

# Squash Court Maintenance

## COURT HEATING AND VENTILATION

### **Vents**

If high level vents have been installed on the play wall, it may be necessary to seal these. This will ensure that the air is drawn across the court from low to high level. Additional ventilation for the viewing gallery area should be installed, the size needed will relate to the volume of the gallery. Extractor fans, when fitted with a speed controller, will enable the fans to be run at low speed when the courts are not in use and manual control to a higher speed when they are in use. Fans should be allowed to run on for 20 minutes after the court has been used.

### **Over Heating**

Where courts become excessively hot it may be necessary to install a larger fan. A speed controller will be required to reduce the extract rate in cold weather.

### **Mould Growth**

If there are any signs of mould growth inside the court, this may be the result of a water leakage through the outside structure. If mould appears internally in the corridor, spectator's gallery or changing room, and if a leak in the structure can be discounted, then these growths are usually the result of high humidity which may be caused by poor ventilation. Mould can also appear on an emulsion painted surface, where the paint has been applied to a structure which, although appearing dry on the surface, has not completely dried out. Mould growth is best dealt with by brushing down to remove the loose mould growth and then treating with a proprietary mould inhibitor fungicide or a diluted solution of household bleach, containing chloride. The surface should then be washed down with clear water and left to dry thoroughly.

### **Changing Rooms**

Changing rooms with showers and sanitary facilities should comply with the relevant requirements of the Building Regulations. There is a requirement for the fans to over run for 15 minutes. We suggest that it is more satisfactory for the fans to run continuously.

### **General**

Some courts have their own special problems which may be the result of their location or construction. If effective and efficient use is made of existing heating and ventilation systems, or consideration is given to installing such systems, it should be possible to minimise the risk of condensation.

# HOW TO DEAL WITH SLIPPERLY SQUASH COURT FLOORS

## INTRODUCTION

The floor is one of the two principal playing surfaces in a squash court. To replace a squash court floor is expensive, both in terms of capital investment and lost revenue during the replacement period. It is, therefore, common sense and prudent to maintain and repair floors diligently and regularly. This paper refers to floors laid in maple, beech and MDF panels (painted). Other timber floors such as pine boards or herring bone fashion pine blocks are occasionally found, as are floors in plywood and composition materials are not generally considered suitable for squash court floors.

## 2. MATERIALS

### **Beech**

Beech strip flooring is widely used. Beech strips can be easily recognised as they are in double widths and regular lengths. This timber comes in strips of 3700mm long, 129mm wide and 22mm deep.

## 3. SLIPPERINESS

Slippery floors are probably the most frequent cause for complaint by players. The problem usually arises from one or more of the following conditions, all of which can be overcome.

## 4. MOISTURE

Visible (sweat) or invisible (condensation) moisture, which settles on the surface of the court floors, rather than being absorbed by the wood and with a small amount of dust from the breakdown of the ball can cause a dangerous loss of traction both to players' footing and the ball. Any moisture on the floors should be urgently investigated, especially if there is any possibility of penetration through the roof, walls or floors. Never spend money on the inside of a court until the external shell has been proved watertight. Remember that the environmental properties of a squash court and the surrounds can materially affect the likelihood of moisture problems. Moisture on the floor is frequently exacerbated by sealed floors.

## 5. SEALING

Court floors should be UNSEALED to lessen the risk of slipperiness. Historically, floors were sealed because most courts were built detached from club houses and/or were unlikely to be regularly cleaned. Players would, as often as not, walk from the changing rooms to the courts across wet, muddy or dirty car parks in their playing shoes, thus transporting undesirable material onto the court.

Any sealant reduces porosity (the ability to absorb moisture rather than allowing it to gather on the surface) of timber; thus a sealed floor is inherently more prone to slipperiness than an unsealed one when affected by sweat or condensation.

Floor treatment should only be carried out by a flooring contractor who has the correct type of equipment and who has proven experience and competence in treating squash court floors.

## 6. TO SEAL OR NOT TO SEAL

### IF THE FLOORS ARE NOT SEALED

- Greater ability to absorb moisture
- Reduction in risk of slipperiness
- Provision of lighter coloured surfaces
- Preferred by competitive players

### IF FLOORS ARE SEALED

- Better ability to repel stains
- In certain circumstances it may be considered preferable to apply a sealant e.g. where access from changing rooms to courts requires an out of door transit resulting in dirt/grit being carried into the court area.

### IF IT IS DECIDED TO SEAL, THERE ARE IMPORTANT STEPS TO TAKE:

- Never seal an already sealed floor without sanding first
- Sand to clean white wood leaving a slight surface nap (60 grade grit has been found to be suitable)
- Leave no traces of paint, stain or dirt
- Clean the floor thoroughly, taking off all dust and dirt
- Check for raised nail heads, split boards and exposed tongues

## 7. DUST

Accumulated dust and dirt on the floor can lead to slippery condition. Regular cleaning of squash court floors is necessary to avoid this.

A Vee mop with a cotton/synthetic head on a wire frame with a flexible head pushed across the floor will create static which attracts the butyl-rubber dust from the floor, this method will be found to be more effective than sweeping with a soft broom.

In severe cases where dust has been allowed to build up, an industrial pattern vacuum cleaner should be used.

If there is a persistent problem with dust, a slightly damp towel will remove the majority of dust from the floor. The towel must not be made so wet that it leaves traces of moisture on the floor. It is also important to clean regularly the adjacent

areas such as the galleries, lobbies and corridors. It is advisable to supply mats immediately outside the court doors, which will help prevent dust and dirt being carried or blown onto the court.

## **8. SANDING**

The floor is sanded by running the sanding machine along the length of the court. The surface should be left with a slight `nap'.

## GUIDELINES FOR SAFETY ON SQUASH COURTS

### Displayed in the Corridor

- First Aid Box (complying with Approved Code of Practice for First Aid at work) available in sight close to courts.
- A list of contacts for local doctors/dentists/hospitals/ambulance/qualified first aiders should be displayed.

### Displayed on the Squash Court Door(s)

- A notice showing that only shoes designed for squash with non marking soles providing a good grip are permitted on court.
- Door viewer to court and notice 'Do not open door before checking that the court is not **in use**, and knock before entry'.
- An internal flush door handle should be fitted.
- A check action door closer should be fitted.
- Door hinges should not protrude in front of the face of the door.

### Floor

- Floor should be unsealed to provide a good shoe grip.
- Floor lines should be taped.
- Floors should be regularly checked for split boards and that all are level with no projecting screws or fixings. Repairs should be carried out immediately.
- Clean floor daily (minimum) with V mop to remove dust and thereby remove slipperiness.

### Walls

- Clean to remove dirt and grease marks from ball, racket and body contact.

### Glass Back Walls

- Glass back walls require frequent cleaning and the door latch and hinges should be regularly checked and maintained.
- At least once a year the glass back wall should be inspected by a qualified person to ensure that the fixings have not become loose, and if necessary, adjustments made.

### Lighting

- Lighting Clean and replace tubes at regular intervals to maintain 400 lux/1 m above floor over full court area.
- Ball guards for light fittings are available

### Temperature

- a 15°C +/-3°C recommended, to prevent possible condensation

### Ventilation

- Ventilation access through the tin with the mechanical extractor fan sited at the rear of the court at high level to provide four air changes per hour.

### Board and Tin

- The board at the top of the tin should have no projections. The tin, if metal, should be undamaged with no sharp edges. If of any other material, all fixings, screws should be countersunk.

## SQUASH COURT LIGHTING

### REQUIREMENTS

**The Squash Court shall be lit by artificial light.**

The basic requirement for court lighting is the provision of the following:

1. The recommended minimum standard of 400 lux when measured at 1000mm above the floor. The floor should have a minimum reflectance value of 50 +/-10%.
2. Light fittings able to withstand ball impact.
3. Lighting to be free of stroboscopic effects.

### EXISTING COURTS

Natural lighting in the form of windows and/or roof lights is not acceptable.

Tungsten fittings in the form of a large diameter metal reflector with a screw in or bayonet pattern lamps are not recommended as being suitable for lighting a squash court. They also have the disadvantage of being expensive to run.

When it becomes necessary to replace lighting on squash courts with tungsten fittings or earlier pattern fluorescent fittings with bayonet type end caps, please note that these are now obsolete. It will therefore be necessary to install new fittings as described below.

The majority of existing courts will have the conventional twin tube 1800mm long (6ft) fittings using the 38mm diameter Argon filled 75/85W tubes. Replacement tubes and fittings for this type are available. Later fittings use the Krypton filled 1800mm 70W tubes. Fluorescent halophosphate 50HZ tubes lose their efficiency on the basis of 2% - 6% reduction in light output for every 1000 hours they are in use. This coupled with inefficient cleaning can reduce the light level by as much as 25% over a period of time. For example, after 4000 hours the output may have reduced by up to 20%.

Tubes failing during the first 100 hours (approx) of use should be replaced. **It is essential** to renew all the tubes when one or more fittings have a faulty tube. The life of a fluorescent tube is estimated to be approximately 6000 - 7000 hours. It will be evident that if a court is in use for 10 hours (approx) per day over a 2 year period, the tubes will be near the end of their useful life. It then becomes economic to replace the tube as the cost of the

Replacement tube is less than the cost of the wasted energy.

In order to provide a more efficient form of lighting combined with savings in running costs, typically 20% to 30%, consideration should be given to using high frequency lamps and control **gear**. This type of lighting works at 28000HZ (cycles per second) and completely eliminates the strobe effect. This type of fitting, when

used in new projects, will comply with Building Regulation L1, (energy saving only). For the standard layouts for court lighting **please see** the following pages.

Using 6 twin 70W tri-phosphor 4000K lamps will achieve an average of 400 lux measured 1000mm above the floor. This figure is subject to the reflectance of the ceiling, walls and floor and a maintenance factor of 0.85 based on a white playing surface. Increasing the number of fittings from 2 to 3 parallel to the front wall will improve the lighting at high level at the front of the court.

When a court has a height above (say) 7m, there is little light reflectance from the underside of the roof or ceiling. Additional lighting may be necessary to offset the dark void above the court as players would find it difficult to sight the ball against this dark background.

Where coloured wall surfaces are used, the average lux will be reduced and an allowance, based on the reflectance value of the wall surfaces, may require an increase in the number of fittings to be used. Where enclosed surface mounted fittings are to be used, specify prismatic diffusers as these emit light in all directions.

In order to provide even illumination to the side walls, open ended, angled reflectors should be used for the fittings parallel to the front wall and all reflectors should have slotted top sections to allow the light to reflect on to a light coloured ceiling finish.

Light fittings which run parallel to the side walls give better illumination on the side walls than fittings which are set across the width of the court.

It is advisable to have wire guards fitted to all fittings where the tubes are exposed.

An alternative method of lighting a court where a suspended ceiling is installed consists of recessed type fittings with polycarbonate diffusers that project below the ceiling line with the light spreading from the side of the fitting on to the surrounding ceiling surface. As there will be a reduction in the output using this type of fitting, additional fittings will be required and you are advised to seek advice from the manufacturers.

Where a glass back wall is used, with either fixed or removable seating, the lighting levels in these areas outside the court should be provided to the same standard as the courts. If the lighting is of a lower standard to the spectator side of the glass wall, the back wall will act as a mirror for the players. For this reason, the walls and ceiling surfaces outside the court should be painted a light colour.

The floor surface for a distance of 900mm behind the glass back wall should be the same colour or lighter than the floor of the court. The provision of a suitable dimmer switch on the light fittings in the spectator areas will allow the lighting to be reduced, but care should be taken not to allow the glass wall, when viewed from inside the court, to act as a mirror.

All types of light fittings require regular cleaning to remove the build up of dust and dirt, which are inevitable in a squash court.

Changing tubes and cleaning fittings is a task that should be carried out on a regular basis.

If fittings have been in use for some considerable time and faults occur, e.g. The fittings become noisy, then consideration should be given to replacing the complete fitting/s.

## RECOMENDED SQUASH COURT INSPECTION AND MAINTENANCE PROGRAMME

<b>DAILY</b>	
COURTS	<ol style="list-style-type: none"> <li>1. Clean the floors with a dry mop using a synthetic or cotton head.</li> <li>2. Change the head at weekly intervals.</li> </ol>
CHANGING ROOMS	<ol style="list-style-type: none"> <li>1. Vacuum or sweep floors and remove litter.</li> <li>2. Floors with a ceramic tiled finish may require mopping down with warm water.</li> </ol>
SHOWERS	<ol style="list-style-type: none"> <li>1. Check that basins are not blocked.</li> <li>2. Clean shower trays and wash down floor area.</li> <li>3. Disinfect.</li> </ol>
WASH BASINS	<ol style="list-style-type: none"> <li>1. Clean and disinfect.</li> <li>2. Check operation of taps and that WCs and Urinals wastes are not blocked.</li> <li>3. Provide clean towels</li> <li>4. Replace soap and toilet paper</li> </ol>
ELECTRICS	<ol style="list-style-type: none"> <li>1. Check operation of lights and coin meter (if applicable)</li> </ol>
<b>WEEKLY</b>	
CHANGING ROOMS	<ol style="list-style-type: none"> <li>1. Dust seating</li> </ol>
WASH BASINS, WCS AND URINALS	<ol style="list-style-type: none"> <li>1. Check wastes, operation of taps, and flushing mechanism</li> </ol>
ENTRANCE AREAS	<ol style="list-style-type: none"> <li>1. Sweep out before cleaning the courts</li> </ol>
STAIRCASE AND GALLERY	<ol style="list-style-type: none"> <li>1. Dust gallery rail before cleaning the court</li> </ol>
ELECTRICS	<ol style="list-style-type: none"> <li>1. Check that all lights are working</li> <li>2. Check operation of electric hair dryers</li> <li>3. Check that ventilation extract fans and heating are working correctly</li> </ol>
HEATERS	<ol style="list-style-type: none"> <li>1. Check that the equipment is working satisfactorily and check setting of controlling thermostat</li> </ol>
FIRST AID BOX	<ol style="list-style-type: none"> <li>1. Check contents, replace items that have been used</li> </ol>
SHOWERS	<ol style="list-style-type: none"> <li>1. Clean and change shower curtains</li> </ol>
<b>MONTHLY</b>	
COURTS	<ol style="list-style-type: none"> <li>1. Check floors for any loose or broken floor boards</li> <li>2. Check angled batten above the 'tin' fro cracks, splinters or protruding screws</li> <li>3. Check the tin for loose screws, damage, sharp edges or where drilled for ventilation</li> <li>4. Check operation of entrance door and that it does not rub on the floor</li> <li>5. Check concealed butts for loose screws and wear</li> <li>6. Check operation of latch and door closer (adjust if necessary) to prevent door from slamming</li> </ol>

	7. Check plaster surfaces for any required repairs and for traces of unnecessary marking, for example racket marking caused by coloured bumper strips or tape.
SHOWERS	<ol style="list-style-type: none"> <li>1. Clean floors and all tiled surfaces</li> <li>2. Check curtains and curtain fittings for damage or wear</li> <li>3. Check operation of shower roses and valves</li> <li>4. Check that wastes or showers are not blocked</li> <li>5. Check shower doors, operation of indicator bolts and latches</li> </ol>
WASH BASINS	<ol style="list-style-type: none"> <li>1. Check that wash basins, WC's and urinals are not blocked</li> </ol>
ELECTRICS	<ol style="list-style-type: none"> <li>1. Check that exterior fans are working in courts and changing rooms</li> <li>2. Check and replace defective tubes in court</li> <li>3. Do not replace a single tube in any fitting unless it has been in use for less than 100 hours. Replace all tubes in each fitting at the same time</li> </ol>
<b>SIX MONTHLY</b>	
COURT	<ol style="list-style-type: none"> <li>1. Check floors for expansion against or below the plaster surfaces on the side walls</li> <li>2. Check the floor surface is level</li> <li>3. Check plaster surfaces, pay particular attention to the play wall for pock marking or loose plaster</li> <li>4. Check side walls for traces of unnecessary marking by rackets particularly marks made by coloured bumper strips or tape</li> </ol>
SHOWERS, WASH BASINS, WC'S & URINALS	<ol style="list-style-type: none"> <li>1. Check the operation of all water storage tanks, hot water cylinder and supply system, and boiler for leaks</li> </ol>
ELECTRIC	<ol style="list-style-type: none"> <li>1. Clean extractor fan blades</li> </ol>
GAS OVERHEAD HEATERS	<ol style="list-style-type: none"> <li>1. Check radiant heaters and clean fans</li> </ol>
BOILERS	<ol style="list-style-type: none"> <li>1. Carry out routine servicing according to manufacturers specifications</li> </ol>
<b>ANNUALLY</b>	
SHOWERS AND CHANGING ROOMS	<ol style="list-style-type: none"> <li>1. Check operation of thermostatic valves on showers, remove and clean filters if fitted.</li> <li>2. In hard water areas more cleaning of filters will be necessary</li> <li>3. Ensure that all waste pipes are free flowing and that traps and overflows are clear</li> <li>4. Check that external gullies taking the waste from the basin and showers are not blocked</li> </ol>
ELECTRICS	<ol style="list-style-type: none"> <li>1. Check the operation of all switchgear, including earth leakage trips if fitted</li> <li>2. At not more than 5 yearly intervals have the complete</li> </ol>

	<p>electrical system checked by your power company or an approved electrical contractor. Request a written report.</p> <p>3. Check that speed controllers on fans operate effectively</p>
GENERAL	Carry out external and internal maintenance of painted surfaces
INSURANCE	Seek professional advice as to the cost of repairing courts and check that the insurance value is correct. Also check that you have public liability insurance.

## **Court Markings - Floor**

### **There are 4 Squash Court markings:**

- a. The short Line
- b. The half court line
- c. The right service box
- d. The left service box

All court markings must be 50 mm wide and contrast in colour to the adjoining surfaces and

All floor markings must be of the same colour.

All court markings shall be straight to within plus or minus 2 mm in three metres.

The Short Line which runs parallel to the front & back walls of the court is 4260 mm from the back wall.

The Half Court line runs from the back wall to the Short Line and is parallel to and equidistant from each of the side walls.

Each service box is square with internal sides of 1600 mm.

### **Procedure to Apply Tape**

1. Apply to a clean, dry & dust free surface
2. Once the tape is applied, cut with a razor blade at intersections & obvious places where wearing out occurs, to prevent accidental lifting & to help with ease of replacement.
3. To remove existing tape, use a hairdryer I heat gun or something similar.
4. Scotch Brand 471 Vinyl Tape is the recommended tape to use. Two rolls per court needed
6. Tape can be purchased from Squash NZ at \$45 per roll which includes GST, postage & packing.

### **Scrubbing Court Floors**

Courts should have a natural wood finish. They should be scrubbed and left. Courts should be finished with 80 grit sand paper if sanded.

## SQUASH COURT MAINTENANCE LIST

CONTACT DETAILS FOR COMPANIES KNOWN TO OFFER GENERAL SQUASH COURT REPAIR AND MAINTENANCE SERVICES

COMPANY	ADDRESS
<p><b><u>Cleaning Services (Work at Heights)</u></b>            Access Property Care            Ph: 358 3004            Fax: 358 3005            Web: <a href="http://www.accesspropertycare.co.nz">www.accesspropertycare.co.nz</a></p>	<p>Buckland Building, Level 1            34 Customs Street East            Auckland</p>
<p><b><u>Painting and Repair Squash Court Walls</u></b>            Glenfield Coating Services Ltd            Ph: 448 1487            Fax: 448 1489            Email: <a href="mailto:info@gcsLtd.co.nz">info@gcsLtd.co.nz</a>            Web: <a href="http://www.gcsLtd.co.nz">www.gcsLtd.co.nz</a></p> <p>Andrews Property Services            Ph: 846 3329            Fax: 846 3375            Email: <a href="mailto:aps@apsLtd.co.nz">aps@apsLtd.co.nz</a>            Web: <a href="http://www.apsLtd.co.nz">www.apsLtd.co.nz</a></p>	<p>C2/7 Tait Place            Albany            Auckland</p> <p>21E Taylors Road            Morningside            Auckland</p>
<p><b><u>Squash Court Floor Sanding</u></b>            Genie Carpet Care &amp; Restoration            Ph: 0800 160 610            Mobile: 027 559 9959</p>	<p>PO Box 14296            Panmure            Auckland</p>
<p><b><u>Squash Court Ventilation Systems</u></b>            Avon Electrical Ltd            Ph: 0800 379 247            Web: <a href="http://www.avonelectric.co.nz">www.avonelectric.co.nz</a></p>	<p>25 Taurus Place            Christchurch</p>
<p><b><u>Squash Court Lighting</u></b>            Lamp Specialists            Ph: 444 2297            Fax: 0800 526 777            Email: <a href="mailto:lampspecs@lighting.co.nz">lampspecs@lighting.co.nz</a>            Web: <a href="http://www.lampspecialists.co.nz">www.lampspecialists.co.nz</a></p> <p>Phillips Lighting            Ph: 815 4000            Fax: 0800 454 448            Web: <a href="http://www.phillips.co.nz">www.phillips.co.nz</a></p>	<p>57C Hillside Road            Glenfield            Auckland</p> <p>2 Wagner Place            Mt Albert            Auckland</p>

Thorn Lighting Ph: 828 7155 Fax: 828 7591 Web: <a href="http://www.thornlight.co.nz">www.thornlight.co.nz</a>	399 Rosebank Road Avondale Auckland
<b><u>Wash Room Hygiene Services</u></b> Initial Health Ph: 571 9470 Web: <a href="http://www.initial.co.nz">www.initial.co.nz</a>	2/15 Olive Road Penrose Private Bag 92905 Onehunga Auckland

## SQUASH COURT MOISTURE DIAGNOSIS

	SYMPTOMS	CAUSES	CONTRIBUTORY FACTORS	CURES	ACTION REQUIRED
A	A film of water appears on the playing surface of the walls when the court is in use on very cold days.	CONDENSATION ("Sweating")	1. Moisture in the air from players. 2. Cold walls as a result of poor thermal insulation	1. Heat the walls, particularly on cold days 2. Improve the thermal insulation of the walls. 3. Remove the moisture from the air in the court.	1. Install background heating (seek specialist advice) to give 15°C +/- 3°C. (60°F +/- 5°F) 2. Install cavity fill or external insulation (specialist advice needed). 3. Install extract ventilation to give 4 changes per hour (300mm diameter extract fan) to run continuously whilst courts are open for use.
B	A film of water appears on the walls when the court is in use on a warm day following one or more cold days.	CONDENSATION ("Sweating")	1. Moisture in the air from players. 2. Cold walls as a result of high thermal capacity.	1. Remove moisture from the air in the court. 2. Heat the walls, Particularly on warm. Days.	1. Install extract ventilation to give 4 changes per hour (300mm diameter extract fan) to run continuously whilst courts are open for use. 2. Install background heating (seek specialist advice).
C	A film of water appears on The walls of the court Whether it is used or not Particularly on cold days. The problem may be Worse when the court is in Use.	CONDENSATION ("Sweating")	1. Moisture laden air from another part of the building, e.g., changing or shower areas, swimming pool. 2. Cold walls 3. Additional moisture put into the air by players.	1. Make sure that moisture laden air from elsewhere does not enter the court. 2. Other cures as in B.	1. Provide separate ventilation Systems for the court and other Areas. Arrange for a ventilated lobby Between the courts and other areas Where moisture is formed 2. As per B.

	<b>SYMPTOMS</b>	<b>CAUSES</b>	<b>CONTRIBUTORY FACTORS</b>	<b>CURES</b>	<b>ACTION REQUIRED</b>
H	Water runs down the walls from the top during or after rain, snow, etc., whether or not the court is in use.	ROOF OR WALLHEAD LEAKS	1. Broken or misplaced copings. 2. Choked gutters. 3. Porous brickwork or faulty pointing.	1. Inspect and locate 2. Check gutters and rainwater pipes. 3. Inspect.	1. Get professional advice. 2. Clean gutters and rainwater outlets. 3. Seek professional advice.
	Isolated patches of damp appear on external walls After rain, particularly walls facing the prevailing wind.	RAIN PENETRATION	4. Cavity bridged or no cavity. 5. Broken or split external cladding.	4. Inspect. 5. Inspect.	
	Fungus or mould growth may appear, particularly In corners.				
I	The lower parts of walls feel damp persistently and a more or less horizontal "tide mark" Fungus or mould growth may appear.	RISING DAMP	1. Breakdown of damp course. 2. No damp course. 3. Soil bridging the damp course on the external face.	1. Install new damp course. 2. Install new damp course. 3. Inspect and lower the ground level externally.	1. Seek professional advice

<b>SYMPTOMS</b>	<b>CAUSES</b>	<b>CONTRIBUTORY FACTORS</b>	<b>CURES</b>	<b>ACTION REQUIRED</b>
1. Cupped or decayed flooring.	RISING DAMP	1. Breakdown of the damp proof membrane in or on the over site concrete.	1. Install new damp proof membrane.	1. Seek professional advice.
2. Excessive movement in the floor.		2. Leak from faulty plumbing or drainage	2. Locate and repair leaks. 3. Check watercourses And storm water foul drains.	
3. Floor expands.		3. Local external flooding.	4. Lift floor and replace suspension system.	
		4. Breakdown of floor Suspension system		