



## *Signature Floors Carpet Tiles Installation Guide*

At Signature Floors, we understand that the long term performance of our products depends on a number of contributing factors. The final floor finish is only one of those factors. A good preparation is essential for a smooth installation. All Signature Floor products can be installed on concrete, timber, ceramic and many other sub-floors which have been suitably prepared. The effective application is dependent on suitable site conditions, correct subfloor preparation and dryness, the workmanship of the installer, how the product is maintained and the selection of the correct floorcovering are all equally important.

Signature Floors aim is to provide proactive information on to architects, specifiers, contractors and consumers to ensure the optimum performance of all Signature Floors products.

If you have any queries regarding product selection, specification, installation, performance or maintenance of any Signature Floors products, then do not hesitate to contact us. Our aim is to resolve problems prior to the installation of our products rather than have problems to resolve after they are installed.

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## 1. Introduction

The current Australian Standards AS/NZS 2455.2:2007 provides detailed commentary on the recommendations for the installation of Carpet Tiles on both new and existing floor surfaces. Signature Floors consider AS/NZS 2455.2:2007 to be best minimum industry standard for the installation of all carpet tiles and is fully endorsed by Signature Floors.

This technical manual is intended as a guide to all parties involved in the specification, installation and maintenance of Signature Floors Carpet Tiles. Signature Floors always recommends the use of reputable flooring contractors, whose experience in installation and project management will prove invaluable at all stages of a project. Selecting a flooring contractor solely on price can lead to a poor installation and a discontented consumer. A successful installation not only depends on the skills of the floor layer, but also in the planning and management of the project prior and during installation. Open lines of communication between all parties concerned will eradicate any problems and will ensure a successful installation, which meets the design requirements within the allotted time scale.

### Product selection

Carpet Tiles are incredibly versatile materials, which comes with a long list of benefits such performance-to-cost ratio, life cycle maintenance costs, Greentag certification, product stewardship, low VOC's, fire resistance, dimensional stability and that it can be recycled.

Selection of the most suitable floorcovering is of utmost importance. Not only must the floorcovering meet the designer's initial colour and design, but the performance criteria of the product must be sustainable for the anticipated life of the product, allowing for foreseeable actions such as general wear and tear and regular maintenance

Consideration at the initial specification stage must be given to the occupational usage of the building and the building type. Particular attention must be paid to the type and density of traffic (both pedestrian and wheeled), any special acoustical, electrical resistance or slip resistance requirements, as well as reaction to chemicals and staining agents, and physical properties such as resistance to point and rolling loads. Colour selection is also critical to the longevity of the installation, light colours will always show more dirt and stains than darker patterned tiles.

If you have any concerns regarding the suitability of your selected product please contact Signature Floors. Our Sales Team and After Sales Department can provide advice on the suitability, performance and application of any of the Signature Floors products.

## 2. Moisture Testing

Signature Floors Carpet Tiles should only be laid on subfloors which do not suffer from rising damp or hydrostatic pressure, and where the moisture level does not exceed that of the levelling compounds and adhesives that are being used when tested in accordance with ASTM F2170

Relative humidity in-situ probe test carried out as per ASTM F2170 is the only method of testing acceptable to Signature Floors. Subfloors with a relative humidity and surface pH exceeding that of the below chart for PVC backed products, and or any proprietary materials being used will invariably cause failure of the bond between the substrate and floorcovering.

To prevent these situations arising, Signature Floors does not condone the practice of installing Carpet Tiles on subfloors with a moisture content that exceeds the limitations of the levelling compounds and adhesives being used, and accepts no responsibility for non-performance of Signature Floors products in such instances.

**Maximum allowable RH & pH test results**

	<b>PVC backing</b>	<b>PET backing</b>
RH content	85%	90%
Surface pH	7-9	7-10

Chart 1

For RH and pH test results that exceed the above chart please contact Signature Floors for further technical advice.

### **New concrete**

The most common cause of failure in these types of substrate is moisture, either as construction moisture that has not had sufficient time to evaporate, or the absence of an effective vapour barrier used in 'on ground' construction.

### **Construction moisture**

Concrete substrate moisture is a significant problem which can be either temporary, caused by the original construction procedures or can be a continuing problem, caused by ground moisture traveling up through the slab on grade.

In new construction the excess water in the concrete needs time and conditions which allow it to dry out before installing floor coverings. Placement methods and curing compounds of the concrete will have a big effect of the moisture evaporation rate, not to be confused curing rate of the concrete surface. Ambient temperature, humidity and the environment are also contributing factors in the drying time of concrete.

Prior to laying any Signature Floors Carpet Tiles, it is essential that all free water, which can affect adhesion, be allowed to evaporate from the base or be treated with a moisture mitigation system. Please contact Signature Floors for further advice in this situation.

### **Existing concrete**

Existing concrete and as described in BCA, if laid directly to ground, must contain an effective DPM. If one is not present or is suspect, a suitable surface DPM (Damp proof membrane) should be applied.

A DPM, as the name suggests, is typically a water proof barrier in the form of a thick plastic sheeting designed to prevent the passage of moisture through it. These are normally used beneath a foundation concrete slab.

The BCA introduced the compulsory use of DPM's on the mid 70's. It is recommended to treat all 'on ground' concrete sub-floors prior to this time as they do not have an effective DPM. Preparatory works should be carried out in accordance with proprietary materials that are being used.

In some instances, a cementitious smoothing compound of at least 3mm thickness should be applied prior to the installation of the Carpet Tiles. The smoothing underlayment supplier will provide details on which product within their range must be used to suit the end use application and subfloor construction, together with details of which primer should be used.

### **Power floated concrete**

A power trowel (also known as a "power float", "helicopter" or "trowel machine" or "whirlybird") is a piece of light construction equipment used by construction companies and contractors, to apply a smooth finish to concrete slabs. Concrete substrates that are 'over worked' with a power trowel can create a crust on the surface of the concrete that slows the drying time of the concrete and creates a smooth dense surface that is difficult to bond to, due to the impervious nature of the surface.

It is recommended that highly burnished concrete surface are mechanically prepared with the use of a concrete grinder or shot blasted to remove the top surface and then made good.

### **Curing agents**

Surface hardeners or curing agents should not be used with power floated concrete, as these can also impair the adhesion of the floorcovering and should be mechanically removed as per AS1884-2012 section 3.1.1.5

### **Facts Everyone Should Know About Flooring Installations Over Concrete**

1. The relative humidity cannot be known simply by visually inspecting a sub-floor and coming to the conclusion it is dry by sight and/or touch.
2. All concrete regardless of age or grade-level emits some degree of moisture and must be tested prior to installation.
3. Signature Floors will only recognise the In-situ probe RH moisture testing as their primary criterion for determining moisture content of a concrete substrate, since it is the only quantitative measurement of moisture.
4. Surface tests do not comply with current testing standards, and are only subjective, at best, in their interpretation.
5. Signature Floors do not warrant against substrate moisture, and recognise the limits in chart 1 on page 4 as the maximum allowable amount of moisture content, but this must be also be compatible with any proprietary materials used for the installation.
6. Flooring contractors who do not test for moisture prior to flooring installations run the risk of total liability for a moisture failure

### 3. Sub-Floor Preparation

The finished appearance of a floor covering will only be as good as the quality of the base over which it is installed. Any irregularities in the sub-floor will show through the finished floor. Careful sub-floor preparation is vital for an excellent floor appearance and good installation. The sub-floor must be hard, flat, smooth, clean, dry, and free from defects, contaminants and fit for purpose.

#### Concrete

A suitable levelling compound can be used to ensure that no irregularities show through to the surface of the finished floor. However, the selection of suitable materials, including smoothing and levelling compounds and any ancillary products is dependent upon the end use of the completed flooring, and must be agreed by the supplier of the preparative materials and the flooring contractor.

Any proprietary materials used for floor preparation must be used in accordance with the manufacturers' recommended instructions.

In all cases, the sub-floor must be sufficiently dry and the relative humidity (RH) checked to ensure it is not greater than that of any proprietary materials that are being used when tested in accordance with ASTM F 2170

#### Timber

New timber suspended floors should be constructed of either tongue and groove, plywood or chipboard specifically manufactured for flooring. Spacing of the supportive joists should be in accordance with the manufacturer's recommendations in relation to the board's thickness and the BCA.

When underlayment panels are used, they must be underlayment grade as specified and warranted by the manufacturer. Underlayment panels and joints must be fastened and reinforced according to manufacturer's instructions. Completely sand the floor with a floor sander, so that the floor is smooth and flat before installing underlayment panels. Without sanding properly, timber substrates can have high and low spots throughout the floor that could telegraph through the carpet tiles.

Signature Floors recommends the use of an underlay or underlayment on all timber substrates, to ensure stability and uniformity

Any failure of the underlayment or flooring due to the underlayment is NOT the responsibility of Signature Floors.

All timber substrates must have a minimum earth clearance of 400mm in accordance with the BCA and have well-ventilated air space beneath it.

#### General

Where existing timber, plywood or particleboard subfloors are to be used as a substrate worn, rough, cupped or warped surfaces shall be sanded or filled, but must retain structural adequacy. In some circumstances, it may be necessary to re-nail the old floor or to repair it by replacing the worn and unsound sections

Without good ventilation, the application of an impervious floorcovering could lead to dry rot in the structure beneath.

Most smoothing compounds are unsuitable for applying to timber bases due to the movement of the base. Seek advice from the smoothing underlayment manufacturer for the correct grade of product for your specific application.

## 4. Other Surfaces

### Existing coverings and finishes

Signature Carpet tiles may be installed over other hard floors.

Any surface contaminants must be removed prior to installation of new carpet tiles. All other existing floorcoverings such as existing carpet, underlay, loose laid vinyl, cushion back vinyl and existing adhesives must be uplifted and the completely removed.

Existing adhesives must be mechanically removed.

### Magnesite

Magnesite is made from calcined (or burnt) magnesite and various organic and inorganic fillers such as wood, sawdust, ground silica and talc, mixed together with a solution of magnesium chloride, magnesite flooring is extremely rich in chlorides, resulting in problems of sweating, diffusion of chloride ions into the concrete substrate and metal corrosion and highly absorbent, usually seen as lumps appearing below the existing floor coverings or cracks in the floor tiles.

Signature Floors recommend that any magnesite screed be uplifted and the substrate mechanically prepared prior to the installation of new floor coverings.

### Terrazzo

The floor must be sound and firmly fixed and any loose or powdery material removed from the joints. The surface should be prepared with a light grind to remove any surface contaminants and any cracks cleaned out and filled with a suitable resin bonded cement/sand mixture. In most instances, a cementitious smoothing or levelling compound of at least 3mm thickness must then be applied to provide surface porosity for acrylic adhesives prior to the installation of the vinyl floorcovering.

### Screed bases

Sand/cement screed bases are not a suitable substrate for the installation of floor coverings and a suitable levelling compound should be applied.

### Ceramic tiles

Before installing over ceramic or quarry tiles, ensure the floor must be in good condition before you can begin installing carpet tiles. Check for loose, cracked or broken areas of ceramic tile. These areas will need to be removed with a hammer and chisel and thoroughly cleaned of all debris.

The floor must be sound and firmly fixed and any loose or powdery material removed from the joints. The surface should be prepared with a light grind to remove any surface contaminants and any cracks cleaned out and filled with a suitable resin bonded cement/sand mixture. In most instances, a cementitious smoothing or levelling compound of at least 3mm thickness must then be applied to provide surface porosity for acrylic adhesives prior to the installation of the resilient floorcovering.

Information of the best method to prepare a ceramic or quarry tile floor should be sort from primer and levelling compound manufacturer.

### **Metal bases**

Metal bases are generally, but not exclusively, steel and can be contaminated with rust or oxidation, oil and grease. The surface should be thoroughly degreased and then abraded or wire brushed to remove the rust or oxidation. Any high spots may need to be ground off.

In most instances, but not where there is excessive vertical or lateral flexing or movement, a cementitious smoothing compound of at least 3mm thickness must then be applied prior to the installation of the carpet tiles.

### **Access Panels**

On access floors, the edge of the tile must not line up with joints in the access panels. The edge of the tile must be sufficiently far enough away from the access panels joints that it will not be effected by lateral movement.

### **Painted or epoxy coated floors**

Before installing over painted or epoxy floors, ensure the floor must be in good condition before you can begin installing carpet tiles. Check for loose, cracked or broken areas of the surface. These areas will need to be removed mechanically and thoroughly cleaned of all debris.

The floor must be sound and firmly fixed and any loose or powdery material. The surface should be prepared with a light grind to remove any surface contaminants and any cracks cleaned out and filled with a suitable resin bonded cement/sand mixture.

## 5. Transitions

### Expansion Joints

Expansion joints are placed in concrete substrates to allow for expansion and contraction of concrete during and after placement. They are designed as a movement joint and as such must never have floor coverings installed on them without an expansion joint cover. It is important that these joints extend through the floorcovering.

#### **Never lay Signature Floors products over expansion joints.**

Proprietary expansion joint covers are available which blend with the floorcovering and disguise the joint. Some are made of vinyl that incorporates a flexible portion and are welded to the abutting vinyl to form an impervious layer. Other types are a combination of aluminium and PVC, which again contains a flexible section.

Correct treatment at expansion joints is also essential if the floor is going to last and perform in a safe and hygienic manner. We recommend that expansion joints are covered using either a PVC expansion joint cover, or a cover with a PVC insert.

**Filling the expansion joint with sealant which is not specifically designed for expansion joint filling or floor smoothing underlayment will lead to floor failure and is not recommended by Signature Floors .**

### Edge trims

In many of the areas where Signature Floors carpet tiles are installed, other types of floorcovering will also be used. The junction between the Signature Floors flooring and these other types of floorcovering is a potential weak point, if not treated properly. Correct installation minimises problems such as trip hazards and damage to carpet.

The use of proprietary patching and levelling compounds is recommend to make the transition between floor surfaces smooth and gradual.

### Ceramic tile transition

In installations where the carpet tiles join with ceramic tiles or the like, it is important that a smooth transition is achieved at the junction. Aluminium edge trims are recommended for this purpose. They enable a flush cut with the trim, while providing an excellent guide to apply patching and levelling compounds.

### Carpet transition

It is important that the junction between carpet tiles and broadloom carpet is clearly visible and that any trip hazard is minimised by using edging strips. A variety of edging strips are available for this junction. The relevant manufacturers can supply further advice on installation and use of these types of trims.

### Diminishing strips

Diminishing strips should be used at all exposed edges of Signature Floors carpet tiles when they are not abutting another flooring material to minimise trip hazards.

## 6. Adhesive

The list of Signature Floors approved adhesives can be found at [www.signaturefloors.com.au](http://www.signaturefloors.com.au)

There is no single adhesive that's suitable for all types of carpet tiles.

The selection of the most appropriate adhesive is generally made by the floor covering manufacturer and specified in the installation instructions.

### Pressure Sensitive adhesive

Pressure Sensitive Adhesives are solvent free and low odour. They are specially formulated for installing PVC backed and fibre backed, cushion backed carpet tiles. There are many acrylic adhesives on the market. Most are water based, which means that the curing action occurs when the water evaporates into the porous substrate after the adhesive is applied.

They can be classified as **semi-soft set** or **pressure sensitive** for a semi-permanent installation.

### Contact adhesive

Contact adhesives have a solvent, neoprene or water base and are classed as **soft set**. The adhesive is applied to both surfaces and allowed to dry before the two surfaces are brought together.

When the surfaces contact each other the bond is instant. This makes them suitable for use on vertical surfaces, such as vinyl skirtings and covings. Note that the adhesive is not waterproof, so the exposed edges must be sealed to stop water penetration.

### Application of adhesive

If the subfloor is porous, it should be primed using a primer compatible with the adhesive, as recommended by the adhesive manufacturer.

Signature Floors Australia recommends the use of a 10 – 12mm nap roller to be used to apply the adhesive. This roller needs to be maintained during the application of the adhesive in order to ensure an even coverage of adhesive.

### Installation of Comfi Bak tiles

Adhesive should be applied with a V1 notch trowel. Roller application is not permitted.

**It should be noted that Signature Floors do not approve any methods of applications of adhesive such as direct spraying that cannot guarantee the amount of adhesive applied.**

Adhesive manufacturers provide details of the open time, and their instructions should be followed. Ideally, the floor area should be divided into workable sections.

### Removal of excess adhesive

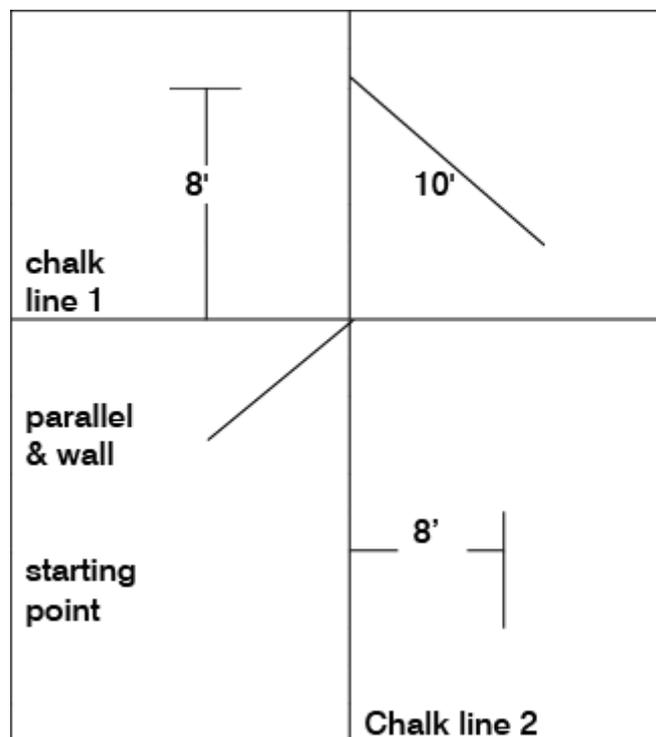
Ideally all excess adhesive should be removed as work proceeds. Water based adhesive can, before it is dried, be easily removed using a damp cloth. For removal of specialist adhesives follow the manufacturer's guidelines. Dried adhesives are more difficult to remove and the majority should be removed using a spatula without damaging the flooring. Once this is done, a proprietary cleaning agent, as recommended by the adhesive manufacturer, can be used sparingly. Always test a trial area first in an unnoticeable area, as many of the stronger cleaners contain solvents which can cause staining and softening of the vinyl.

## 7. Installation of Carpet Tiles

### SITE LAYOUT

1. The starting point in a modular installation must be as near to the center of the room as possible and must be positioned to utilise the largest perimeter cut module size.
2. Snap a chalk line parallel to one major wall bisecting the starting point. It may be necessary to offset the center chalk line to assure perimeter modules will be at least half size.
3. A second chalk line must be snapped from the starting point at 90° to the first line. This can be accomplished using a 3-4-5, 6-8-10, or larger triangle, depending on the room size (see Illustration A). Meters or feet may be used to lay out the triangle in these proportions.

Illustration A:



## Installation

1. Each module has directional arrows on the backing. This allows for one-directional or multi-directional installation. Please refer to each product specification sheet to determine the allowed method of installation.

NOTE: Lineal patterns when installed directional may produce an undesired effect when lines of the same colour meet on two edges. Installers need to monitor this during installation and reposition tiles where appropriate. Patterns that are random in nature may contain additional colour ways to the ones displayed on the samples. Please consult your commercial sales consultant for further information.

2. Installation must begin at the intersection of two chalk lines. Installation must continue until completed in one quadrant, and then proceed to an adjoining quadrant until all four quadrants are completed. Larger areas may require chalk lines bisecting the original four quadrants.
3. Install modules using the pyramid technique. This allows multiple alignment checks. If the edges do not align and the misalignment increases with progression of the installation, the source of the problem must be identified and corrected. It is even more critical in non-square shapes to regularly check the alignment of the modules are in alignment.
4. The pyramid theory should be used also in non-square shapes see below for details by shape
5. A third chalk line should be used as directed below for particular shapes as an added guide.
6. Slide modules into position to prevent yarn from being trapped between the modules. Trapped yarn will adversely affect the appearance of the installation and will cause alignment problems.
7. Modules must fit snugly, but not be compressed. Check for fit by measuring the length of ten (10) full modules after installation. The measurement must not be less than, or exceed by more than 6mm, the length of the modules being multiplied by ten (10) For example: if 500mm X 500mm modules are being installed, the measurement should be between 5000mm and 5006mm.

## Post installation care

- Roll the entire installation with a 35kg roller once it is completed.
- Use plywood over the carpet when heavy objects are moved within the next 24 hours after
- Protective chair mats under chairs with casters are recommended. This will prevent excessive wear to the face and possible transfer of the pressure sensitive adhesive to the back of the carpet.
- Never install Triangle Shape with 6 touching points under castor chairs without a chair mat protection.

## Installation on Stairs

Signature Floors carpet tiles can be installed on stairs. It is highly recommended that separate pieces be cut and applied to the step and riser. The junction should be covered with an appropriate nosing, both for aesthetic value and safety. Size of cuts and types of nosing will depend on the style of stairway and type of environment.

The Square and Rectangle are the only 2 shapes allowed for installation over stairs. See below for directions. It is not recommended to install Triangle, Right-angle, Hexagon, and Trapezoid to stairs.

**Riser** - Always ensure that the arrow on the back of the carpet tile is pointing down the riser.

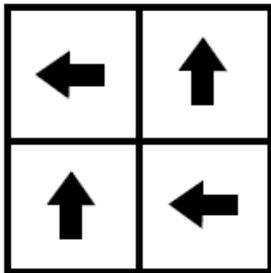
The riser of the carpet tile is securely held in position by the stair nosing and adhesive.

**Tread** - Arrow must run into the step at a right angle. Apply adhesive to the entire tread. Then fit stair nosing.

### Carpet tile installation methods

When selecting the installation method for carpet tiles, consideration must be given to the design and construction of the carpet tiles, as well as the level of foot traffic they will be subjected to. Consideration of the above points will assist in maximizing the performance and appearance retention of carpet tiles. Please contact your local area sales representative to discuss the installation options prior to the installation and always refer to the Product Brochure for recommended installation methods.

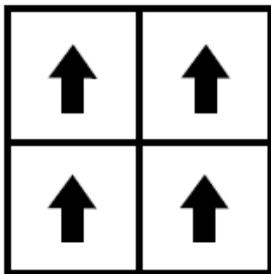
NOTE: Each carpet tile has a directional arrow printed on the backing to show the pile direction



#### QUARTER TURN

In quarter turn, the arrows on each second tile should be turned 90°. Each tile will appear to be slightly different colour when quarter-turned due to varying pile directions.

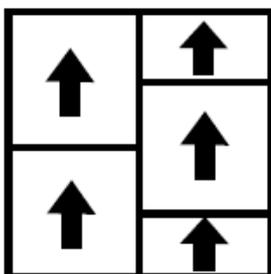
**This installation method is suitable for Heavy Duty Commercial traffic areas.**



#### DIRECTIONAL

All arrows must point in the same direction when directionally installing carpet tiles. Please note that lineal patterns when installed directional, may produce an undesired effect when lines of the same colour meet on two edges.

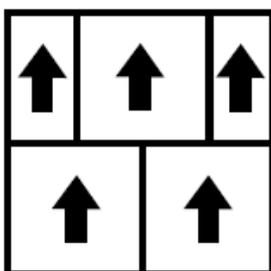
**This installation method is suitable for Light-Medium Commercial traffic areas.**



#### ASHLAR

This type of installation requires all arrows to point in the same direction, with each column of carpet tile shifted ½ the length of the previous column.

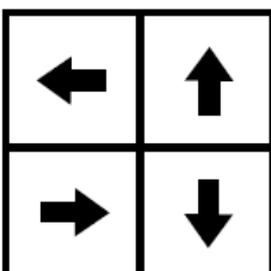
**This installation method is suitable for Heavy Duty Commercial traffic areas.**



#### BRICK

This type of installation requires all arrows to point in the same direction, with each row of carpet tiles shifted ½ the width of the previous row.

**This installation method is suitable for Light-Medium Commercial traffic areas.**

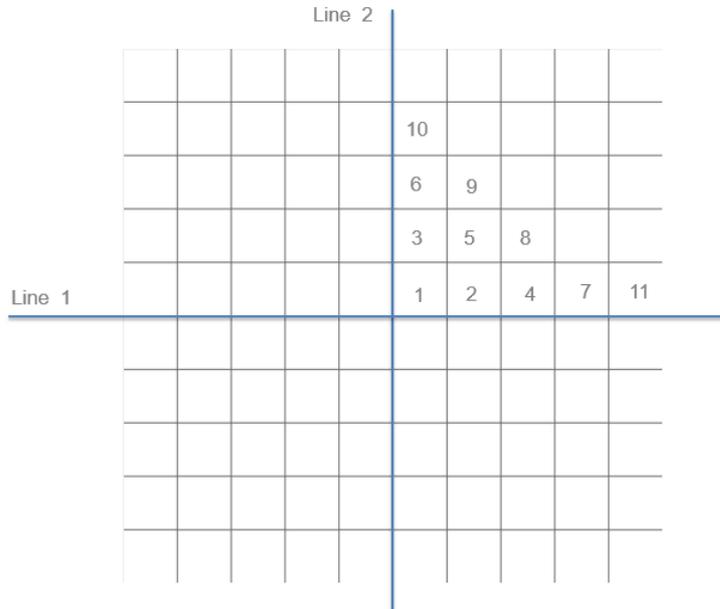


#### RANDOM

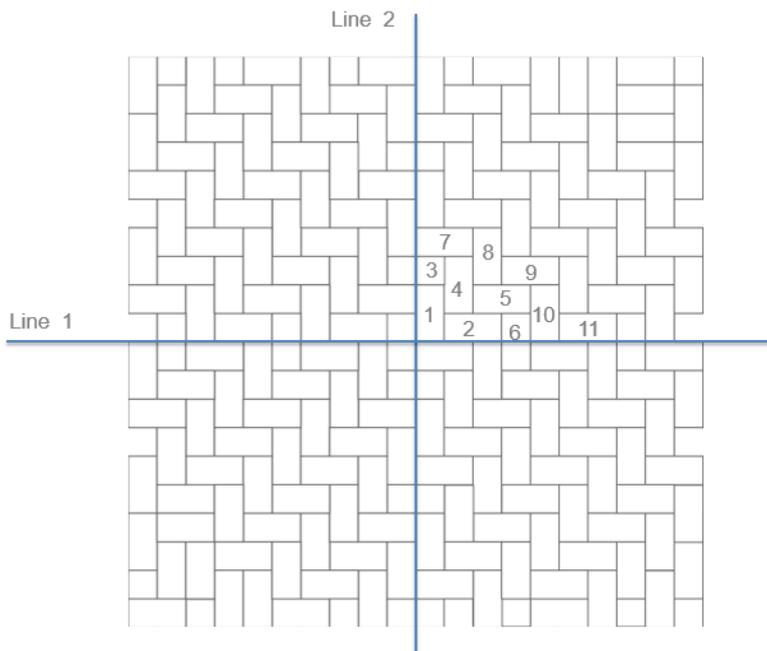
As the name suggests, all tiles must be installed in a random manner without paying attention to arrow direction, creating a unique pattern.

**This installation method is suitable for Heavy Duty Commercial traffic areas.**

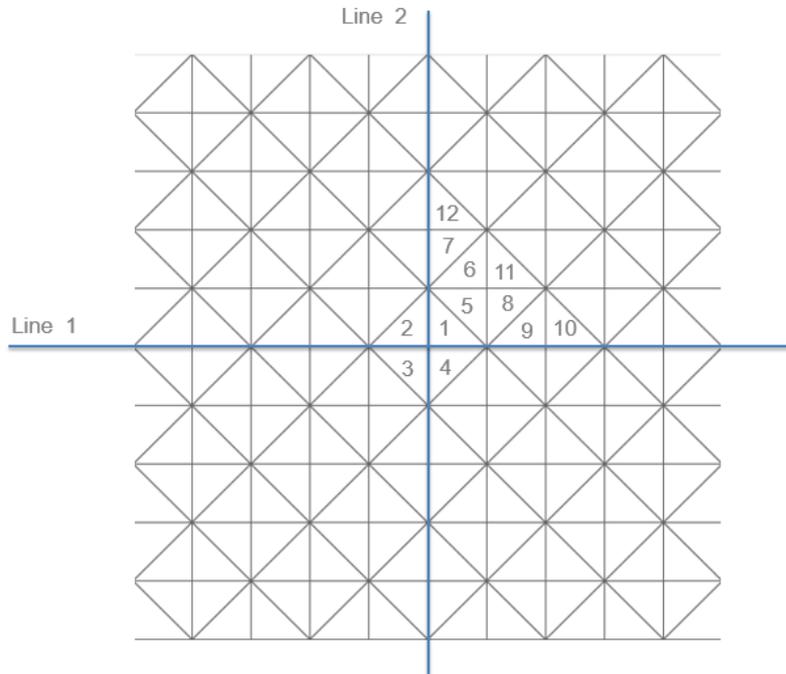
**SQUARE INSTALLATION**



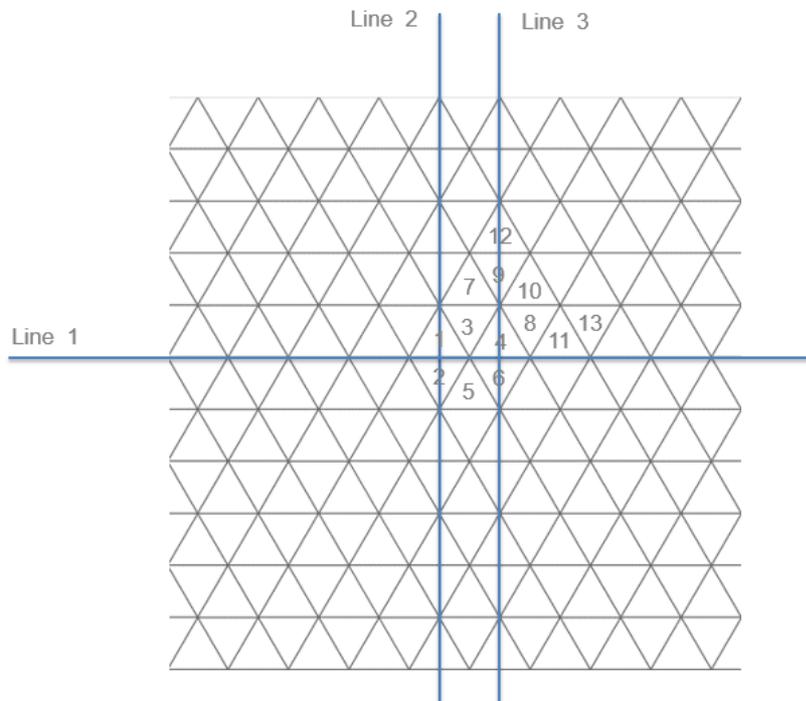
**SHAPES: RECTANGLE INSTALLATION**



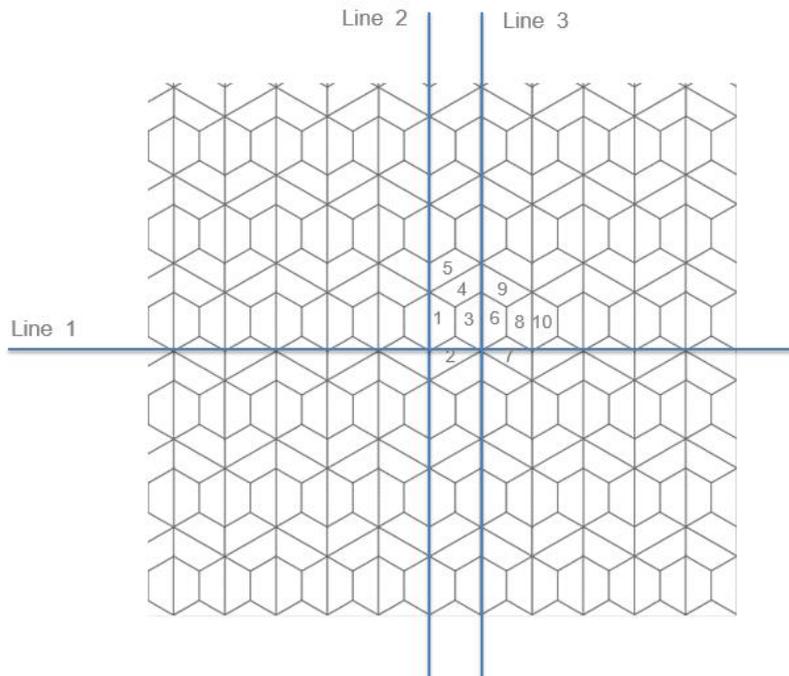
**SHAPES: RIGHTANGLE INSTALLATION**



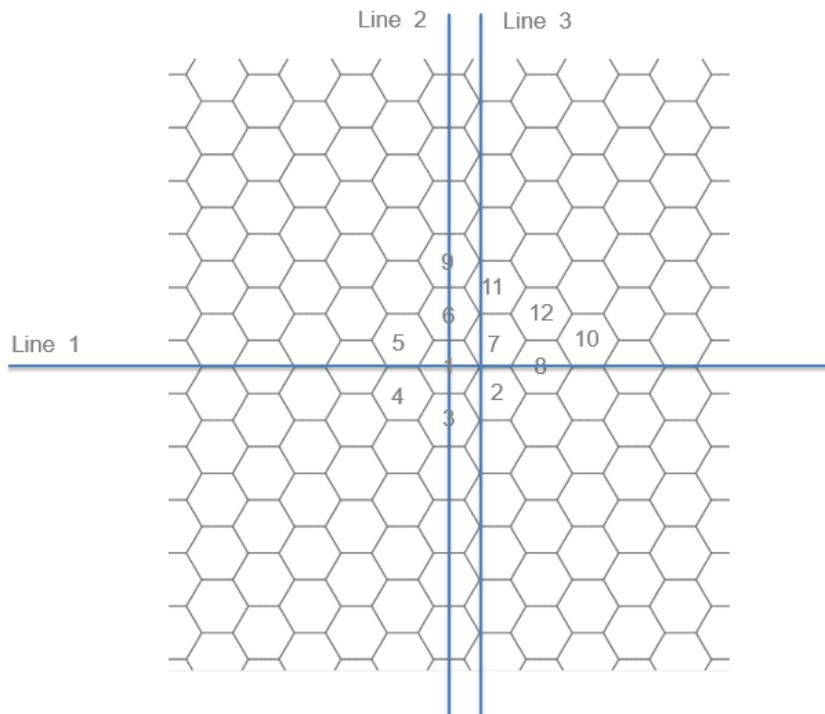
**SHAPES: TRIANGLE INSTALLATION**



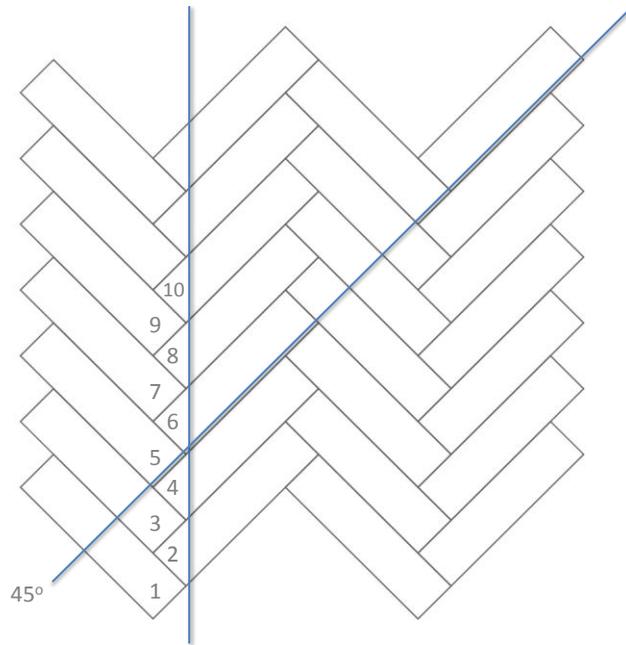
### SHAPES: TRAPEZOID INSTALLATION



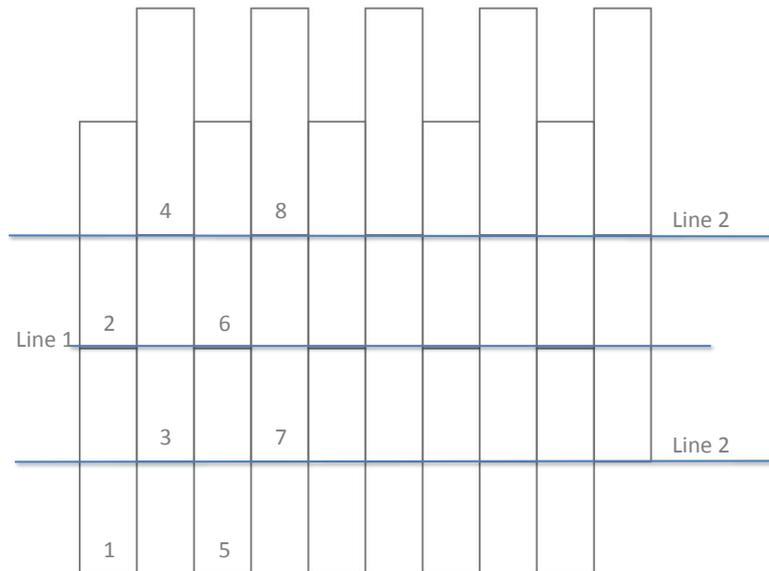
### SHAPES: HEXAGON INSTALLATION



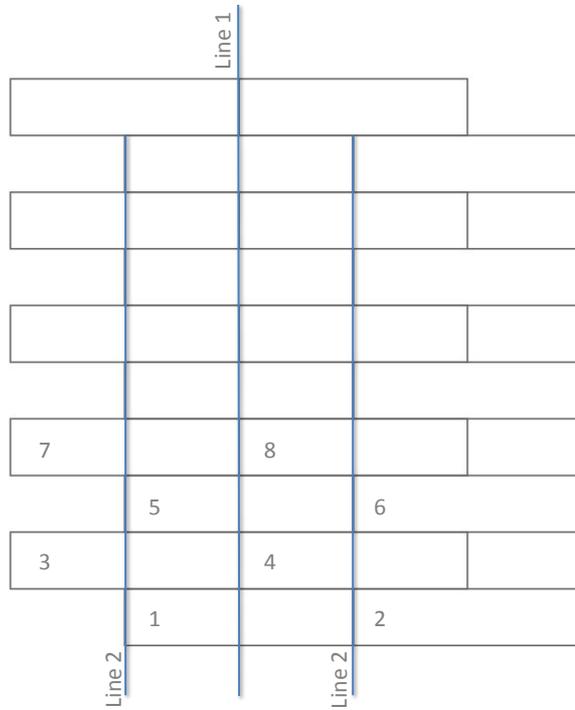
**PLANKS: HERRINGBONE**



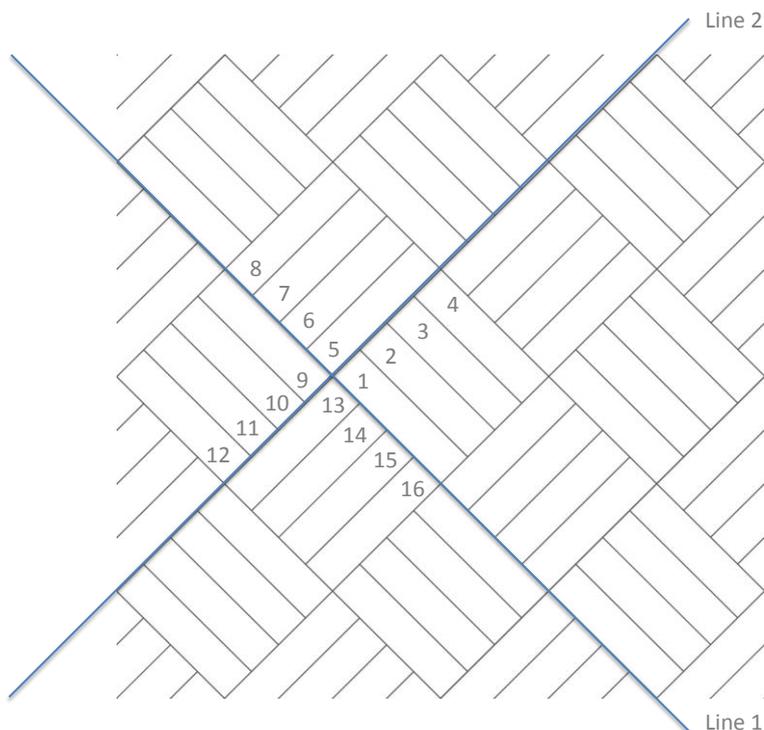
**PLANKS: BRICK BOND**



**PLANKS: ASHLAR**



**PLANKS: BASKETWEAVE**



## 8. Maintenance

The following guide should be reviewed prior to commencement of any cleaning and maintenance on carpet tiles.

This guide has been prepared by Signature Floorcoverings technical division to assist you in maintaining and extending the life of your carpet tiles over many years to come.

It includes information on maintenance, the importance of planning, recommended maintenance frequency, reduction of soiling, removal of dry soil, vacuum cleaner recommendations, cleaning, spot and spill removal and general information.

You can protect your investment and extend the life of your carpet with regular maintenance and care.

For further information, please do not hesitate to contact your local area sales consultant or visit Signature Floorcoverings® on the web at [www.signaturefloors.com.au](http://www.signaturefloors.com.au).

### Appearance maintenance

There are key factors that will affect the appearance of Signature Floorcoverings® carpet tile products after installation such as:

- Flattening and matting of the carpet fibre.
- Soiling, change in colour and general appearance of the carpet tiles.

Maintaining the overall appearance of the Signature Floorcoverings® carpet tile products requires that:

- Products are selected for the correct application and use.
- Regular maintenance is carried out to prevent soiling, which can cause carpet fibres to mat and bind together.

The following recommendations are to be followed to ensure that the overall appearance of the installation is maintained:

Colour selection will affect the appearance the performance of the carpet tiles, darker colours will maintain their appearance better than lighter colours.

### **This product must be fully adhered to the subfloor (direct stick method)**

By re-arranging furniture periodically, the traffic pattern is changed and allows the carpet tiles to wear more evenly.

- Regular rotation of carpet tiles in heavy traffic areas is required to prolong the life of the carpet tiles. This is subject to the level of foot traffic.
- Technically, carpet tile pigments have never been better but colours can fade if exposed to harsh sunlight. If possible, carpet tiles should be protected from intense sunlight with blinds, curtains and/or window tints.
- It is recommended that approximately 2% of the carpet tiles ordered should be allocated as spares for maintenance purposes.

## Maintenance instructions

Signature Floorcoverings® carpet tile products are quality engineered to provide a long useful life and enhance the working environment.

Carpet tile offers many advantages over other flooring systems, such as sound absorption, reduced fatigue and lower maintenance costs. From the start, the maintenance program should be considered as part of the buying decision. If proper maintenance is neglected, the carpet's appearance and performance will suffer, shortening the carpet's useful life and raising long-term costs.

A comprehensive carpet care program\* consists of the following four (4) elements:

- Reduction of soil entering the building
- Removal of dry soil
- Removal of spots and spills in a timely manner
- Cleaning by hot water extraction

Carpet tile maintenance must be established as a scheduled program, rather than being a random series of reactions to soiling conditions and infrequent cleaning. Virtually every complaint of poor appearance, rapid soiling, pile crushing and many times poor performance has been shown to be related to a lack of planning and control for the maintenance program.

The most important consideration when planning a maintenance program is the budget.

Like other expensive furnishings or equipment, advanced static-controlled carpet tiles represent a substantial investment for any facility and deserve adequate care to prolong its effective life. If the carpet tile maintenance budget is set unrealistically low, the carpet tile will need to be replaced prematurely.

Other items to consider are the amount of traffic and type of soiling, which will vary by area.

Due to the higher traffic level, entrance lobbies, and hallways will need more care than offices. Production line areas and outside entrances will require more effort due to the more difficult soiling conditions.

Colour and pattern are critical to ensuring appearance retention.

## Recommended maintenance frequency

- Light Traffic: Private offices & cubicles, computer rooms and test areas.
- Medium Traffic: Shared offices, interior hallways, conference rooms and light assembly.
- Heavy Traffic: Entrances, elevators, main hallways, break rooms, work/copy rooms, mailrooms, light assembly and manufacturing, command centres, data centres and call centres.
- Severe Conditions: Entries to main lobbies, areas surrounding surface mount, wave solder or aqueous cleaners.

The use of walk-off mats at transition areas from the outside or hard surface to carpet tiles is important. Walk-off mats can greatly reduce the amount of soil entering a facility by normal traffic. There are two (2) types of mats which should be used:

1. Soil Removal Mats: Good soil removal mats have a coarse texture and are able to brush soil from shoes and hold large amounts in the pile.
2. Water Absorbent Mats: The water absorbent mat must be used inside, either full-time or at least during wet weather.

When both types of mats are used in combination, they should always be placed so that incoming traffic passes over the soil removal mat first, because the absorbent types have very little soil holding ability. For mats to continue to trap soil, they should be cleaned on a regular basis.

### **Removal of dry soil**

Vacuuming is the most significant element in the maintenance of carpet tiles and in the overall appearance of the facility. Research has shown that 85% of the soil tracked into a building is dry, and the other 15% is oily. Vacuums are designed to control this dry soil.

Frequent vacuuming removes particulate soil from the surface before it works down into the pile where it is more difficult to remove. Walking on the carpet accelerates the rate at which the particles settle deep into the pile.

Areas with heavy traffic, such as entrances and major corridors, restaurants and assembly or manufacturing, should be vacuumed at least once a day. Areas with less traffic, such as offices, computer rooms, engineering labs, should be vacuumed every other day depending upon conditions.

### **Vacuum cleaner recommendations carpet tile care & maintenance**

Please see below for the recommended vacuum cleaner types:

1. Vacuums should have dual motors - one to drive the source of agitation or vibration which loosens the soil, and one to drive the vacuum fan which creates the suction that picks up the particles. This prevents the vacuum from losing efficiency as the beater bar/brush becomes slowed by excessive debris or as the bag fills. Dual motor vacuums also survive the demands of a commercial location and last longer than single motor vacuums.
2. Bags that fill from the top are preferred over those that fill from the bottom. As the bag fills, it does not add to the load on the vacuum motor. Bags should be checked frequently and replaced when  $\frac{1}{2}$  to  $\frac{2}{3}$  full. When changing bags, also check the belt and replace if loose or worn. Between cleanings, regular use of a pile lifter can remove deeply imbedded dry sand and soil, help stand up the pile and renew the appearance of the carpet in high traffic areas. A pile lifter is an upright two motor vacuum with a large, adjustable, gentle bristle brush with a motor, a high suction vacuum motor, and a sand trap. Using a pile lifter in traffic lanes just prior to cleaning will remove the deeply embedded soil and open up the pile so the hot water extraction can be more effective.

Another good use of a pile lifter is for post-construction clean-up as follows:

1. Vacuum the area to pick-up the larger sized chunks of dried mud, dirt, and construction debris.
2. Use a pile lifter to remove the fine particulates, such as dry wall dust, which are deep in the pile.
3. After using a pile lifter, the final step is cleaning by hot water extraction to remove the residual soil, this will be made less difficult now that the area has been vacuumed and a pile lifter utilised.

### **Cleaning**

Even with thorough vacuuming, cleaning is necessary to remove the 15% of soil which is the oily type material. In order to maintain a good appearance, carpet tiles must be cleaned on a periodic basis to prevent it becoming so dirty that it can no longer be cleaned satisfactorily.

The frequency of cleaning must be adjusted to the rate at which soil accumulates; therefore, heavy traffic areas typically require more frequent cleaning, as do areas with less traffic but more soil.

When the colours of the carpet tiles begin to look dull, it is time to clean them. The traffic lanes will show this first. If the carpet tiles are cleaned before it becomes excessively soiled, the cleaning will be more successful and a much easier task. This is especially important in places oily soil is prevalent, such as the areas near streets or asphalt parking lots, and those around certain messy electronic manufacturing operations, SMT line and cleaners. Solder and production soil forms a sticky material similar to varnish which traps and holds dry soil and may become nearly impossible to remove as it ages. NOTE: Damp carpet tiles clean shoes and collect soil faster. The resulting black discoloration in the traffic lanes will require pre-treatment with a traffic lane cleaner to break down the soiling. It also requires the use of hot, not warm, water to effectively clean the carpet tiles.

### **The cleaning system**

When choosing a proper cleaning system, it is necessary to consider how effectively it cleans and how well it enhances the appearance retention of the carpet tile texture without leaving a heavy residue.

Signature Floorcoverings® recommends the hot water extraction system, which research indicates provides the best capability for cleaning. This system is commonly referred to as “steam cleaning” although no steam is actually generated. The process consists of spraying a solution of water and cleaning agent into the pile and using, a powerful vacuum, recovering the used solution and soil into a holding tank. This can be best done from a truck-mounted unit outside the facility with only the hose and wand brought into the facility.

It is important to deliver clean water at a minimum of 93°C to the carpet tile face. Self-contained, walk-behind machines are another type of hot water extraction equipment commonly used. They apply the cleaning solution at a rate which is balanced with the recovery capability of the machine, resulting in a carpet that is only damp after cleaning.

This feature prevents untrained users from over-wetting the carpet to the point that drying time is unacceptable. This type of machine is employed largely by hospitals and schools with in-house maintenance staff. One variation of this equipment continuously recycles the cleaning solution for multiple uses.

Signature Floorcoverings® does not recommend the use of this equipment because as the recycled solution is re-used, the materials dissolved in it are distributed over the entire area.

Signature Floorcoverings® recommends the use of a company which is a member of a professional association.

### **Recommendations for in-house maintenance**

If you decide that cleaning by in-house personnel is best, here are some guidelines to follow:

1. Before beginning steam cleaning, thoroughly vacuum the area to be cleaned to remove as much dry soil as possible. Use a pile lifter (beater bar) if necessary in high traffic or heavy soiled areas.
2. Pre-treat the heavily soiled areas and traffic lane and wait the recommended time before cleaning. Although it is advisable to minimise the use of solvents, many traffic lane cleaners do contain some solvents to help remove the stubborn oily dirt often found in traffic areas. A small area should be treated and the liquid extracted before the traffic lane cleaner dries.
3. Use a detergent with a pH of less than 10, preferably near 9, and with a minimum of non-sticky residue. The attraction between the detergent and the particles of soil and oil is critical to the cleaning process. However, the detergent residue continues to attract these particles even after drying.

4. Increasing the amount of detergent beyond the recommended level does not greatly increase cleaning performance, but makes the complete removal of detergent more difficult. Because build-up of detergent residue is the most common cause of accelerated re-soiling complaints, DO NOT use extra. Signature Floorcoverings® does not recommend the use of cleaning agents with optical brighteners.
5. Avoid over-wetting the carpet tiles. This is controlled by a combination of proper equipment and operator training. Carpet tiles should be dry within twelve (12) hours; even less is better.
6. DO NOT use any silicone-based anti-soil treatments on carpet tiles. The only anti-soil products approved for use as needed are formulated with either Dupont's Teflon or 3M's Scotchgard.
7. Reduce drying time by using several fans or air movers to move air across the carpet tiles, in combination with a dehumidifier or air conditioner to pull moisture out of the air.

### Spot and spill removal

All maintenance procedures mentioned thus far have been planned; spot and stain removal is the reaction to an unplanned incident. Therefore, it is desirable to have the needed materials handy by planning ahead of time. Professional carpet cleaning companies have spot removal kits available in convenient carrying cases that contain all the necessary materials.

Remove as much of food spills as possible by scraping gently with a spoon or dull knife. Absorb wet spills as quickly as possible by blotting with white paper or cloth towels. Always blot, never scrub or rub abrasively, as a fuzzy area may result. When blotting, work from the outer edge in toward the centre of the spot to avoid spreading the spill and enlarging the problem. Always follow spot removal with a water rinse to remove the sticky residue from the spotter; the residue can cause rapid re-soiling. There are spotting extractors that work well for the rinse-and-extract method. Always draw out the remaining moisture with several layers of white towels weighted down on the spot.

The over dilution of detergent, and or failure to properly rinse detergent solution from the carpet tiles has the propensity to increase the stains appearance. Be sure to thoroughly rinse detergent from carpet tiles.

### Removal Procedures

1. WATER SOLUBLE STAINS- Absorb as much as possible with white towels. Blot the affected area with more towels dampened with cool water until no more colour transfers to the towels. If any of the stain remains, use a detergent solution of ½ teaspoon (no more) of CLEAR, NON-BLEACH liquid hand dish-washing detergent to a quart of water in a clean spray bottle OR use a general purpose spotter with a pH less than 10. Spray lightly onto the spot and blot repeatedly with white towels. Rinse thoroughly by spraying with clean water, and then blot or extract. DO NOT use too much detergent because the residue will contribute to rapid re-soiling.
2. As in Step 1 above, but BEFORE using the detergent, apply a solution of household ammonia (one tablespoon ammonia to one cup water) to a white towel and blot onto spot
3. OR use an alkaline spotter rather than the detergent.
4. GREASE - For oily or greasy spots, blot with white towels to remove excess. Apply a solvent (designed for grease removal) to an absorbent towel and continue blotting.
1. Use sparingly and do not pour or spray on the carpet.
5. DO NOT USE FLAMMABLE SOLVENTS. Follow up with Step 1. Procedure above.

## Questions/Assistance

Specific questions regarding cleaning and maintenance not covered within this Guide should be referred to Signature Floorcoverings®. Any variance from these procedures will become the responsibility of the customer and not the manufacturer.

For further instruction please contact Signature Floorcoverings® Customer Service Team on 1800 150 554.

\*Signature Floorcoverings reserves the right to update this document at any time and without prior notice. This document is current at the time of printing. For the latest version please refer to our website or contact our office on 1800 150 554.