the soil are denied access through such cracks and opening in the floor.

(d) Treatment to voids in masonry:

- Termites are known to seek entry into masonry foundations and work their way up through voids in the masonry and enter the building at ground and upper floors.
- The movement of the termites through the masonry walls may be arrested by drilling holes in the masonry walls at plinth level and squirting chemical into the holes to soak the masonry.
- The holes shall be drilled at a downward angle of about 45^0 preferably from both sides of the plinth wall at approximately 300 mm intervals and emulsion squirted through these holes to soak the masonry using a hand operated pressure pump.
- The depth of drilled holes shall be increased or decreased depending on the size of the wall, for normal size brick wall that is 230 mm thick wall, depth of drilled holes shall be 150 mm.

- This treatment shall also be extended to internal walls having foundations in the soil
- Holes shall also be drilled at critical points, such as wall corners and where door and window frames are embedded in the masonry or floor at ground.
- Emulsion shall be squirted through the holes till refusal or to a maximum of one litre per hole. The treated holes shall then be sealed.

(e) Treatment at points of contact of wood work:

All existing woodwork in the building which is in contact with the floor or walls and which is in contact with the floor or walls and which is infested by termites, shall be treated by spraying at the points of contacts with the adjoining masonry with the chemical of concentration given above by drilling 6 mm holes at a downward angle of about 45^0 at the junction of woodwork and masonry and squirting chemical into these holes till refusal or to a maximum of half a litre per holes. The treated holes shall than be sealed.

(f) Treatment of wood work:

For the purpose of treatment, woodwork may be classified as follows:

a. Which is damaged by termites beyond repair and need replacements
b. Which is damaged slightly by termites and does not need replacement.

- The woodwork, which has already been damaged beyond repairs by termites, shall be replaced.
- The new timber should be dipped or liberally brushed at least twice with chemicals in mineral oil or kerosene as in above.
- All damaged woodwork that does not need replacement shall be treated as indicated below.
- Infested woodwork in frame, shelves, joints, purlins, etc, in contact with the floor or the walls shall be provided with protective treatment by drilling holes of about 3 mm diameter with a downward slant to the core of the woodwork on the inconspicuous surface of the frame.
- These holes should be atleast 150 mm centre to centre and should cover the entire framework. One of the chemicals given above shall be liberally infused in these holes.
- If the wood is not protected by paint or varnish two coats of the chemical shall be given on all the surfaces and crevices adjoining the masonry as per Para 3 above .

(g) Treatment of electrical fixtures:

- If infestation in electrical fixture (like switch boxes in the wall) is noticed, covers of the switch boxes shall be removed and inside of such boxes shall be treated liberally with 5 percent Malathion dusting powder confirming to IS: 2568 or Chlorpyrifos Dust.
- The covers of the switch boxes shall be re fixed after dusting.

(h) Inspection:

Periodical inspection and vigilance are necessary after carrying out the preventive treatment measures. It is essential that follow up action be maintained during subsequent humid and hot seasons if termites appear.

5. सुरक्षा सावधानियाँ/ Safety Precautions

- All the chemicals mentioned in this pamphlet are poisonous and hazardous to health.
- These chemicals can have an adverse affect upon when absorbed through the skin, inhaled as vapours or spray mists or swallowed.
- Persons handling or using these chemicals should be warned of these dangers and advised that absorption through the skin is the most likely sources of accidental poisoning.
- They should be cautioned to observe carefully the safety precautions given below particularly when handling these chemicals in the form of concentrates These chemicals are brought to the site in the form of emulsifiable concentrates.
- The containers should be clearly labeled and should be stored carefully so that children and pets cannot get at them.
- They should be kept securely closed Particular care should be taken to prevent skin contact with concentrates.
- Prolonged exposure to dilute emulsions should also be avoided.
- Workers should wear clean clothing and should wash thoroughly with soap and water especially before eating and smoking.
- In the event of severe contamination, clothing should be removed at once and the skin washed with soap and water.
- If chemicals splash into the eyes they shall be flushed with plenty of soap and water and immediate medical attention should be sought.
- The concentrates are oil solutions and present a fire hazard owing to the use of petroleum solvents, flames should not be allowed during mixing..
- Care should be taken in the application of soil toxicants to see that they are not allowed to contaminate wells or springs, which serve as sources of drinking water.
- In case of poisoning, suitable measures shall be taken for protection in accordance with IS 4015.
- The person/operator who use the chemicals shall wear PPE (Personal Protection Equipment) like hand gloves, eye goggles, face masks, safety shoes,, ear muffler, cap etc.
- Avoid the place to be used by the occupant for 2 to 3 hrs. after the treatment is done.





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कैमटेक/सि. /2019/एंटि टरमाइट/1.0

CAMTECH/C/2019/Anti Termite/1.0

नवम्बर – 2019 / November- 2019

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