General code of practice for controlling rats and mice

Inspection

Equipment requirements:
A conventional torch with good batteries and a spare bulb, a pocket notebook or a
clipboard, PPE including overalls, a dust mask, safety shoes and gloves as appropriate need
to be worn.

The 5 principles of rat and mouse control

- Stop them coming in.
- Stop them moving around
- Deny them shelter and harbourage
- Deny them food
- Prevent them from breeding

During a service visit for rats and mice the most important aspect is inspection, this must be methodical. Equal attention is given to: upper areas, such as ceilings voids, dead spaces, wall cavities, service ducts, riser cupboards, lift shafts and cellars. Equally spend time noting the adjacent and external surroundings to gain even more valuable information. Rats and mice can be found in many circumstances so always have an open mind regarding the seat or point of infestation.

1 The first step is to carry out the survey
What is the species infesting the premises?

How wide is the distribution?
How large is the infestation?

What is the site history, are there supporting records of treatment, what recommendations have been made and what previous action has been taken?

What work has been carried out on the premises to proof against rodents in the past?
Where are the most obvious harbourages?
How reliable and what sightings have been logged by site staff?
Are there any known water sources if there is a rat infestation?
What are the food sources; can this source be eliminated or controlled?
Is there an issue regarding waste management?

Where is the infestation coming from?

A) Is it in suppliers goods?
B) Is it via the fabric and services?
C) Is it endemic?
D) How can re-infestation be controlled
E) Is there any threat posed to non-target species?

A) Neighbours
On every site inspect prior the area prior to applying rodenticides and the carrying out the initial treatment: Establish who are the next-door neighbours on both sides and where appropriate who is above, below and behind. Carry out a risk assessment to ascertain any probable infestation. Are there any domestic premises adjoining where rodents could be feeding, you might have difficulty getting access to these. Which adjoining premises could be involved in catering or have foodstuffs stored that could support rodents? Which premises are suitable for rodents breeding, they could be living and breeding in one premises and feeding next door. Build up a scenario of the immediate area and if necessary draw a simple sketch.
Are neighbours placing refuse on the pavements or in a yard that could attract rodents? Are neighbouring empty properties supporting infestation? Are there local reports or do you have knowledge of others nearby with problems that will help build up a picture?

B) EXTERNAL SERVICES AND SURROUNDINGS
Assess the premises being covered from the outside prior to internal inspection. Ensure that
you are familiar with its extent. Establish if there are any of the following: -

Communal refuse storage area - Waste compactors and skips - Dustbin areas or rooms
Service cupboards or plant - boiler - plenum rooms
Disused or derelict property adjacent or nearby - Waste land or overgrown areas
Are there any low growing shrubs planted which could be providing cover?
Railway and other embankments
Is there loose rubble about, are there stonewalls?
Is the ground soft or a hard apron around buildings?
Streams, brooks, rivers, canals, ponds, lakes and watercourses
Is there a refuse tip or landfill site nearby?
Is there a sewerage treatment plant nearby?

Are there any mine workings, tunnels, caves or underground passages in the vicinity?
Are people fly tipping?
Is there any old machinery, equipment or lumber stored which will afford harbourage?
Is demolition work being carried out nearby?
Are buildings being refurbished or constructed nearby?
Is there work being carried out on services such as gas, electricity, water or sewers?

C) External fabric

What is the general condition of the fabric of the building?
What defects are there: -
Holes, missing bricks, masonry, Missing drain covers and services covers?
Are airbricks defective?
Is there any evidence of building shrinkage (internal or external)?
Are any holes evident around pipes and services entering the building?
Are there any uncovered ducts?
Are there any overhead pipes or services connecting buildings?
Are drain down pipes defective allowing access up into guttering and eaves?
Are there any gaps evident under doors and between doors?

D) Internal defects and conditions

Are there: -
Disused lift shafts or a dumb-waiter shaft in the building?
Riser cupboards going through the building?
What is the general condition of the internal fabric of the building?
General holes and cracks and crevices?
Are there any missing bricks and defective bricks?
Masonry defects?
Poor coving and gaps beneath tiles?
Missing drain covers?
Is there any evidence of building shrinkage?
Holes around pipes and services entering the building?
Are there any gaps evident under doors and between doors?
Is there stud walling

Voids and dead spaces caused by shop fitting /refurbishment and refits
Is there a suspended ceiling?
Do the ceiling tiles push out for access into this void
What services pass through walls from neighbouring buildings?

2) Signs of infestation

Sightings
Have there been any sightings, which could positively identify a species on the premises. Recent dead bodies will give a reasonable indication that infestation is still active. Sightings in the daytime may indicate that a large population may exist or that harbourages have been disturbed. Sightings alone will not give an accurate level of infestation present.

Droppings
The size and shape of droppings will indicate the species present and to some extent the age range of the population whether they are juveniles or adult. Bear in mind that brown rats may deposit up to 40 spindle shaped droppings daily and house mice approximately 50- 80 droppings. If these droppings are glistening and shining this could indicate an active infestation. In dryer warm environments they become dull or matt after a few hours.

Gnawed materials
Rats produce a distinct serrated edge whilst a smoother edge is produced when mice gnaw on products. Damaged grain can easily be identified, because rats tend to leave cut or half grains whilst mice nibble all around the grain leaving the core and grain husks. This is sometimes known as kibbling. The presence of droppings alone is not a good indication of current activity because these may be old and not been cleaned away. Observe for other signs such as footprints in dust, gnawing, nest materials etc. If there are a large quantify always insist that old droppings are removed. Smaller number these should be removed at the time of the survey and treatment. Look for chewed paper, cardboard and plastic also. Electrical wiring /alarm wiring, water and gas pipes are vulnerable to attack.

Smell.
Rats and mice do have a distinctive smell which some describe as a “stale” odour while others describe it as reminiscent to biscuits”. The odour remains sometimes long after rodents have been brought under control.

Urine Pillars.
These are formed from the sediment contained in urine being deposited and often consist of grease from the animals coats, dirt and debris. These pillars are often an indication of large long established colonies.

Smears

Rodents use habitual routes or runs and a dark coloured smear or deposit left by grease from Their fur will eventually build up as they brush against surfaces. These are normally found around holes or along pipes, up walls, along beams and girders and even on bait monitors. Smears in the form of loops beneath exposed ceiling rafters or joists will indicate rat activity, a continual pattern indicates brown rats and a broken pattern suggests black rats.

Hairs
These are sometimes found stuck around the entrance to holes and burrows, evidence of a thriving colony.

Nesting material
This is often composed of paper, cardboard, cellophane, plastic, wool, feathers and fur and can be in a dead space, under fixtures and fittings, deep inside stock or between bags or boxes stacked on a pallet.

Rat runs and burrows.
Brown rat burrows are easy to see and are usually found on embankments, sloping banks, in ditches and are usually partially disguised by nearby logs, stones and vegetation. Earthworks excavated from the site will indicate a system in general use. Conversely cobwebs over the entrance to a burrow or hole, grass or weeds growing over a hole or covering a run will denote that it is not in use. All rat burrow systems need to be filled in after treatment to see if re-infestation or occupancy takes place.

Domestic pet excitement.
This might denote residence of a rat or mouse in a premises and their attention to a certain area might give an early warning of activity.

Rodent control and eradication service procedures

1.) Rats- External site boundary and building perimeter treatment.

A) Gassing burrows and fumigation
When it comes to fumigation there are four distinctive methods in use today. It can be a very effective but potentially hazardous method for the operative. It is always the most effective method when employed.

I. Use of a fumigant in outdoor burrows
Ii. The fumigation of stacks and commodities under gas proof sheets or in containers
Iii. The fumigation of buildings and silos
Iv. The fumigation of aircraft, barges and ships holds

I. The use of a fumigant in outdoor burrows
The most common method is to use the tableted aluminium phosphide preparation, which is formulated in 3gm tablets. This material is very toxic and liberates a toxic and flammable gas when exposed to water. Each flask contains 30 tablets.

Equipment requirements: Overalls, gloves, safety shoes, spade or shovel

Material requirements: Detia gas flask. (Aluminium Phosphide (57.0% w/w)

Method statement.
Identify the extent of the burrow system in an embankment or planted bed. Ensure that you work more than 10 metres away from a building, it is not safe to work closer than this to buildings in case of drainage channels, windows, doors or building fabric defects because the gas could find a way into other properties. Fill in all holes except for two in the system by placing small inverted turfs in holes and pack down earth. Place two or three tablets into the holes left open and seal these with turfs and earth as described above. Do not in any circumstances work with these gas tablets in wet weather. In normal circumstances the gas is produced in 40 minutes to an hour after placing them in the holes, this is due to the action of moisture contained in the soil. Use all the tablets in the flask; do not try to reseal the flask. Any burrows are re-opened by rats after 48 hours the treatment needs to be repeated.

B) Control of rats around the perimeter of sites
All rat infestation found inside buildings is bound to have originated outside at some time and their access has been either via open doors, building defects or via services. To prevent this situation arising it is imperative to control rats outside long before they decide to start to enter properties. There are two fundamental methods: -

Site boundary baiting / monitoring.
i) As pure monitors to detect infestation
ii) Pulse baiting for a significant infestation

Building perimeter baiting / monitoring.
i) As pure monitors to detect infestation
ii) Pulse baiting for a significant infestation

Method statement

Site boundary baiting / monitoring

I) As pure monitors to detect infestation Site boundary baiting refers to placing bait/monitors all around the perimeter fence, walls, hedgerows or an embankment that marks the boundary of that property. The bait stations should be sited between 15 and 30 metres apart. The site boundary bait / monitors will give an early indication of rat activity and could well help control migrating individuals entering a premises. The theory is that rats will feed from these bait stations and be despatched before they can make incursions into buildings.

In reality the bait takes are often the result of voles, field mouse, slugs and even bird activity if not protected correctly. Site boundary baits will certainly give early signs of infestation but often a full system necessary to protect a large property can be expensive to install and time consuming to maintain. Most site boundary systems follow the fences and should always be placed in purpose-made containers, which are tamper proof and substantial in construction. Place a bait point near a visible run, nesting or feeding site at entrances to burrow systems. Once sited mark on a bait plan and number the bait station with a reference number or letter so that it can be found again by others. Stake it into the ground if on soft earth or another medium and fix to a fence or wall if practical. If under shrubs and bushes try to identify exactly where the location is on the plan. If you are using the metal hopper feed bait box use only a bait containing an anti mould inhibitor.

Once sited check after three days to see if there are takes and follow up every 3 to 5 days if there has been a take in the first two weeks replacing bait. If it has all been taken increase the quantity in the container. Do not stop baiting until the feeding has stopped. After all takes have stopped check the baits in another two weeks to confirm clearance. (The exception is where the client specification asks for more regular attention e.g. every other day for three clear visits).

Site boundary baiting / monitoring

Ii) Pulse baiting for a significant infestation

"Pulse baiting" is a method where chronic poison is normally laid in large quantities (200-400gm) stations. The stations need to be 10 metres apart.

Dominant (alpha) rats feed first. This means they feed over several days taking more than is needed to kill them. Use 2nd generation poisons; - Bromadialone / Difenacoum. New bait is then laid after 10 days which means the new (alpha) dominant rats start to feed, these were the less dominant rats previously (usually juveniles). Pulsebaiting saves time and bait on a site that is infested. You can place block bait directly down holes as long as the hole is then covered to prevent non-target species feeding.

Method statement

Building perimeter baiting / monitoring.

I) As pure monitors to detect infestation.

Building perimeter baiting refers to placing bait /monitors all around the perimeter of buildings, they may be near boiler houses, plant rooms, refuse areas, good inwards, reception areas, warehousing or canteens. They may be sited near access routes into a building or in areas where there is a defect in the building fabric such as a hole. The building perimeter bait / monitors will give an early indication of rat activity and could well help control migrating individuals living around a premises. They could be feeding from refuse waste areas, effluent treatment or from spillage from goods reception areas. There may well be a problem in sewers or the drainage system. The theory is that rats will feed from these bait stations and be despatched before they can make incursions into buildings. In reality the bait - takes result from slugs and even bird activity if not protected correctly.

Perimeter baits will certainly give early signs of infestation but often a full system necessary to protect a large property can be expensive to install and time consuming to maintain. Most building perimeter systems follow the site plans often available from engineers and baits should always be placed in purpose made containers, which are tamper proof and substantial in construction. Place a bait point near to known or suspected run or feeding site at entrances to buildings. Once sited mark on a bait plan and number the bait station with a reference number or letter so that others can find it again. Fix to a wall or concrete apron or similar if practical. If you are using the metal hopper feed bait box use only a rodenticide containing an anti mould inhibitor. It is preferable to use loose grain in these containers if possible as the bait is much more palatable. Plastic bags used for grain baits are often dragged out of the container unless secured. Ideally the quantity per bait station should be 200 gm. If the monitors are purely to ascertain infestation and not for control site monitor points use three to five blocks per bait station

between 15 and 30 metres apart.

Once sited check after three days to see if there are takes and follow up if there has been a take in the first two weeks replacing bait. If it has all been taken increase the quantity in the container. Do not stop baiting until the feeding has stopped. After all takes have stopped check the baits in another two weeks to confirm clearance. (The exception is where the client specification asks for more regular attention e.g. every other day for three clear visits).

Cage traps can be used; these are best baited with tinned cat or dog food. Although very labour intensive the catch numbers can be sometimes surprisingly high.

Building perimeter baiting / monitoring.

Ii) Pulse baiting for a significant infestation

"Pulse baiting" is a method where chronic poison is normally laid in large quantities (200-400gm) stations. The stations need to be about 10 metres apart. dominant (alpha) Rats feed first. This means they feed over several days taking more than is needed to kill them. Use 2nd generation poisons; - Bromadialone / Difenacoum. New bait is then laid after 10 days which means the new (alpha) dominant rats start to feed, these were the less dominant rats previously (usually juveniles). Pulse baiting saves time and bait on a site that is infested.

C) Control of rats inside buildings

Using: - UV dust for monitoring activity, liquid baits, traps, dust, gel, sticky boards, cage traps.

Methods

Liquid baits

In some circumstances it may be possible to establish liquid baits in buildings where there is no alternative water or liquid source but a lot of foodstuffs available (stored or spilled) and you cannot get rats to feed on conventional baits. The ideal use for this method is in a flourmill, seed store or dry commodity producers premises especially during the summer months or when there are long spells of dry weather. Assuming there are no external sources readily available close to buildings. Rats need to drink small amounts throughout the day. Use Difenacoum liquid concentrate 0.25%, mixed with water, see label for full instructions.

A chick-drinking font containing the liquid bait should be placed in the same way as you would an internal rat bait point. These will need topping up every few days, as the liquid will evaporate. The liquid rodenticide is usually of a higher concentration and one concern is that non target species could be attracted to drink unless excluded, e.g. farm animals and dogs. The poison has a soluble coloured dye for recognition.

Traps

Only site traps in circumstances where a client wants to see that we have eradicated the rodent or where there is an embargo on using rodenticide formulations (some US parented companies have these restrictions in force.) Traps are usually made of metal but some people prefer wooden ones (little nipper), site two or three days before attempting to bait or to arm the trigger device as rats exhibit new object shyness.

Cage traps

Cage traps can be used indoors such as in a large warehouse or storage area if you need to ascertain capture, these are best baited with tinned cat or dog food. Although very labour intensive the catch numbers can be sometimes surprisingly high. Site two or three days before attempting to bait or to arm the trigger device, as rats exhibit new object shyness

Contact Dust,

This must only be used where a rat has gained entry in a void, cavity wall or ducting which is enclosed and where the dust cannot get into air conditioning or be blown into other areas or come into contact with food surfaces. Apply a light sprinkling of dust 1cm thick in these runs or harbourages. Do not use dust in a ceiling void where maintenance staff might need access. Rats spend 20% of their time (4 to 6 hours a day) grooming so the dust is easily ingested. Dust should be applied with either a blower, or gun or by spoon.

Sticky boards,

It is not normally the best method of capturing rats but sometimes when a rat has avoided capture and has not taken baits this is the only method available. The boards should be substantial at a size of 40 x 20 cm, use plywood rather than cardboard otherwise rats will drag them around of they are caught by only one or two limbs. These boards must checked ever hour if sited and any captures

despatched. Site near known harbourages and where runs have been established. Always ensure the glue is applied right to the edges when used for rats.

Chronic rodenticides
Pulse baiting methods described above are not normally necessary indoors unless there is a large colony of rats that have taken up residence in properties. The first action is to establish if they are living in sewers under or adjacent to the property, if so effect sewer baiting work procedures. If there is a large colony denoted by sightings, signs etc. Use pulse baiting techniques as follows: -
"Pulse baiting" is a method where chronic poison is normally laid in large quantities (200-400gm) stations. Dominant (alpha) Rats feed first. This means they feed over several days taking more than is needed to kill them. Use 2nd generation poisons; - Bromadialone / Difenacoum. New bait is then laid after 10 days which means the new (alpha) dominant rats start to feed, these were the less dominant rats previously (usually juveniles). Pulse baiting saves time and bait on a site that is infested.

If the infestation is a single sighting or has a transient nature and it is inside a food premises use the current company bait formulation in a suitable enclosed bait monitor or if in a non-food situation where there is no risk of spillage or contamination use one of the following loose baits depending on local feeding preferences: - Use the current company bait formulation. Once sited check after three days to see if there are takes and follow up if there has been a take in the first two weeks replacing bait as required. If it has all been taken increase the quantity in the container. Do not stop baiting until the feeding has stopped. After all takes have stopped check the baits in another two weeks to confirm clearance. (The exception is where the clients specification asks for more regular attention e.g. every other day for three clear visits)

If the monitors are purely to ascertain infestation and not for control site monitor points use three to five blocks per bait station between 5 and 30 metres apart.

Using tracking powders and UV sensitive dust
Use the current company agreed formulation, site in known harbourages to ascertain activity. This must only be used where a rat has gained entry in a void, cavity wall or ducting which is enclosed and where the dust cannot get into air conditioning or be blown into other areas or come into contact with food surfaces.

Do not use in a ceiling void where maintenance staff might need access. Dust should be applied with either a blower, or gun or by spoon. U V sensitive dusts are inert and can be used to see if rats are entering and leaving a suspected harbourage or if there is re-infestation. Place the yellow dust into a Centro duster and blow a small amount into a hole or known harbourage. Using the UV lamp see if footprints or small amounts deposited on the rats fur have been transferred onto surfaces. If the dust glows in the light, this will indicate that rats are leaving a harbourage for feeding etc. action can then be taken to control populations in the harbourage.

D) Mouse control outside buildings
It is normally not practical to bait externally against mice. The first priority on the inspection is to locate the ingress points into the building and then to effect a suitable proofing schedule taking into account neighbouring premises, services, defects around pipes and the general fabric, gaps beneath doors and building shrinkage. Are mice feeding from waste compactors or dustbin areas (see section on inspection) if so effect a proper waste management regime. In some circumstances mice might be living in storage cupboards, service cupboards, cardboard storage areas outside a building, make sure these areas are logged on a treatment plan.

E) Mouse control within buildings
Using: - Chronic rodenticides, alpha chloralose, traps, sticky boards, contact dust, tracking dust and UV sensitive dust, Sorex checkatubes.

Initial visit all sites
During the first treatment, a thorough inspection is made to determine areas of activity, cleaning issues, and structural deficiencies.

Method statements -
1.When droppings are found they must be eliminated immediately with a vacuum.

2.A preventative application of potential rodent harbourage sites, which include: voids in walls, dead spaces, ductings, pipe chases, services, lift shafts, fabric defect areas, etc.

3.Monitor placement - rodent monitors will be placed to cover all entry and potential entry points. When placing

monitors keep in mind these three principles:

A) Do not place monitors where they can be observed by the general public.
B) Do not place monitors where our clients' can easily destroy them. Bear in mind the cleaning methods used – is there a possibility that exposed monitors might be cleaned away by staff
C) Maintain thorough coverage of the premises, reducing when there are no takes and increasing baits in the take area.
D) Number of monitors - No one can tell you exactly how many monitors will be needed in a given area. Each premises is very different and will therefore, have different monitoring points. The number of monitors placements will be reduced during the regular follow up service visits, will have to be increased if re infestation occurs.

Low level of infestation or monitoring only
If the infestation is a single sighting or has a transient nature and it is inside a food premises use the current company bait formulation in a suitable enclosed bait monitor or if in a non-food situation where there is no risk of spillage or contamination use one of the following loose baits depending on local feeding preferences. Once sited check every other day to see if there are takes and follow up if there has been a take in the first two weeks replacing bait as required. If it has all been taken increase the quantity in the container. Do not stop baiting until the feeding has stopped. After all takes have stopped check the baits in another two weeks to confirm clearance. (The exception is where the clients specification asks for more regular attention e.g. every day for three clear visits)

If the monitors are purely to ascertain infestation and not for control site monitor points use one block per bait station between 2 and 3 metres apart. Gel bait must be applied at 5gm amounts in each box and this should be checked every day for the first 4 days and the bait replaced as necessary. Baits should be sited 1 to 2 metres apart.

Serious infestation
Mice will often take a seed based bait when there are plenty of food sources available, this is because mice are partial to canary seeds and will feed on them readily as a novelty.

Alpha Chloralose
Also consider alpha chloralose in cold environments where the temperature is below 15F and 6 centigrade. Only leave down for 1 week and collect up all baits, do not repeat for at least 4 to 6 weeks. Mice eating alpha chloralose, will start to be affected in 5 to 10 minutes with feeding ceasing in 20 minutes. Mice get hypothermia and the metabolism is slowed down with the rodent dying rapidly. However sub lethal doses will lead to bait shyness.

Traps
Only site traps in circumstances where a client wants to see a rapid reduction in the numbers of mice or where you want to get a fast clearance prior to going on to monitor baits to record transient populations or re-infestations. Traps are usually made of metal or wood, some prefer wooden traps (little nipper) these can be sited in runs so that mice are captured whilst running to and fro or set with bait for them to feed from. Place any one of these suitable baits on the trap :- sultanas, raisins, chocolate, bacon rind, ham with fat, tomato, moist bread, moist cake. All traps must be marked on a plan and then be checked the following morning (company rules) Traps must not be left down for longer than this time in case mice have been caught by a limb or another part of the body and are suffering, they must be despatched humanely. A dead mouse will often distress some people and will inevitably smell and could attract flies.

Sticky boards
This is a very effective method of capturing mice but sometimes mice will avoid them in some metropolitan areas. These are mice that are bait box and feeding shy. The boards need to be 15 x 10 cm; you can use cardboard, hardboard or plywood. These boards must checked ever hour if sited (company rules) and any captures despatched. Site near known harbourages and where runs have been established. They must not be left down longer in any circumstances even in voids or ductings. You can ring sticky boards around a stack, item of plant or machinery, stored items such as cardboard or an old mattress etc. Once flushed mice will try to escape and be captured on the boards.

Contact Dust
This must only be used where mice have gained entry in a void, cavity wall or ducting which is enclosed and where the dust cannot get into air conditioning or be blown into other areas or come into contact with food surfaces. Apply a light sprinkling of dust 1cm thick in these runs or harbourages.

Do not use in a ceiling void where maintenance staff might need access. Mice spend 20% of their time grooming so the dust is easily ingested. Dust should be applied with either a blower, or gun or by spoon.

Using tracking powders and UV sensitive Dust

Dust can be sited in, known harbourages to ascertain activity. This must only be used where mice have gained entry in a void, cavity wall or ducting which is enclosed and where the dust cannot get into air conditioning or be blown into other areas or come into contact with food surfaces. Do not use in a ceiling void where maintenance staff might need access. Dust should be applied with either a blower, or gun or by spoon. U V sensitive dusts are inert and can be used to see if mice are entering and leaving a suspected harbourage or if there is re-infestation. Place the yellow dust into a Centro duster and blow a small amount into a hole or known harbourage.

Using the UV lamp see if footprints or small amounts deposited on the rats fur
have been transferred onto surfaces. If the dust glows in the light, this will indicate that mice
are leaving a harbourage for feeding etc. Action can then be taken to control populations in
the harbourage

Sorex checkatubes

The principal is two impregnated wicks are incorporated inside a long tube through which mice chase each other, explore and play. The wicks paint insecticide onto the mouse fur and subsequent grooming ensures ingestion of the poison. These are ideal when building stacks of foodstuffs in sacks or bags which are intended for long term storage. They also work well inside machinery where mice have copious amounts of food material and will not readily take baits from monitors. Tubes should be sited also in mouse runs where feeding is difficult to achieve.