# POLYFLOR
# LUXURY VINYL TILE TECHNICAL INFORMATION

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# INTRODUCTION

Luxury vinyl tiles and planks create superb looking floors using the latest print film technology with the benefits of a vinyl wear layer. By using standard borders and corners or complementary feature strips or design strips both traditional and contemporary designs can be produced to suit the end use location.

The aim of this booklet is to take you through all the aspects of the installation in order to ensure all your work is to the highest standard. Success is based on good preparation, communication between parties, attention to detail and by following instructions. Each stage of the installation is explained starting at the subfloor and progressing through to the hand over to the customer and post installation maintenance.

Selecting the right product for the end use location is critical. The main classification feature is the thickness of the wear layer where the thicker the wear layer, the higher the use area classification and the more traffic it can withstand. If in doubt, select the thicker wear layer product which, if over specified, means that the product will last longer.

At Polyflor all we ask is that if you are having problems with your installation you stop work and contact our Customer Technical Support staff who will advise you on how to solve your problem and maybe give you some practical hints and tips to make your job easier.

# PREPARATION OF SUBFLOORS

The quality of a finished installation can be very much dependent upon the preparation of the subfloor, the attention paid to the recommendations made in various codes of practice and by the manufacturers of the adhesives and smoothing compounds. The information contained below is given as guidance based of many years of experience and knowing when things go right and when things go wrong and, more importantly, how to avoid them.

It is important to avoid problems at the outset and as such if you are unsure of any of the information listed below, we recommend that you contact the Polyflor Customer Technical Support Team either directly in the UK, through your local distributor for other countries or through our web site at **www.polyflor.com.** Alternatively, discuss your requirements with your preferred supplier of smoothing compounds and adhesives.

## 1 CONCRETE AND SCREED BASES

The most common cause of failure in these types of substrate is moisture either as construction moisture or the lack of an effective moisture barrier on direct to earth subfloors.

## 2 DAMP PROOF MEMBRANES (DPMs)

All concrete bases, which are direct to earth, must have an effective damp proof membrane incorporated within them. It should only be considered as effective if the perimeter edges are continuous with the DPM in the walls.

## 3 CONSTRUCTION MOISTURE

Prior to laying any vinyl flooring, it is essential that all free water, which can affect adhesion, be allowed to dry out. The rate of drying is influenced by many factors and it is difficult to give exact drying out times but, as a guide, allow one month per 25mm (1") for the first 50mm (2") and an increasing time for each millimetre above this thickness.

Vinyl flooring should only be laid on subfloors which do not suffer from rising damp or hydrostatic pressure, and where the moisture level does not exceed 75% RH, when tested with a hygrometer, in accordance with BS 8203: 2001. Appendix A. Subfloors with a relative humidity in excess of 75% will invariably cause failure of the bond between the substrate and floorcovering. To remedy such situations, the whole floorcovering will have to be removed, the subfloor treated to resolve the moisture problem and a new floorcovering laid. In an occupied building, this can cause severe disruption to the work routine.

To prevent these situations arising, Polyflor Ltd. does not condone the practice of laying vinyl floorcoverings on subfloors with moisture content readings above 75% RH and accepts no responsibility for non-performance of Polyflor products in such instances.

If time is of the essence and the base is too wet to lay on, then the use of a surface applied damp proof membrane should be considered.

## 4 EXISTING CONCRETE AND SCREED BASES

Existing concrete and sand/cement screed bases as described in BS 8204: Part 1: 1999, if laid directly to ground, must contain an effective DPM. If one is not present or is suspect, consult Polyflor Ltd. for advice on suitable surface applied DPMs. Existing bases must also be free of all contamination, which would impair adhesion of a floor smoothing underlayment or floorcovering. All contamination must be removed before further work proceeds.

In most instances a smoothing compound of at least 3mm thickness must be applied prior to the installation of the vinyl floorcovering. 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 and details of which primer should be used.

## 5 MASTIC ASPHALT

Mastic asphalt is impervious to moisture and as such should have a primer coat and a 3mm thick surface underlayment applied. It is important to ensure that the smoothing underlayment is of a type recommended for use on asphalt floors and that a suitable primer key coat is applied if so directed.

**Never apply luxury vinyl tiles and planks direct to a mastic asphalt subfloor.**

## 6 QUARRY TILES/CERAMIC TILES

Heavily glazed surfaces are quite common with these types of flooring and tiles must be sound and firmly fixed with all loose and powdery grout removed from the joints. Generally the tiles will require mechanical abrasion of the surface in order to provide a key for the application of a smoothing underlayment. The surface should be thoroughly washed/degreased to remove any surface contaminants and then a smoothing compound of at least 3mm thickness must then be applied prior to the installation of the vinyl floorcovering. 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 and details of which primer should be used.

## 7 TIMBER SUBSTRATES

New timber suspended floors should be constructed of either 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.

### 7.1 Chipboard

Chipboard should have a minimum thickness of 18mm and should be tongued and grooved or slotted loose tongue fitting. All joints should be glued for accurate location and finished level. All chipboard should comply with BSEN:312:2003 and should be free of sealants or coatings which are liable to adversely affect adhesion of the floorcovering, if applied directly to it.

Boards with a moisture content of less than 7% and greater than 18%, using an electrical resistance moisture meter, should not be laid onto.

### 7.2 Wood blocks

Although many woodblock floors appear sound, even when overlaid with plywood, the application of an impervious floorcovering on a direct to earth subfloor can cause expansion and lifting of the base. Polyflor Ltd. recommends that in all cases the woodblock floor be removed and the subfloor brought up to the required standard to accept Polyflor vinyl flooring.

### 7.3 General

All nail and screw heads must be below the surface of the board and any indentation filled with a suitable flexible underlayment as should the joints between any boards that have been used to overlay the existing floor. The surface should be primed using a primer compatible with the adhesive, as recommended by the adhesive manufacturer. The primer will minimise adhesive usage and maintain the open time of the adhesive and prevent preferential absorption.

Existing wooden floors should be firmly nailed to the joists and any worn or broken boards replaced. The floor should be sanded to remove high spots and any hollows or cracks filled with a suitable flexible underlayment.

The existing wooden floors should then be overlaid with exterior grade plywood of 4mm or 6mm thickness. The boards should be laid with staggered joints with a 1mm gap all round to allow for expansion. The plywood should be fixed to the existing boards using 18mm long divergent staples or 14 gauge GKN screw nails of 25mm length. Both types of fixing should be at 100mm centres along the edge of each sheet, with a fixing line 12mm from the edge and thereafter at 150mm centres throughout the entire area of the sheet. Perimeter fixings must not be more than 18mm from the board edges.

Note: With suspended timber at ground level it is of vital importance to obtain good ventilation below the floor through the existence of airbricks. 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. Smoothing compounds should only be used to patch fill hollows on timber substrates. Once level, they should be overlaid with flooring grade plywood, as described previously.

## 8 EXISTING FLOORCOVERINGS

**Vinyl flooring should never be laid over existing floorcoverings and in such instances where this is carried out, Polyflor Ltd. accepts no responsibility for non-performance of its products.**

All existing floorcoverings must be uplifted and as much as possible of the old adhesive removed from the subfloor. Special care must be taken on very old floors, as some products – but not Polyflor – contained asbestos. In these instances, contact Polyflor Ltd. for further information. The removed floorcoverings should be deposited in skips and disposed of by controlled incineration, landfill or through a recognised reclamation scheme. They should never be incinerated with other building waste.

A suitable 3mm thick floor smoothing underlayment should then be applied to the whole floor. Failure to remove sufficient adhesive can lead to premature failure of the underlayment. After uplifting existing floorcoverings laid on plywood and hardboard, used as fabricated underlays, it is almost always necessary to replace the plywood or hardboard. After uplifting existing floorcoverings laid on suspended chipboard or plywood subfloors, 4mm thick plywood should be applied to the subfloor as described previously.

# TOOLS AND EQUIPMENT

As in all trades, a skilled floor layer should have at his disposal a basic set of tools that should be clean and in good condition.

The specific choice of tools is dependent upon the individual floor layer's preferences, the size of installation and the amount of preparation required. The following tools should be considered as part of the basic kit for the operations indicated.

## 1 MARKING OUT & FITTING

Rule

Chalk line and chalk

Pencil

Trammel

## 2 INSTALLATION

Adhesive trowels

Triangular file

68kg articulated roller

Hand roller

Bar or long scriber

Recess scriber (unders and overs)

Straight edge

Various trimming knives

## 3 PREPARATION

Long handled broom

Hand brush

Dust pan

Hygrometer

Screeding trowel

Grind stone

Electric drill (slow speed) and rotary paddle

Bucket

## 4 MISCELLANEOUS

Claw hammer

Screwdriver

Hacksaw

Handsaw

Electric drill

Various twist drills

Mastic gun

## 5 SAFETY EQUIPMENT

Knee pads

Safety goggles

Face mask

Circuit breaker

## 6 OPTIONAL EQUIPMENT

Bevelling tool

Mitre shears

Spiked roller

Guillotine tile cutter

Spotnailer

Profile template

Basic set of installation tools

# ESTIMATING

Tiles should be laid according to the guidelines given in the product information brochures or where necessary to the end users requirements. All details should be agreed prior to installation taking place.

In order to calculate the amount of tiles required it is necessary to find the total area plus wastage based on a percentage. The waste factor is based on the shape of the room and the pattern required. This is greater if the tiles are laid diagonally or a complex pattern is specified and if the area contains obstructions of any kind.

As a guide, a rectangular room with minimal obstructions would require approximately 5% waste allowance for tiles with no pattern and 10% waste allowance for complex patterns. Of course each room must be calculated according to its shape and number of obstructions present.

To estimate your requirements find the length on the horizontal line and the width on the vertical, this will give the total square metres of the room. Use the maximum area in the list to calculate your requirements.

All figures are approximate and should be used purely as a guide.

E.g. Room length 4.3m, width 5.2m: along vertical line to 4.3, down horizontal to 5.2 = 22.4m² area:

Underlayment = 21 - 25: 5 Units are required,

Adhesive = 21 - 25: 5 Litres of adhesive are required,

Tiles = 21 - 25: 8 Boxes are required.

| **Area** ($m^2$) | **Underlayment** (3mm thick) | **Plywood** (2400 x 1200 sheets) | **Primer** (litres) | **Adhesive** (Using a 1.5 x 5mm notched trowel) | **Boxes of Tiles** at 5% waste (3.34$m^2$/box) |
|---|---|---|---|---|---|
| 10 - 15 | 3 Units | 6 | 1 | 1 x 5 ltr | 5 |
| 16 - 20 | 4 Units | 7 | 1 | 1 x 5 ltr | 7 |
| 21 - 25 | 5 Units | 9 | 2 | 1 x 5 ltr | 8 |
| 26 - 30 | 6 Units | 11 | 2 | 2 x 5 ltr | 10 |
| 31 - 35 | 7 Units | 13 | 2 | 2 x 5 ltr | 12 |
| 36 - 40 | 8 Units | 14 | 2 | 2 x 5 ltr | 13 |
| 41 - 45 | 9 Units | 16 | 3 | 2 x 5 ltr | 15 |
| 46 - 50 | 10 Units | 18 | 3 | 3 x 5 ltr | 16 |

# FEATURE STRIP CALCULATION

The following information will enable you to calculate how much feature strip is required for the application described. As an approximate guide, the number of strips per full box of tiles is given as well as the approximate length of strip for each tile.

**305mm Tiles - Feature strip on all four sides**

24 strips per box of 36 tiles - multiply number of boxes by 24 for number of strips

or

0.62m per tile - multiply number of tiles by 0.62 for number of strips

**457mm Tiles -Feature strip on all four sides**

16 strips per box of 16 tiles - multiply number of boxes by 16 for number of strips

or

0.92m per tile - multiply number of tiles by 0.92 for number of strips

**305 x 610mm Tiles - Feature strip on all four sides**

18 strips per box of 18 tiles- multiply number of boxes by 18 for number of strips

or

0.92m per tile - multiply number of tiles by 0.92 for number of strips

**457 x 914mm Tiles - Feature strip on all four sides**

12 strips per box of 8 tiles- multiply number of boxes by 12 for number of strips

or

1.40m per tile - multiply number of tiles by 1.40 for number of strips

**914mm x 101mm Planks**

**- Feature strips along the length only**

36 strips per box of 36 planks - multiply number of boxes by 36 for number of strips

or

0.92m per plank - multiply number of planks by 0.92 for number of strips

**914mm x 152mm Planks**

**- Feature strips along the length only**

24 strips per box of 24 planks - multiply number of boxes by 24 for number of strips

or

0.92m per plank - multiply number of planks by 0.92 for number of strips

**1219mm x 203mm Planks**

**- Feature strips along the length only**

17 strips per box of 14 planks - multiply number of boxes by 17 for number of strips

or

1.22m per plank - multiply number of planks by 1.22 for number of strips

Feature strip with 305 x 610mm tiles

# PRODUCT CONDITIONING

The majority of installation failures are not caused by poor fitting but by the failure to condition the vinyl tiles and planks prior to installation.

The tiles and planks plus any other products such as borders, feature strips, design strips, tozzettos and adhesives should be conditioned for at least 24 hours prior to installation. Boxes of tiles/planks must be stacked less than 5 boxes high and tiles removed 30 minutes before use. The room temperature should ideally be between 18 and 26°C but more importantly should be constant and not varying by more than 2°C.

Critical product conditioning

As extremes of temperature can occur between the day and the night times, it is essential that these be avoided. South facing windows and all conservatory windows should be shaded to minimise daytime fluctuations. Heating systems, which are thermostatically controlled should, when necessary, be left on during the night to achieve a constant temperature similar to that of the daytime.

The temperatures need to be maintained prior to, during and for at least 24 hours after the installation is completed.

**Complaints arising from the failure to correctly condition the tiles and planks, which result in shrinkage or lipping, will not be accepted by Polyflor Ltd.**

# SETTING OUT

In order to produce the optimum appearance it is necessary to carefully plan and set out tiles. It is advantageous to dry tile a section of the floor so that it can be determined whether the appearance of the pattern is acceptable and also to ensure any graining/texture within individual tiles is correct.

Traditionally the starting point for tiling is the centre of the room. Before fixing it should be confirmed that the overall appearance of the flooring is acceptable. If the room is irregular in shape it may be necessary to square up the tiles off the most important wall or a specific feature.

## 1 TO SET OUT FOR STRAIGHT TILING:

A

Measure the room to be laid in both directions, including any alcoves etc.

B

Mark a centre line A - B ensuring it is central to the room dimensions.

C

Loose lay tiles to ensure there are no small cuts at the perimeter. If small strips are evident move the centre line across half a tile in either direction to create an acceptable sized cut.

D

Find the centre of line A-B and mark centre point (CP).

E

Mark arcs C/D at equal distances from CP on centre line.

F

With points C and D as centres and a measurement greater than the distance from CP draw further arcs intersecting at E and F.

G

Strike a chalk line from point E to F passing through CP.

H

Line GH is now 90° to line AB.

I

Check using 3/4/5 method.

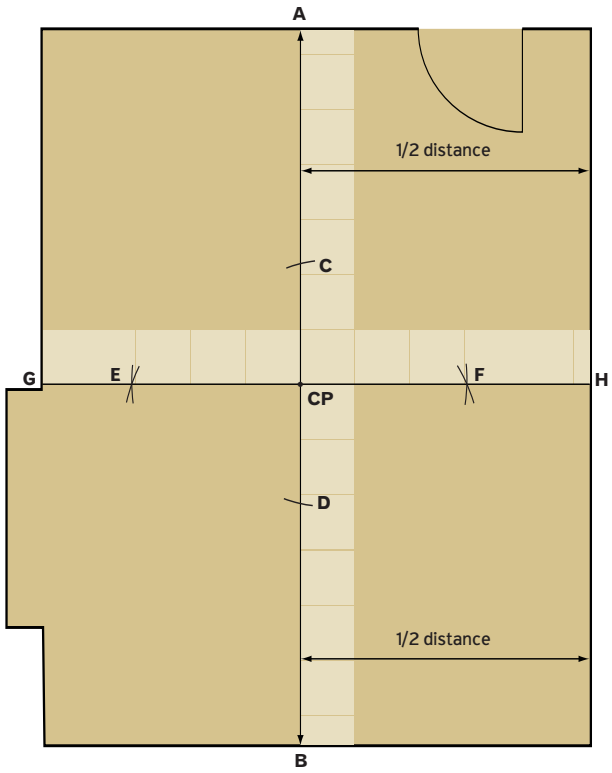



Figure 1 Setting out with loose lay tiles

## 2 TO SET OUT FOR DIAGONAL TILING

A

Set out as above for straight tiling. Ensure both lines are at 90° to each other.

B

With CP as centre point, use a convenient radius to draw and mark arcs at CDE & F.

C

With points C and D as centres and a radius equal or greater than C – CP draw further arcs to cut each other at G.

D

With points E and F as centres, and the same radius as C-CP, draw arcs to cut each other at H.

E

Strike a chalk line from wall to wall through points G and H; if no error has been made this line will pass through CP.

F

With points D and E as centres and the same radius as C-CP draw cutting arcs to find point J.

G

With points C and F as centres and the same radius as C-CP draw cutting arcs to find point K.

H

Strike a line from wall to wall through points J and K; as a check this line should pass through CP.

I

Loose lay tiles to ensure there are no small cuts at the perimeter. If small strips are evident move the centre line across half a tile in either direction to create an acceptable sized cut.

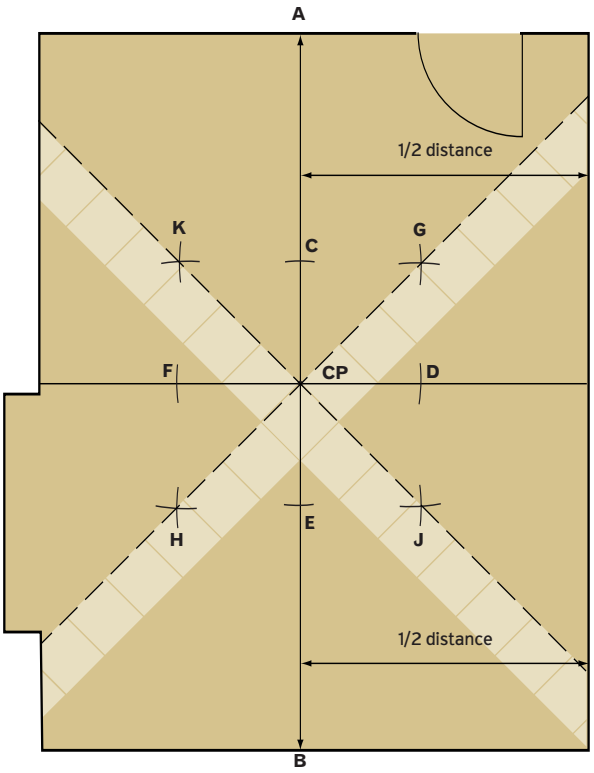



Figure 2 Diagonal setting out with loose lay tiles

## 3 BORDERS

The inclusion of borders or design strips is a simple way of improving the appearance of an installation. Borders and design strips come in various widths and styles but the installation technique is similar in all cases. Borders fit around the field tiles but it should not be attempted to abut pre-made borders to a wall.

The normal method of setting out for borders is described, however, it must be noted it may be required to set out off a prominent wall or unit etc. If there is any doubt it should be discussed with the end user prior to installation.

Most designs will have a contrasting yet complimentary border. It is preferred, where possible, that full tiles are fitted up to the borders, in the case of diagonal, exactly half tiles should be used. This gives a more geometric appearance to the installation. It does, however, mean that, in almost all cases the border will have to be adjusted on adjacent walls.

In the case of diagonal tiles and for the sake of appearance, the colour of the cut half field tile should contrast with the border.

A

Mark a centre line as described earlier.

B

At the centre point form a 90° and mark across the area.

C

Determine width of borders.

D

Dry tile to ensure cuts are acceptable and of the correct colour and adjust where necessary.

E

Using centre lines as guides measure to the position of the border and mark with chalk lines.

F

Spread adhesive up to the border lines and fit field tiles. (Remember only spread adhesive to areas that can be laid within the open time).

G

Dry fit perimeter cuts before adhering, as described earlier.

Setting out for border installation

# ADHESIVES

Use of the correct adhesives is important if the installation is to be successful first time around. Polyflor spend many hours testing for adhesive compatibility and user friendliness and as such we only recommend a small number of adhesives. This does not mean others are unsuitable but that we believe the adhesives we recommend will minimise the risks of an installation failure.

## 1 SELECTION OF THE CORRECT ADHESIVE

There are generally three types of adhesive you will encounter in the installation of Polyflor luxury vinyl tiles. Each has benefits and disadvantages and the section below outlines the use and key points regarding application. Details regarding application methods and spread rates are provided on the tubs of adhesive, and these should be followed along with the manufacturers' health and safety guidance.

### 1.1 Wet set acrylic

Traditional acrylic dispersion adhesive applied with a notched trowel has a defined open time for the site conditions and is generally accepted to be suitable for use with underfloor heating up to 27°C (refer to Installation PDF for specific advice regarding underfloor heating.) It can take up to 3 days to achieve full bond strength, but has excellent bond strength when fully cured.

### 1.2 Pressure sensitive acrylic

Acrylic dispersion adhesive, which is specially formulated to have a very long open time and a semi permanent tack, can be used with underfloor heating (up to 27°C).

This adhesive has very low initial grab and as such it is imperative that the adhesive is allowed to fully dry after the adhesive notch has been flattened using a pre-wetted paint roller.

Good ventilation and the use of fans speeds up the drying time but care must be taken to ensure there is no dust that can be blown onto the adhesive surface.

### 1.3 Epoxy or polyurethane adhesives

These are specialist reactive adhesives, normally supplied in two parts that are mixed together prior to use. They are used in specialist installations that will experience extremes of temperatures, such as conservatories and cold store rooms etc. or where there is a risk of water penetrating the edges of tiles or planks such as in kitchens and bathrooms.

1. Excellent bond strength.
2. Excellent heat/cold resistance.
3. Must be mixed in the correct ratios.
4. Possible high wastage factor if large tubs of adhesive need to be used.
5. Needs special precaution regarding consistency of temperature until bond strength is achieved.

## 2 USE OF PRIMERS

Often neglected, the use of primers if used correctly greatly assist the installation by controlling the porosity of the substrate, maximising adhesive consumption and improving the open time of the adhesive. The primer must be compatible with the substrate and the adhesive and should therefore be

specified by the adhesive manufacturer.

It is best applied with a paint roller fitted with a long handle and care should be taken around the perimeter of the room to prevent the primer splashing pre-finished walls and woodwork.

### 3 ADHESIVE OPEN TIME

There are two things to consider when using water based adhesive.

Firstly there is the waiting time when the adhesive has been applied and has to be left to allow some of the moisture to evaporate and become tacky enough to hold the tiles or planks. The type of adhesive used, the density of the substrate and whether or not a primer has been applied first affect this time.

Secondly there is the open or working time when the adhesive remains tacky enough to enable the floorcovering to be laid whilst remaining pliable enough to enable the notches to be flattened when rolled. Failure to install the floorcovering within the stated open time can result in the grin through of the adhesive ridges or the movement of tiles or planks, as they are not fully bonded. This is easily checked when a failure occurs as there is little or no adhesive transfer to the back of the tile or plank.

### 4 APPLICATION OF ADHESIVE

The adhesive manufacturer provides information regarding the notch size of the trowel to be used to apply the adhesive, on the drum and also on the associated data sheet. This notch needs to be maintained during the application of the adhesive in order to ensure an even coverage of adhesive that in turn ensures the claimed open time can be achieved.

**It is imperative that you do not spread any more adhesive than can be laid into during the open time. Failure to do so will result in late placement of the floorcovering and the problem described above.**

If a pressure sensitive adhesive is being used, although slightly more expensive than wet set adhesives, it does have the advantage that it has a very long open time. The adhesive should be first applied with the correct notched trowel, which not only guarantees the correct coverage but picks up any "nibs" or high spots that may be present in the subfloor. The adhesive should then be rolled with a paint roller, which should be prewetted with the adhesive. The benefits are that it does not remove any adhesive from the floor, the adhesive ridges are removed, the contact area with the back of the floorcovering is increased and the drying time is reduced.

**It should be noted that Polyflor Ltd do not approve any methods of applications of adhesive such as direct roller application or spraying that cannot guarantee the amount of adhesive applied.**

### 5 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 manufacturers 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.

## 6 RECOMMENDED ADHESIVES

All floorcoverings should be conditioned and installed as described in this manual, as per 8203;2001 and the adhesive manufacturer's instructions. The substrates should be prepared to accept the floorcoverings in line with the adhesive manufacturer's instructions.

Polyflor provide this information only as guidance and the legal responsibility for supply and performance is that of the adhesive manufacturer and does not preclude, as being unsuitable, adhesives from other manufacturers.

For an updated list of recommended adhesives or for clarification on any technical points, then please contact our Customer Technical Support staff on 0161 767 1111 or fax us on 0161 767 1100. For specific questions regarding the adhesives, please contact the relevant adhesive manufacturer.

Applying adhesives

# INSTALLATION OF TILES

On receipt of tiles, check that colours correspond to those ordered, that quantities are correct and there is not damage. In particular, check that tiles are from one batch, if this was requested on the order.
For Design Floors, identify and check each element before work proceeds.

To achieve best results, site conditions should be prepared as described in BS 8203. A working temperature of between 18°C and 26°C should be maintained 24 hours prior to, during and for at least 24 hours after the installation is completed. Conditioning areas should be of similar temperature, to prevent thermally induced dimensional changes.

In installations where underfloor heating is used, this should be switched off from 48 hours prior to installation until 48 hours afterwards. It should be brought slowly back up to working temperature; a maximum of 27°C. Peak temperatures should be avoided for a further 7 days.

The decoration of tiles is randomly distributed and can be heavier on some tiles than others. To prevent "heavy" and "light" areas, the tiles should be unboxed and, if required, "shuffled". Alternating the direction of tiles may be required to avoid repeat patterns.

When installing tiles, the centre line must be determined and checked to ensure good size cuts will be fitted at the perimeter.

## 1 INSTALLING TILES TO BORDERS

### 1.1 Straight fitting

Ⓐ
Dry tile to ensure cuts are acceptable and of the correct colour and adjust where necessary.

Ⓑ
Apply adhesive as described earlier.

Ⓒ
Starting on the start line, carefully lay the tiles working your way outwards to the border lines.

Ⓓ
Tiles should finish at the borderline. If they overlap the borderline, transfer the chalk line over the tiles and carefully cut off the excess.

Ⓔ
Fix borders to finished tiles.

Ⓕ
Fit perimeter tiles as covered in Section 11.

### 1.2 Diagonal fitting

Ⓐ
Set out for diagonal tiles as described earlier.

Ⓑ
Dry tile to check for suitable cuts at edges.

Ⓒ
Apply adhesive to the border lines.

Ⓓ
Allow tiles to overlap the border line by approximately 50mm.

Ⓔ
At the ends transfer the chalk line over the tiles and carefully cut off the excess.

Ⓕ
Fix borders to finished tiles.

Ⓖ
Fit perimeter tiles as described in Section 11.

Once the start point has been established, depending on the size of the area and type of adhesive to be used, it may be necessary to section off the area so that the adhesive can be applied to areas that can be laid within the open time. When sectioning off for adhesive application, parallel lines should be marked

and adhesive spread within them. This will ensure that only the amount of adhesive is applied that can be laid within the open time.

When a section has been laid, except for the perimeter, it should be thoroughly rolled in both directions with a 68kg articulated floor roller. Repeat for each section until the main field of tiles has been laid.

It is advantageous to leave the last full tile and the cut at the perimeter without adhesive until all tiles have been cut to size.

Spread the adhesive to the manufacturers recommendations. Trowels should be checked regularly to ensure the correct notch size is maintained throughout the installation. If the notch shows signs of wear it should be renewed immediately.

Loose lay tiles to check set out.

Installing border and perimeter tiles

# INSTALLATION OF PLANKS

Pre-installation checks and conditioning as for tiles (see previous section), also installation with underfloor heating as for tiles.

When installing planks, the centre line must be determined and checked to ensure good size cuts will be fitted at the perimeter. Because it is not required that the planks are laid "in bond" in the length, it is possible to begin tiling from an end wall, ensuring, prior to laying the first plank, that all cuts are of an acceptable length (Min 150mm).

Planks must be staggered to obtain a random finish, but it is advisable to ensure that plank ends are not within 15cm of adjacent planks.

## 1 INSTALLING PLANKS TO BORDERS

### 1.1 Straight fitting

A

Dry tile to ensure cuts are acceptable and of the correct colour and adjust where necessary.

B

Apply adhesive as described earlier.

C

Starting on the start line, carefully lay planks working your way outwards to the border lines.

D

Planks should finish at the borderline in the width.
In the length, planks should be allowed to overlap the borderline by approximately 50mm.

E

At the ends, transfer the chalk line over the planks and carefully cut off excess.

F

Fix borders to finished planks.

G

Fit perimeter planks as described in Section 11.

### 1.2 Diagonal fitting

A

Set out for diagonal planks as described earlier.

B

Dry tile to check for suitable cuts at edges.

C

Apply adhesive to the border lines.

D

Allow planks to overlap border line by approximately 50mm.

E

At the ends transfer the chalk line over the planks and carefully cut off excess.

F

Fix borders to finished planks.

G

Fit perimeter planks as normal.

Once the start point has been established, depending on the size of the area and the type of adhesive to be used, it may be necessary to section off the area so that the adhesive can be applied to areas that can be laid within the open time. When sectioning off for adhesive application, parallel lines should be marked and adhesive spread within them. This will ensure that only the amount of adhesive is applied that can be laid within the open time.

When a section has been laid, except for the perimeter, it should be thoroughly rolled in both directions with a 68kg articulated floor roller. Repeat for each section until the main field of tiles has been laid.

It is advantageous to leave the last full plank and the cut at the perimeter without adhesive until all planks have been cut to size.

Spread the adhesive to the manufacturers recommendations. Trowels should be checked regularly to ensure the correct notch size is maintained throughout the installation. If the notch shows signs of wear it should be renewed immediately.

# INSTALLATION OF PERIMETER TILES/PLANKS

## 1 CUTTING THE PERIMETER TILES/PLANKS (STRAIGHT CUT)

To avoid run out of the bond, cutting of perimeter tiles should start at the centre of the wall and work out towards corners.

The choice of technique used for cutting perimeter tiles is largely dependent upon the straightness of the wall.

### 1.1 Overlapping Method

Used when there is little or no run out of the abutting wall.

Ⓐ

Place the tile to be cut exactly over the last tile laid, ensuring the colour is correct and the decoration runs the correct way.

Ⓑ

Place another full tile on top of the tile to be cut with its "top edge" against the wall or set-in coved skirting (Figure 1).

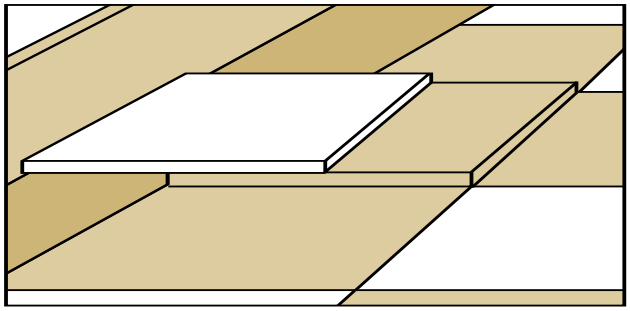


Figure 1 Measuring using a overlapping tile

Ⓒ

Scribe a line onto the tile to be cut, using the "bottom edge" of the top tile as a guide.

Ⓓ

Cut the tile to the scribed line, loose lay into position and check the fit. Repate along the whole wall.

### 1.2 Scriber Method

Used when the wall run out is quite severe or when the wall profile cannot be picked up using a straight edge.

Ⓐ

Place the tile to be cut exactly over the last tile laid, ensuring the colour is correct and the decoration runs the correct way.

Ⓑ

Set the bar scriber to the size of tile being laid.

Ⓒ

Trace the profile of the wall onto the tile to be cut, ensuring the bar scriber is kept flat to the floor and square to the edge of the tile (Figure 2).

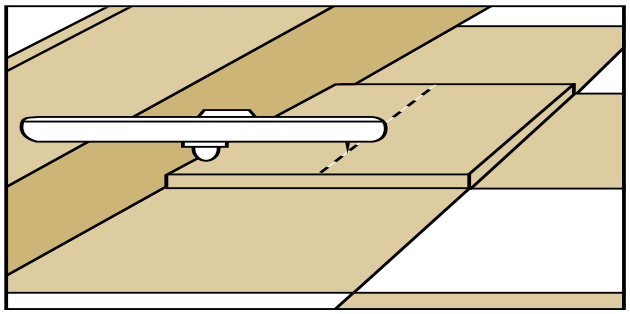


Figure 2 Scribing a line

Ⓓ

Cut the tile to the scribed line, loose lay into position and check the fit. Repeat along the whole wall.

## 2 CUTTING THE PERIMETER TILES (DIAGONAL CUT)

### 2.1 Overlapping Method

Ⓐ

Cut a template exactly to the size between the diagonal points, (e.g. 428mm for 305mm tiles).

Ⓑ

Place the tile to be cut exactly over the last tile laid, ensuring the colour is correct and the decoration runs the correct way.

Ⓒ

Place the template tile on top of the tile to be cut with its "top edge" against the wall or set-in coved skirting (Figure 3).

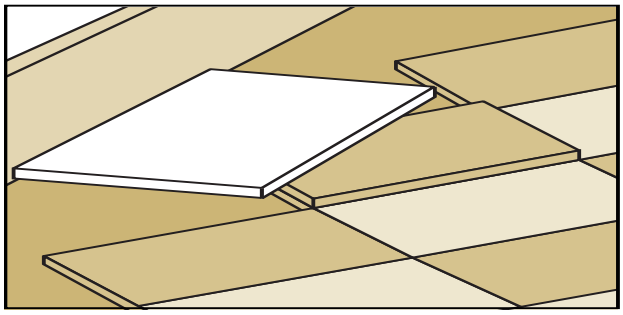


Figure 3 Measuring using a overlapping template on diagonal laid tiles

D

Scribe a line onto the tile to be cut, using the "bottom edge" of the top tile as a guide.

E

Cut the tile to the scribed line, loose lay into position and check the fit. Repeat along the whole wall.

### 2.2 Scriber Method

Used when the wall run out is quite severe or when the wall profile cannot be picked up using a straight edge.

A

Place the tile to be cut exactly over the last tile laid, ensuring the colour is correct and the decoration runs the correct way.

B

Set the bar scriber to the size between the diagonal points of tile being laid.

C

Trace the profile of the wall onto the tile to be cut, ensuring the bar scriber is kept flat to the floor and square to the edge of the tile.

D

Cut the tile to the scribed line, loose lay into position and check the fit. Repeat along the whole wall.

## 3 ADHERING THE PERIMETER TILES

A

Once a wall edge has been fitted and loose laid, turn all the tiles inward so as not to lose their position.

B

Spread the adhesive right up to the edges. When the adhesive is ready, lay the perimeter tiles.

C

Wipe up excess adhesive as work progresses.

D

Roll well with a 68kg articulated roller. Use a small hand roller in areas that are inaccessible.

E

Repeat the process for all four walls.

F

Finally, the whole floor should be given a second rolling, approximately one to four hours later.

# INSTALLATION OF TILES/ PLANKS TO A LARGE AREA

Maintaining a clearly defined straight line over long distances can be difficult and often leads to inaccuracies. To eliminate this problem, an alternative technique is used when laying tiles in large areas.

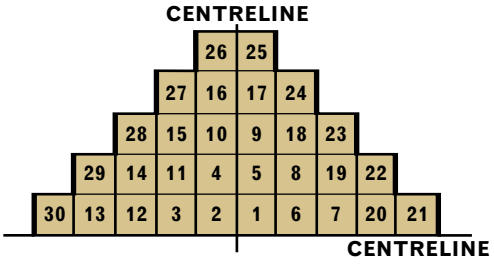



Figure 1 Pyramid layout

Ⓐ

Establish the central starting point as described previously, minimising small cuts on perimeter tiles.

Ⓑ

Lay the first pyramid of tiles from the centre lines, using the sequence shown. Ensure a close bond is maintained at all times.

Ⓒ

Repeat this sequence on the opposite side of the centre line.

Ⓓ

Continue working in larger and larger pyramids until only the perimeter tiles require fitting.

Ⓔ

Fit perimeter tiles as described earlier.

**Construction of a pyramid should always start at the centre of the baseline, working in the same sequence as shown above (Figure 1).**

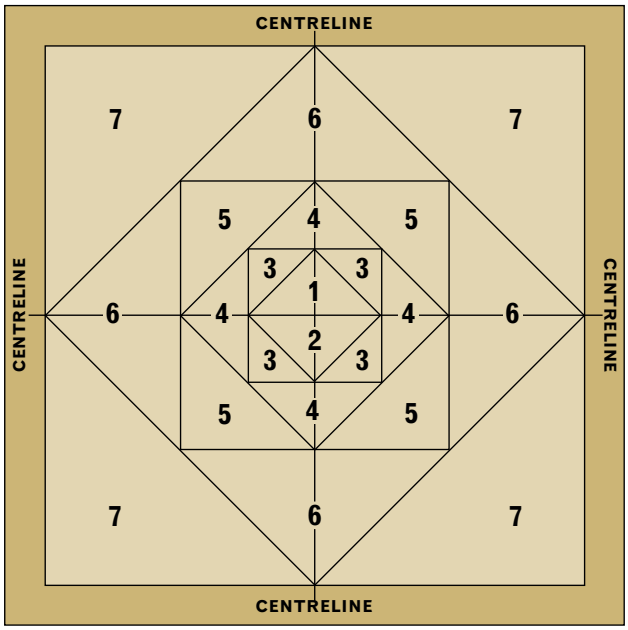



Figure 2 Floor layout

# ADDITIONAL INFORMATION

## 1 FEATURE/DESIGN STRIPS

Feature and design strips must be stored flat and conditioned as for tiles and planks. All must be stored in the area to be fitted for at least 24 hours prior to installation. The temperature must be constant and should be between 18° and 26° for 24 hours before, during and after laying.

Care should be taken when installing feature strips and design strips so as to prevent them being stretched which can result in shrinkage at a later date. The strips should be laid into the adhesive as fitting progresses .

## 2 MOTIFS

Polyflor Expressions inlaid motifs and borders are manufactured under strictly controlled conditions to produce the close-fitting pieces that make up the design. To duplicate the close fitting on site, it is important to ensure the design is correctly conditioned prior to laying.

The Polyflor Expressions design should be removed from its packaging and laid on a flat surface and conditioned, together with the tiles and adhesive, at a temperature of at least 18°C for a minimum of 24 hours prior to and during and at least 24 hours afterwards.

The preferred method of installation is as follows:

A

Fix the motif to the floor in the required position.

B

Fix tiles/planks and cut, overlapping the motif by approximately 25mm.

C

Turn back the clear adhesive film approximately 25mm away from the outside edge of the motif and carefully scribe to the motif using a recess scriber (Unders and overs) so that a tight fit is achieved.

D

Allow the adhesive to fully cure before removing the protective film from the motif.


Motif

## 3 COMPLICATED CUTS

Perimeter cuts to complicated shapes such as architraves, door jambs etc., can be achieved by using either traditional methods or by use of a Profile Template to mark the tile prior to cutting.

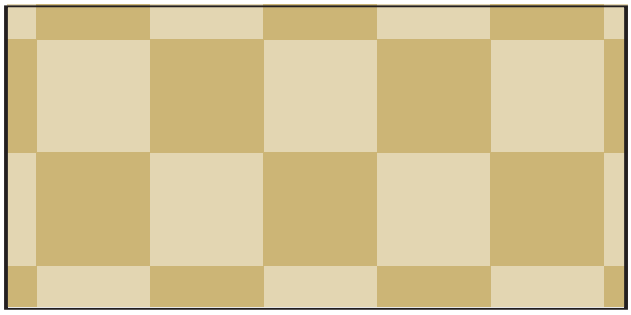
## 4 TREADPLATE TILES

Treadplate is designed to replicate the metal versions as cut from a large sheet and as such there is no pattern repeat. To improve the finished appearance and to minimise any miss matches with the embossed sections we recommend that matching or contrasting feature strip or design strips be used around each tile.

## 5 TERMINOLOGY

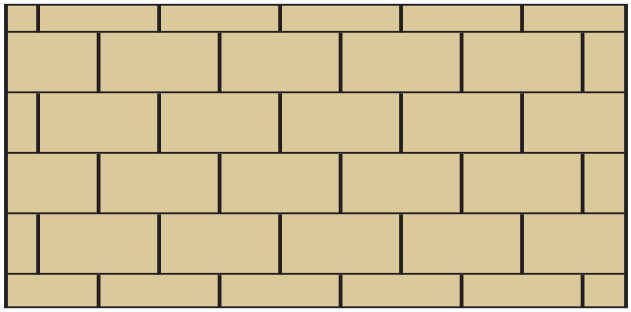
There are a variety of bonds used in the laid designs of planks and tiles and below are a few which are widely used.

Normal - where tiles are laid in straight lines and usually tessellated. Tiles can be laid in two colours to give a checkerboard pattern.



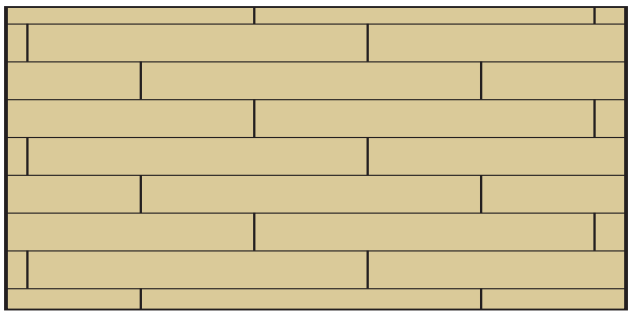
Normal

Brick - tiles are laid in rows with the side joints off set by half tiles, similar to brickwork.



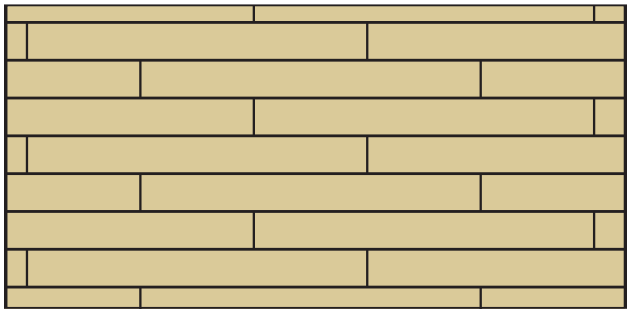
Brick

Staggered - usually used for installation of planks, which are laid so that the ends of adjacent planks are off set. The normal off set is approximately a third of a plank but can also be laid random. For the best appearance end joints should not be within 150mm of adjacent planks.



Staggered

Naval - planks laid as normal but along the length of each plank is laid a feature strip or design strip of suitable colour. There are no feature or design strips used across the ends of the planks.



Naval Plank

## 6 ACOUSTIC PROPERTIES

Vinyl tiles and planks provide no airborne sound improvement benefits and give between 3 and 4 dB impact sound improvements. If due to national or local building regulations a bigger improvement is required, Polyflor recommend the use of approved acoustic underlayments and these must be laid strictly in accordance with the manufacturers instructions.

Contact the Polyflor Customer Technical Support staff for the current recommended products.

# RESISTANCE TO CHEMICALS

## 1 POLYFLOR VINYL FLOORING

Polyflor vinyl floorcoverings show an above average resistance to mild and dilute acids, alkalis, soaps and detergents. Petrol and strong acids are not harmful, provided any spillage is cleaned off immediately.

Ketones, chlorinated solvents, acetone and similar solvents should not be allowed to come into contact with Polyflor vinyl flooring. However, if this should happen, the effect can be minimised by removing the spillage immediately and leaving any solvent residue to evaporate, prior to allowing any foot traffic.

Polyflor vinyl floorcoverings are suitable for use in all areas where most chemicals are used and there is only risk of accidental spillage. However, some chemicals contain very strong dyes, which, even after a short period of contact, will stain the vinyl used, it is suggested that an appropriate dark colour be selected to minimise the staining effect.

The following tables summarise the general chemical resistance of Polyflor vinyl flooring (see footnote for brief description of test procedure).

**Note: Polyflor test for resistance to chemicals is evaluated over a 24 hour contact period at a room temperature of 21°C, followed by rinsing with cold water. Polyflor believes this simulates the worst situation where spillages are not removed immediately and are only cleaned by normal maintenance. Some stains can be removed by abrading with a nylon pad during maintenance. The Polyflor floor polish can be used as a sacrificial layer for protecting the floor against staining.**

| TYPE OF CHEMICAL | EFFECT | ACTION |
|---|---|---|
| **Aldehydes**<br>**Esters**<br>**Halogenated hydrocarbons**<br>**Ketones** | Flooring attack occurs after several minutes. | Wipe up immediately. |
| **Alcohols**<br>**Ethers**<br>**Glycols**<br>**Hydrocarbons (aromatic and aliphatic)**<br>**Petroleum spirit**<br>**Vegetable oil** | After several days, plasticiser extraction occurs, with associated problems of shrinkage and embrittlement. | Wipe up immediately. |

ORGANIC LIQUIDS

| TYPE OF CHEMICAL | EFFECT | ACTION |
|---|---|---|
| **Mild acids and alkalis** | No effect. | |
| **Strong alkalis** | Will strip polish and may cause discolouration in some shades. | Dilute and remove. |
| **Strong acids** | Prolonged contact can cause discolouration. | Dilute and remove immediately. |
| **Dyes (indicators)** | Contact can cause discolouration. | Dilute and remove immediately. |

AQUEOUS SOLUTIONS

# LOAD BEARING CAPABILITIES

There are three types of situation where the load bearing capabilities of the floor need to be considered:

**Static Loads** e.g. Furniture, filing cabinets etc.

**Impact loads** e.g. Dropped items and stiletto heels

**Rolling loads** e.g. Castor chairs, trolleys and fork lift trucks

In all instances, the effect is due to the load (weight) applied and the area it is applied to.

## 1 STATIC LOADS

As a guide, Polyflor products will withstand permanent damage if the loading does not exceed 87,900kg/m$^2$ (125lb/in$^2$). Where loads are concentrated upon small areas such as table legs, any detrimental effects can be minimised by spreading the load using furniture leg cups or felt pads.

## 2 IMPACT LOADS

Impact loads are where the load is applied suddenly to the surface of the flooring, such as an item being dropped or the footfall from a shoe heel. As a guide, Polyflor products will withstand short term loading up to 503,500kg/m$^2$ (716lb/in$^2$). There may be some slight initial indentation but the material should recover to its original thickness.

**Note 1: Worn stiletto heels will exert extreme loads in excess of 703,250kg/m$^2$ (1,000lb/in$^2$) and as a result may permanently damage the floorcovering.**

**Note 2: Sharp pointed objects such as knives will pierce the surface of the vinyl, necessitating a repair.**

## 3 ROLLING LOADS

Rolling loads cover a range of situations, from castor wheeled chairs and hospital trolleys, to heavy applications such as fork lift trucks. Where these situations occur, the following points need to be addressed prior to the installation of the floorcovering:

### 3.1 Substrate

The substrate should always have sufficient strength to cater for the anticipated loading. If the surface has been given a skim coat of underlayment, this should have the same strength characteristics. Friable concrete and concrete in a poor state of repair should always be made good prior to the application of the floorcovering.

**The majority of product failures in situations where rolling loads are found can usually be attributed to failure of the substrate for various reasons, and not the floorcovering.**

### 3.2 Adhesive

Always seek and follow the adhesive manufacturer's recommendations with regard to product suitability and application. Do not compromise the installation by using an adhesive with a low shear strength.

### 3.3 Castor chairs

It is generally accepted that heterogeneous floorcoverings such as the Polyflor Luxury Vinyl Tile ranges are unaffected by castor chair wheels.
If damage does occur, it is normally due to incorrect, damaged or sticking wheels or failure of the substrate/adhesive. Always check the wheels for

faults before taking the more serious action of uplifting the floorcovering. It should be noted that castor chair wheel manufacturers make different quality wheels for textile and resilient floorcoverings and the correct type of wheel should be specified when ordering new furniture.

### 3.4 Other applications

Unladen, the total load should not exceed 88,070kg/$m^2$ (125lb/$in^2$) and laden should not exceed 510,000kg/$m^2$ (716lb/$in^2$). Loads should not be left on trucks or trolleys for long periods of time in one position.

### 3.5 Other points to consider

Points to note when considering rolling load suitability:-

1. Solid wheels have less surface contact area than pneumatic tyres.
2. Large diameter wheels have greater surface contact than small wheels when under load.
3. Metal and polyamide wheels are prone to chipping and indentation in use which, in turn, may damage the floorcovering.
4. Dark coloured tyres are likely to stain light coloured floorcoverings.
5. High speed driving of fork lift trucks is undesirable as this can lead to ingrained "skid" marks in traffic paths when braking hard.
6. Damage will result to the floorcovering if pallets are dropped whilst the vehicle is still moving.
7. Tight turning circles can increase the loading on the floor, resulting in a breakdown of the substrate and ultimately the floorcovering.

### 3.6 Avoiding damage to floors

When moving heavy furniture and fittings across Polyflor products, spread the load by placing strips of 6mm plywood or hardboard on the floor under the load. The load can be moved, allowing the boards to distribute the high point loading over a large area.

For very heavy machinery and equipment, consider the hire of hover pads and a compressor. These act like a hovercraft and allow the heavy equipment to float across the floor without contact.

# MAINTENANCE GUIDE

The following maintenance instructions are designed to minimise the cost factor, without compromising the long-term appearance of your floorcovering.

Once the installation is complete, do not traffic for 24 hours until the adhesive has dried and then:

A

Remove all loose debris and ensure that all traces of dried adhesive are removed from the surface of the floorcovering.

B

Mop sweep or vacuum to remove dust and grit.

C

Damp mop with a neutral detergent.

## 1 APPLICATION OF A FLOOR DRESSING TO PROVIDE ONGOING PROTECTION

The polyurethane surface treatment is designed to provide the initial protection for the floorcovering. However an application of a metalised polish will be required eventually to provide ongoing protection. The level and intensity of traffic will determine how soon the polish will have to be applied.

Using a suitable applicator the first coat should be applied thinly and evenly across the floor and to within 200mm of the skirting. It should then be left to dry. This normally takes approximately thirty minutes, depending on the ambient conditions and the thickness of the coating.

When the first coat is dry, a second coat should be applied at right angles to the direction of the first. Any subsequent coats should be applied at right angles, and the final coat should be applied right up to the skirting.

Daily routine maintenanace

Two to three thin coats are normally sufficient to provide excellent ongoing resistance to abrasion, scuffing and removal of black heel marking. However, be guided by your own periodic assessments of the floor. In order to minimise costs, subsequent polish applications may be applied only to traffic paths.

Periodically - generally every six months - assess the appearance of the floor. If there is an unacceptable build-up of polish, especially at the edges of the room, this should be stripped and reapplied, as per the instructions above.

## 2 ROUTINE MAINTENANCE

The following recommendations are provided as a guideline, and the frequencies can be changed to optimise the appearance.

**DAILY**

A

Mop sweep or vacuum to remove dust and loose dirt.

B

As required, spot clean to remove stubborn marks with a neutral cleanser.

**WEEKLY/MONTHLY**

A

Assess the appearance of the floor.

B

As required, scrub with neutral cleanser diluted as per the manufacturers recommendations; a 3M® doodlebug or deck scrubber can be used.

C

If a lustre is required then the floor should be damp mopped with a dilution of maintainer, which should then be left to dry before being trafficked.

To minimise any surface scratching, external doorways should have a mat placed inside to take off any water or dirt/dust and a scraper mat outside to remove large grit and small stones. These should be cleaned regularly to remain effective. Cleaners and detergents should be diluted as per the manufacturers' instructions. Always follow the Health and Safety guidance provided.

## 3 POLYFLOR MAINTENANCE PRODUCTS

(Recommended for domestic floor installations).
To achieve the best results for your floor, we recommend that the Polyflor collection of Maintenance Products are used in accordance with our instructions. For a long lasting beautiful floor, simply follow the easy steps laid out.

### 3.1 Polyflor Polish

Provides a hard wearing surface to aid routine cleaning.

A

Ensure the floor surface is clean and dry before applying Polyflor Polish.

B

Using a clean, lint free, flat mop, apply the undiluted polish evenly and thinly, in a uniform direction.

C

Allow approximately 25 minutes to dry before applying a second coat at 90° to the first.

It is advisable to leave the surface overnight before walking on it, to enable the polish to fully cure.

Polyflor Polish should be removed periodically (approximately every 6 months, dependent on traffic), by applying Polyflor Stripper.

### 3.2 Polyflor Maintainer

Regular routine cleaning of vinyl floor tiles.

A

Before applying the Polyflor Maintainer, ensure the floor is free from dust and grit by gently sweeping or vacuuming.

B

Dilute 100ml (approximately half a cupful) of Polyflor Maintainer with approximately 5 litres of cold water (Ratio 1:50).

C

Damp mop the floor with the diluted solution and allow to dry thoroughly.

### 3.3 Polyflor Stripper

Easy removal of Polyflor Polish.

A

To remove the build up of Polyflor Polish, dilute 500ml (approximately 2 and a half cupfuls) of Polyflor Stripper with 5 litres of clean water (Ratio 1:10).

B

Apply this solution to the floor and leave for 10 minutes. Scrub the floor thoroughly with a deck scrubber or 3M® doodlebug .

C

When the polish has been fully removed, pick up the slurry with a clean mop and rinse with clean water.

D

Repeat until all residues have been removed.

E

Allow the floor to dry.

F

To remove excess adhesive after the initial installation of the floor, apply undiluted Polyflor Stripper and rinse afterwards with clean water.

# HINTS AND TIPS

## 1 INSTALLATION

- Prior to the application of the floorcovering, it should be ensured that the substrate is sound, dry and free from dust and debris and all other contaminates likely to impair adhesive to the surface.
- The relative humidity of solid, cementitious sub floors should be at a maximum of 75% when measured over at least a 72 hour period, as described in BS 8203 (Annex A).
- In most instances, it is beneficial to apply a smoothing underlayment to solid subfloors, at least 3mm thick, to smooth out any local irregularities, nullify the effects of any adhesive residue and provide a surface of known porosity.
- The use of a spiked roller with some smoothing underlayments after it has been applied will help minimise air bubbles and also improve surface finish.
- Smooth, dense surfaces such as power floated concrete can be difficult to bond to. Check for porosity by flicking some drops of water onto the surface. If they stay in globules for any length of time, the surface should be mechanically treated to provide sufficient porosity.
- When rolling pressure sensitive adhesive, to prevent rollers from drying out, it should be wrapped in a polythene bag and hung up. It also prevents "flats" being formed and avoids regular washing and pre-wetting.
- Always double check the position of the centre line to verify position. Check by measuring both ways from centre line, both dimensions should be exactly the same.
- When trimming off planks to a border always strike a chalk line over the planks to provide a guideline when cutting off.
- Always clean trowels immediately after use. Submerge in a bucket of water and clean with a brush. This not only speeds up the cleaning process but also keeps tools in pristine condition.

## 2 MAINTENANCE

- Specifically manufactured for Polyflor Luxury Vinyl Tiles, Polyflor maintenance products are available from stockist of Polyflor tiles/planks.

To get the best results and a uniform finish when applying floor dresssing:

- Always keep the equipment clean.
- Use the recommended quantities of floor dressing and the recommended number of coats.
- Allow adequate drying time between the application of each coat of dressing and apply at right angles to previous coat.
- Use only recommended products and follow manufacturers instructions on application.

- Spillages should be cleaned up immediately by first wiping with absorbent paper, and then thoroughly mopped or wiped with Polyflor Maintainer. The floor should then be rinsed and allowed to dry.
- Spills should be dealt with immediately as wet floors can be slippery.
- Black scuff marks can be removed by using a moistened cloth with the correctly diluted Polyflor Maintainer . A non-abrasive nylon scrubbing pad may be used for more persistent marks.
- Applying Polyflor Polish will offer extra protection against scuffing.
- Prevention is the first step to protecting vinyl flooring from scratches:
- Use mats at external doorways to reduce the trafficking of grit, dust and water into the building.
- Furniture can cause scratches to a vinyl floor, therefore felt pads should be attached to the feet of tables and chair legs.
- Keeping dogs nails well clipped will reduce scratching from pets.
- If surface scratches do appear, these can be minimised by the use of Polyflor maintenance products.
- Some rubber backed mats are treated with an anti-oxidant, which can stain a vinyl floor.
- PVC backed mats can cause plasticiser migration with prolonged contact and should therefore be avoided.

POLYFLOR
COVERING THE WORLD