



# WAREHOUSE MATRIX

A.B.N 29 764 742 043

PO Box 24  
Balaklava SA 5461

Telephone 08 8862 2078  
Facsimile 08 8862 2033

## CARPET MAINTENANCE

### CARPET CLEANING

#### CLEANING METHODS AND TECHNIQUES

Important as it is to remove dry soils regularly through vacuuming, this is only one part of a total carpet maintenance programme. Chemical cleaning is necessary from time to time to remove soils that adhere to the carpet fibres.

#### DRY POWDER SYSTEM

As with all carpet cleaning processes, the carpet should be vacuumed before any chemical cleaning is started. Absorbent powder cleaners are either clay based or wood flour and ground corn cob based impregnated with solvents. These solvents work on oily type soils, but leave something to be desired in the removal of water soluble soils. The powder is sprinkled liberally over the surface of the carpet and worked in several directions with a stiff, long handled brush or mechanical agitator. This agitation is essential, in order for the powder to do an effective job.

After allowing the powder to dry completely, you should vacuum the entire area to remove as much of the powder as possible. For several days after the cleaning job, the area should be thoroughly vacuumed. If solid powder is allowed to remain in the carpet pile, the powder will act as a re-soiling agent. This method is now generally employed as a small cleaning or spot cleaning technique and should not be used as a substitute for complete chemical cleaning of large areas that contain predominantly water soluble soils.

#### LIQUID SHAMPOO

For the past twenty years or so, the bulk of on-location carpet cleaning has been done with the liquid shampoo system. In this system, a single disc floor machine is equipped with a solution tank and a special channel-fed shampoo brush. A solution of shampoo and water is fed through the brush to the carpet where the rotating brush agitates this solution into the carpet pile. A second operator follows closely and vacuums up the dirty solution with a wet pick-up vacuum.

Because of the amount of fluid dispensed into the carpet, the drying time may run from 6 to 24 hours, depending on the carpet fibre humidity and the experience of the operator. After the shampoo and wet vacuuming operations have been completed, it is recommended that a pile brush be used on the carpet to aid drying and also to eliminate the possible matting of the carpet fibre.

#### DRY FOAM METHOD

Actually dry foam is moist rather than bone dry, but the moisture content is reduced to almost nothing. Most high quality dry foam shampoos subject the carpet to between 5 and 7 percent moisture. The dry foam is then forced down through the carpet pile so each fibre is individually cleaned. The solvents and detergents in these millions of tiny foam bubbles then remove the soils from the carpet fibres and encapsulate them. The now dirty foam loses its moisture contents through evaporation with the soil remaining entrapped in tiny powdery crystals that are then removed by a good commercial upright carpet vacuum cleaner.

The advantages of the dry foam system are many. Most important, of course, is the fact that shampooed areas can be re-opened to traffic with 30 minutes to an hour. In addition there is no danger of soaking the carpet even by an unskilled operator, as the moisture content is so low an excess of foam simply builds up on top of the carpet surface rather than down in it. Finally, properly formulated dry foam shampoos with uniform cleaning power virtually eliminate the streaking common to other systems.



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## HOT WATER EXTRACTION

The steam extraction principle is a process of cleaning by flushing the soil out of the carpet by means of controlled jets of hot water (not steam as the name implies). The soil is detached from the carpet fibres by the hot water solution under pressure containing an emulsifier.

The heat of the basic machine consists of 2 tanks, one for fresh water and one for vacuum recovery. Pressure for the system is generated by a small rotary or gear type pump. The pressure varies according to the various manufacturer's equipment. Pressure runs from 40 pounds per square inch to 100 pounds and more per square inch. The hot solution is dispensed into the carpet at a rate of 1 to 2 gallons per minute. Hot water from the tap is preferred to speed up the heating process. The water temperature is further increased to between 100 and 160F degrees by means of electrical calrods type elements that are in either the main solution tank or separate heating chambers.

Some manufacturers preset the heating system and make no provision for adjustment, while others use an adjustable thermostat to maintain the desired temperature. On the adjustable models, temperatures of 100 to 140F degrees are recommended for wool while higher temperatures of 140 to 160F are recommended for man-made fibres. In addition to the emulsifiers that are mixed in the clear water tank, water soluble solvents are sometimes introduced for improved cleaning of petroleum soluble soils.

The moisture recovery from the carpet varies greatly according to the type and efficiency of the vacuums and suction nozzle assembly. Units presently on the market operate on the carpet with a working water lift of between 100 and 190 inches of water.

Remember, carpets can only give top service provided they receive reasonable care and attention. Failure to exercise the basic rule of good maintenance and to choose the proper maintenance system will lead to a drastic reduction in the useful life of the carpet and rapid deterioration in the overall appearance of the building.

## SPOT AND STAIN REMOVAL

Stains may be caused by the reactions of a foreign dye such as coffee, coloured drinks, mercurochrome, shoe polish, or colour bleeding. of a dark unstable colour running into, a lighter colour.

Stains which are caused by a chemical reaction between the materials spilled such as acid or alkaline and the dye. It will be most difficult, if not possible, to revert the carpet back to its original colour.

It must be understood that the longer a coloured stain is left in the carpet fibre, the more difficult it will be to remove. Unless some stains are removed within 24 hours, removal may become exceedingly difficult. In these latter cases, the use of harsh chemicals may be required and this always involves the risk of causing permanent dye loss or damage to fibres surrounding the stain.

There are only three most commonly used methods of removing stains -

1. Absorbing.
2. Dissolving (or deterging)
3. Decolourising (or bleaching)

Another type of chemical discolouration may be caused by the instability of a particular dye to either acid or alkaline material. These can generally be changed back to the original colour by neutralisation. This is the using of a solution with the opposite pH to the foreign material that caused the stain.

This means that the pH of the stain has to be determined by moistening the stain with water and testing as previously explained, by using a colour code of the pH paper container.

## Oil Based Stains

Use of a solvent type spot remover, preferably one that is self-emulsifiable is indicated. Solvent cleaners vary widely in composition as does their ability to dissolve different classes of fats, oils and waxes. Care should be exercised to select the correct solvent for the particular stains and then use it in the correct manner.

The absolute minimum of solvent should be used. A check must also be made before to ensure that it will not react with the carpet, underlay or carpet adhesive where encountered.

Start using a solvent well outside the stain. Apply in decreasing circles. This will avoid formation of soil rings when the carpet dries.



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## USING SPOT REMOVERS

Some hints on using spot removers

Gently dab and blot until the stain is gone.

Repeat this until the stain is completely removed.

Rinse the area using clean moist cloth and clean water then dry as much as possible.

Make sure the carpet is dry before traffic is allowed.

In a situation where you are cleaning carpet tiles and the tiles are totally wet and have to be taken up for drying, the tiles should be laid upside down on an absorbent material, eg., cardboard.

Where large stains occur, apply spot remover, allow to dwell for some minutes, agitate gently if need be, then rinse the area and vacuum dry using a wet vacuum.

## Chemical Reactivity of Carpet Fibres

Fibres used in carpet construction vary enormously in reactivity to chemicals used in carpet cleaning solutions.

### Cellulose Materials

Rayon, cotton and jute are all of a cellular composition, although differing widely in physical properties. In general they are fairly alkali resistant but sensitive to acidic conditions. The fibres may be destroyed quite rapidly under strong acidic conditions. Alkali conditions may release coloured, natural resinous materials from jute - a common cause of browning in light coloured carpet.

### Wool

Wool has superb qualities as a fibre. It is the most soil resistant of all fibres used in carpet construction.

Because of the uniqueness of wool, in particular it's natural tension, only detergents designed for use in wool should be used for cleaning it.

Wool is particularly susceptible to attack by alkaline chemicals. International authorities all agree that the safe pH levels for detergent solutions for use on wool are 5.5 to 8.5 maximum. Whenever a detergent with a pH greater than 8.5 is used on wool the carpet must be neutralised by rinsing with a mild acid (weak vinegar) after cleaning to avoid damage from the alkali.

Alkali residue left on the wool will cause either or both loss of strength of fibre; damage to the outer surface causing increased resoiling and loss of natural sheen of the wool; reduced colour from some dyes (fading) and or dye running. Alkali, if it reaches fibrous backing can also promote "browning" by attack on natural resins in fibres like jute. The stronger the alkali, in other words the higher the pH solution, the more these undesirable events are likely to occur.

Strong alkaline presprays are highly undesirable, Wool can absorb an equal weight of water when first wetted. A strong alkaline prespray will be absorbed onto and then into the wool fibres. Strong alkaline thus deposited on wool is not readily rinsible. An acid neutralising rinse is essential after cleaning to avoid either immediate or slow damage to wool. Wool is relatively resistant to most acids and many solutions.

### Acrylic Fibres

The acrylic resin used to make carpet fibres is attacked by many chemicals, in particular by alkali, but also by many solvents and strong acids. These fibres should be regarded as being similar in properties to wool. Use of strong alkaline presprays and detergents must be avoided.

Some types of detergent leave residues on the surface of acrylic fibres that promote an increased resoiling rate - in other words the carpet soils quicker after being cleaned. Once the smooth surface of acrylic fibres is broken or degraded by chemical attack resoiling is promoted. Moreover, when cleaned free of all soils, damaged acrylic fibres appear dull; and to the untrained eye may not seem to have been cleaned at all.



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## MAKING YOUR CARPET LAST

Particular in offices and public buildings where traffic is heavy, prevention of damage and staining is easier and more effective than the cure.

Remember the worst enemies of carpet are sand, soil, grit, dust, carpet scuffing and cigarette burns.

It is FACT that tests have shown that it takes 3.6 meters of carpet to clean a pair of shoes.

## SAND, SOIL, AND GRIT

Adequate matting placed at all entrances, particularly from outside. A combination of moulded mats outside and coir mats inside or any other type of dirt barriers is a necessity. Prevention is always best.

Carpet is like any other floor surface and certain parts will endure about 75% of the traffic. Always ensure that these heavy traffic areas are thoroughly cleaned. A good upright vacuum cleaner with a beater and sweeping action is preferred. Maximum grit and sand removal must take place from these heavy traffic areas to prevent destruction of pile service from the abrasive and cutting effects of grit and sand.

Pile-lifting machine's are a tremendous asset to the cleaner. A pile lifter has a very vigorous cleaning action. It is recommended that they be used once a week to remove all dust and dirt while lifting the pile, which will help to keep the pile wear down.

## IMPORTANT

Refrain on all occasions from using spotters that leave sticky residue, because these accelerate re-soiling.

On woolen carpets, only neutral products should be used. Alkaline products could be harmful. Depending on the manufacturing process carpets are more or less sensitive to humidity.

Good daily maintenance procedures will always make spotting simpler. Have you ever tried to clean really dirty carpet? The results will be a clean spot in a sea of mud.

## DAILY MAINTENANCE

In heavy traffic areas it is essential that daily vacuum cleaning take place for all the reasons we have already discussed. In the non-traffic areas a light pass will suffice. However if really heavy deposits of soil are occurring, then a cross vacuum method, ie North to South, then East to West, must be completed to remove all sand and grit.

Remember that the action of vacuuming carpets also raises dust, especially along skirting boards etc. Always vacuum before dusting. Edges and runners should be cleaned last.

No matter what type of vacuum cleaner is being used, the job will be done correctly if the vacuum is adequate for the area being cleaned. Often hard work fails to achieve what is intended, so -

- (a) Make sure the correct vacuum is available for the right application.
- (b) Keep the vacuum in top mechanical condition, and totally clean, especially bags and brushes.
- (c) Vacuum with the run of the pile if possible and, to lift the pile against the grain.

Carpet sweepers and suction vacuums are fine for light or general areas, but for the main traffic areas heavy duty vacuums are the answer.

## AREA CLEANING

The accepted areas that can be cleaned by a normal operator are -

Unrestricted 3500 sq ft to 4000 sq ft per hour.

Restricted 1700 sq ft to 2000 sq ft per hour.

NOTE: Vacuum backpacks are extremely valuable in restricted areas or for high dusting, allowing maximum freedom for the operator.

## INTRODUCTION

Carpet is an imperfect product. The date of its invention is obscured in the ages. Originally woven only by hand and later by machinery, its textures, durability and appearance constantly have been improved by increased understanding and modern inventions.



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## CARPET CONSTRUCTION

While carpet sometimes is woven otherwise, so vast a proportion is of the type known as velvet that we will discard other weaves and confine ourselves to the discussion of velvet carpet.

When considering a sample of carpet, the purchaser readily may identify the closeness of the weave and the height of the pile, which unfortunately, are less important than the quality of the yarn.

Carpet wool is not a simple product. It is constructed of fibres from fleece bearing animals and always is a mixture of blend. For example, in a specific carpet, the yarn used may comprise a combination which includes a tough Scotch wool for body, a fine Tibetan wool for binding and strength, a coarse Persian or Chinese wool for bloom or surfacing and various other fleeces in pre-arranged proportion. This is made more involved by the fact that wool from each district varies in quality. An outstanding comparison is brought about by the difference in value between wool clipped from animals and that taken from the pelts of dead ones.

## WEAVING

Carpet is woven into loops.

Next the top of the loops are cut to present an even surface.

## COMPLAINTS

The reputable carpet factory examines its product many times in the course of manufacture and inspectors are quick to classify as "imperfect" all material that for any reason is not up to standard. Such material is rated "as is" sold by the factory at a reduced price and presumably resold by the dealer on the same basis. Generally, the carpet is marked on the back to identify it as imperfect. However, as so careful and painstaking that when a factory markets a fabric as regular goods, in almost all cases it is truly commercially perfect.

The subject of carpet frailties comes under four headings, namely: Shooting, Fluffing, Discolouring, and Shading.

## SHOOTING

When carpet comes from the loom, it is always imperfect. The materials used in weaving are so heavy that no machine can produce complete perfection. From the loom, it travels to the mill finishing room, where the imperfections are repaired by hand. After further inspections and corrections, it is declared commercially perfect and in that state is delivered to the dealer. When the carpet is on the consumer's floor, individual strands of yarn that do not happen to be bedded firmly in the fabric may come loose. A few loose ends may shoot from the fabric and then the customer thinks that the carpet is failing to pieces. Yet this is a most usual condition, particularly in the case of twisted weaves, where the pebbled effect is obtained by overtwisting the yarn. When, in the natural course of events, some of these threads untwist themselves a condition of "shooting" occurs. In this emergency, it is necessary only to clip (with a shears) that section of the shoot that rises above the surface of the material. Sometimes, both ends of the shoot come loose and a small curved segment of wool appears. This does no damage, as the surrounding yarn automatically closes the minute orifice. In some cases where several tufts are missing so as to create a void section and an expert can "burl" or re-weave the yarn into the opening in exactly the same manner as in the finishing room of the factory.

## FLUFFING

Previous explanation has been made in connection with the mixing and spinning of carpet yarn. It is necessary here to call attention to the fact that the yarn is composed of various types of wool but of different lengths of fibre as well. In cutting and shearing of the carpet a certain amount of short wool ends or lint are left in the surface of the material. When the carpet is new, with wear and with sweeping this works to the surface, thus creating a condition of "shedding" which may continue for some months, The loose fluff that is removed does not injure the fabric. Folks, impressed by the bulk, sometimes feel that their carpet is slowly but surely disappearing into the carpet sweeper or vacuum cleaner. They are mistaken. There is always plenty of yarn left. By weight, the quantity of wool removed by fluffing never amounts (in the lifetime of the carpet) to more than one one-hundredth of one per cent of the total weight of wool in the fabric. There is no cure for fluffing, nor is any needed. As time goes on the shedding diminishes until it disappears almost entirely.



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## DISCOLOURING

In a marked degree carpets do not fade. All manufacturers employ strong fast dyes and carpet will not fade except when exposed to the direct rays of the sun. The simple preventative solution for sunlight fading is to use the window blinds judiciously. But carpets do discolour and by this we mean that they change in hue. This is due to fine dust, which is basically grey in colour. We do not refer to the dirt that may be swept away, but to the fine dust in the atmosphere that settles permanently on the carpet. This dust adds grey to the tone of the carpet, whatever its original colour may have been. In view of the fact that this mixing of grey with the colour of the carpet starts immediately after it is laid, it will be seen that for almost the entire life of the carpet it is different in colour that the shade originally selected.

Therefore, it is advisable when purchasing carpet to choose a shade a trifle stronger than the final floor colour desired. In matching wall colouring, draperies or upholstery fabrics, at the time of purchase it is a wise expedient deliberately to soil a small cutting of carpet so as to judge what its appearance will be for the vast proportion of its life.

Strong colours such as red, royal blue, walnut, eggplant, medium or dark green, burgundy and others can stand discolouration quite handily, but the same cannot be said of light colours and tints. These delicate shades, originally containing only a small amount of colour, cannot shine through the inevitable grey dust. With this mixing of colour with nature's grey and the following changes take place

- Cream or cafe-au-lait to grey.
- Light apricot or peach to rose taupe.
- Platinum green to greenish grey.
- Baby blue to powder blue.
- White to putty.
- Pink to old rose.

This metamorphosis is not fading, but the resultant discolouration is just as bad.

## SHADING

While last but in the category of carpet ills, this is far from the least. As a matter of fact it is the most prevalent feature as a cause for complaint by the user of carpet. Frequently, some months after a carpet has been laid, it appears to change colour in certain spots. Sometimes these spots are quite round but generally they are irregular in shape. To use the phrase most employed "the carpet looks as though water was spilled on it". When seen from one side these spots appear lighter than the surrounding material and when viewed from the opposite direction they appear darker. These spots are located generally in the lanes of traffic or in front of mirrors or settees, particularly where people turn on their heels in walking. However, for some inscrutable reason, they also appear in places where there is very little traffic.

It will be seen that the wool tufts all stand erect. This is the condition in which it leaves the finishing room. When carpet is packed at the factory it crushes in the direction in which it is rolled. This lays the pile in one direction (commonly known as the "lay of the pile").

It is easy, with the finger tips, for the user to ascertain in which direction the pile lays and any housewife knows that carpet should be kept "with the pile" but she does not necessarily know why. And here is the reason.

Carpet, in order to give satisfactory service, must "lay down". Not the ends of the yarn, but the sides of it, will present a strong surface for the combating of wear and tear underfoot. Then, in spite of all precautions, trouble sometimes begins. For some reason, while most of the pile slants in one direction, some of the tufts may take it into their heads to incline the other way.

It will be seen that the pile runs in two directions. The rays of light glance off the slanting pile in one direction and gives the carpet in those areas the appearance of being lighter in colour than they really are. On the other hand, rays of light from the same direction are absorbed into the pile that runs in the opposite direction and give the carpet in those areas the effect of being darker than it really is.

In other words, what appears to be spots in the carpet are only shadings because the wool really has not changed colour at all.





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The next question is what to do about it. And the answer is not a satisfactory one. Sometimes continual sweeping with the carpet rake will correct the wrong slant of the pile. Sometimes washing and shampooing (only by an expert) will help somewhat. But, in the main nothing can be done except to recognise the shading marks are a feature of nearly all carpets and are not unsightly after one gets used to them. No dealer can afford to replace carpets affected by shading for simple reasons that the manufacturers refuse to "make good". Any manufacturer who acted otherwise would be in a bankruptcy court in a short time. In other words, shading is a characteristic of all pile fabrics, no matter by whom they are woven.



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