

# INSTALLATION

## LAYING RECOMMENDATIONS

To ensure best colour match only install together rolls that have the same manufacturer's batch number. Minor differences in shades of colour cannot, however, be completely ruled out. The floor-laying contractor should check the colour after laying out the goods prior to installation. Any criticisms about colour matching can no longer be considered when floor-laying operations have been completed.

### 1 SUB-FLOOR

Armstrong DLW Homogeneous floorcoverings can be laid on all sub-floors that are permanently smooth, firm, free of cracks, and dry; see also all other relevant regulations. Dense, non-porous sub-floors such as poured asphalt or primed screeds must be smoothed with a levelling compound of sufficient thickness (we recommend about 3 mm) before emulsion-based adhesives are used.

The following figures for residual moisture and drying times for various sub-floors apply to substrates of normal thickness and are derived from practical experience:

| Floor bases                        | Permitted residual moisture in CM-% |
|------------------------------------|-------------------------------------|
| Cement screed                      | ≤ 2,0                               |
| Anhydride and Anhydride tile floor | ≤ 0,5                               |

### 2 ADHESIVE

The application of the adhesive is carried out using the correct trowel notch as recommended by the adhesive supplier. We recommend the use of low-emission and solvent-free adhesives.

Care should be taken to ensure the correct choice of adhesive as this can have an affect on the indentation characteristics of the floor coverings after the installation has been carried out.

#### List of manufacturers

Laybond Products Ltd.  
Riverside  
Saltney  
CHESTER  
CH4 8RS  
T: +44 (0)1244 674774

F Ball & Co. Ltd  
Churnetside Business Park  
Station Road  
Cheddleton  
LEEK  
Staffordshire  
ST13 7RS  
T: +44(0)1538 361633

Enquiries regarding suitable adhesives should be made directly to the adhesive manufacturers or to Armstrong DLW's Advisory Service on phone number +44 (0) 12 35 44 40 10.

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## 3 MEASURING AND CALCULATING REQUIREMENTS

### 3.1 Rolls

To calculate the required quantity of floor-covering on the roll, it is necessary to measure up the lengths and widths of rolls needed, starting first by deciding on the direction in which they are to be laid. Head seams are only permissible if the roll length is greater than 5 metres. Rolls running towards door openings, niches, or similar must completely cover these areas. Door openings, niches, and suchlike along the side of the roll can be covered by strips.

### 3.2 Tiles

Tiles are normally laid with cross-ways joins in alternating directions, but if specially required they can also be laid all in the same direction. Parallel or diagonal laying is possible for the run of the joins. The area to be covered is the basis for calculating the quantity required, plus an additional amount to be determined on the basis of practical experience to allow for surplus cut away. This surplus is greater if the tiles are laid diagonally than it is if they are laid parallel, and greater if the area contains irregular angles and curves than if it is straight-sided.

### 3.3 Stairs and steps

Steps are cut out of rolls. If the floor-covering is printed with a lengthways pattern, this must run parallel to the edge of the step. The same applies to platforms. The quantity required can be calculated from the number of steps that can be cut out of one roll of floor-covering. Templates will need to be made for spiral staircases.

## 4 STORAGE, ACCLIMATISATION

The proper storage of floor-covering is the best way of ensuring that its properties are retained as far as laying is concerned. It should be kept in a dry and not too warm room, and certainly not near boilers. Rolls should be stored in the standing position, and tiles should not be stacked more than 8 high. Perfect laying of elastic floor-coverings cannot be guaranteed if the temperature is too low. Proper professional laying requires a room temperature of about +18 °C and a sub-floor temperature of at least +15 °C; these figures should be regarded as the minimum if emulsion adhesives are being used. Also, even if the temperature is right, the floor-coverings must be acclimatised before they are laid, so it is worthwhile cutting coverings from the roll to size on the day before they are laid in place.

Armstrong DLW Homogeneous floor-coverings which have been laminated to Korkment Special should be brought to room temperature after they have been cut to size, standing in the rolled-up form (with the display side outwards).

The other Armstrong DLW Homogeneous roll floor-coverings should be laid out overnight. It is best to leave them lying flat on top of one another. Experience shows that any corrugations will soon disappear. If any shortness appears in the longitudinal direction when they are being laid, they should be rolled up again and laid out in a warm room for at least 24 hours to overcome this shortness. They can then be installed in the manner described above.

When tiles are being laid it is best to fan them out so that they can adapt to the room temperature.

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## 5 LAYING PROCEDURE

### 5.1 Rolls

It is recommended, even if hot welding is to be carried out later, that both edges of the roll are cut as only then will a clean seam finish be guaranteed. The first roll edge is simply cut using the strip cutter. The second edge can be cut using one of two different methods:

#### a) In small areas

(before applying the adhesive)

The sheet that is underneath is scored with a knife using the edge of the upper roll that has already been cut as a guide. The unwanted strips are then cut off in the opposite direction.

#### b) In large areas

(after applying the adhesive)

The edge of floor covering that is on top is scored with an overscriber using the edge of the lower sheet that has been already cut as a guide. The unwanted strips are then cut off with the hooked blade.

### 5.1.1 Seam cutting

Seam cutting is to be carried out each time so that the edges of the floor covering fit tightly against each other without being forced. The cut is to be made square on or slightly inclined.

### 5.1.2 Head-end seams

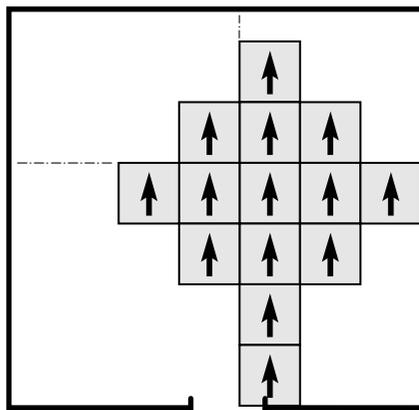
Head-end seams of short rolls can be cut to fit before being glued. With longer rolls the head-end seams should only be trimmed after the area has been glued. This applies also to normal butt seams.

## 5.2 Tiles

### a) Parallel laying

A line parallel to the main front of the room is marked with a chalked string before laying starts. The distance from the wall is a multiple of the size of the tiles, minus about 1 cm. In passages, this measurement can be taken from the deepest door threshold instead of from the wall.

The starting-off point is marked on this line, and chosen in such a way that at the most prominent points, e.g. near the main entrance, the tiles laid are virtually all complete, so that no narrow strips have to be inserted. A number of tiles are now placed loose along the chalked string and weighed down with stacks or boxes of tiles. In larger rooms, this row stays where it is until the neighbouring area

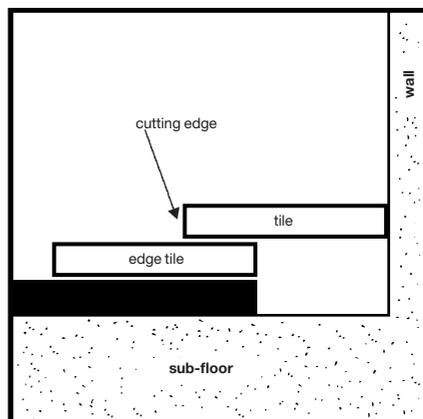


Parallel / checkerboard laying of tiles

has been laid, but in smaller rooms it will suffice if one tile stays put in order to mark the starting-off point.

### b) Diagonal laying

The room is first divided up symmetrically and its axis determined by means of chalked strings. It must now be decided how the tiles are to run to the walls and the main entrance. The diagonal dimension of a tile is the length of one edge multiplied by 1.414. If this results in a large number of small triangle, the axis of the room can be moved to one side by one-quarter of this diagonal dimension. The same applies to the starting-off point. In non-symmetrical rooms, the parallels are laid down at a distance from the main front equal to a multiple of the tile diagonal minus about 1 cm. It should be noted in this instance as well that the tiles near the main entrance should only be whole ones, possibly with half-tiles in between them, but never a large number of small triangles. A double row of tiles is then laid along a chalked line, with the first row lying



Cut edge of the edge tiles

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with opposite corners along the chalked line and the second row touching it at the corners. In large rooms, a diagonal row of tiles is now laid from the starting-off point onwards and is used as a base-line for all the other tiles. In small rooms it will be sufficient to leave one tile to mark the starting-off point. The tiles along the wall are finally cut to shape with a hooked or trapezium blade when all the others have been glued down.

## 6 GLUING

The basic rule is to glue the entire area, following the adhesive manufacturer's instructions. The choice of the right trowel notching and the right time to change the spatula blade, as well as thorough rubbing in, are vital if the rear side is to be coated properly. This must be checked continually during the course of the work by pulling on the roll.

### 6.1 From the roll

The rolls are rolled back to the middle of the room. Gluing starts with the middle roll. The adhesive for the second half of the roll must exactly join the edge of the adhesive from the first half. Halves of rolls which fit against adjoining parts of the room, e.g. at thresholds and door frames, are glued first. When rolls are being laid longways along a passage, they have to be pushed into the bed of adhesive taking due note of the airing and open-working times given in the manufacturer's instructions. All air must be expelled from underneath. Any bubbles can be located by tapping the floor-covering, and the air can be pressed out to one side. The head ends are bent back into place. If necessary, seams and head ends should be weighted down long enough until the adhesive holds them down.

### 6.2 Tiles

When the adhesive has been applied, laying starts from the tile marking the starting-off point or line. It is advisable in the case of large rooms to lay step by step in order to avoid misalignment. The tiles should be rubbed or pressed down thoroughly to ensure good coating on the rear side, and this procedure should be repeated if necessary.

## 7 SEALING OF JOINS

Sealing of the joins is recommended for those rooms in which the sub-floor should be protected against the ingress of moisture. Welding must always be carried out when laying Armstrong DLW KORKMENT SPECIAL, tension tiles and floors that have under-floor heating, as well as with composite coverings with a Korkment underside. The welding process may only be carried out after the adhesion process is completed. Dependent on the type of adhesive and the ambient conditions in the room, this can take several days. In doing this, the adhesive manufacturer's specifications should be observed. The joins in the floor covering are grooved with a grooving machine or manual groover to a depth of 2/3 of the thickness of the floor covering. The groove is finally to be carefully cleaned (vacuumed or blown out). The width of the join should be around 3.5mm.

The Armstrong DLW PVC welding rod can be used with a hand welding device and attached speed welding nozzle (5 mm diameter). We recommend utilising speed welding nozzles that have a very narrow air outlet. The operating temperature is around 450-500°C and the speed of working of 4 - 5 metres per minute. The projecting part of the welding rod is trimmed in two operating cycles. Immediately after welding, the welding rod which is still warm is trimmed with the crescent-shaped knife and attached sledge. After the welding rod has cooled down the welded seam is trimmed with the crescent shaped blade flush to the upper edge of the covering.

### Cold welding

Armstrong DLW Homogen floor-coverings can also if necessary be welded with a cold-welding agent, but in this instance the seam must be trimmed close. Cold-welding agent absolutely must be prevented from penetrating into the under-layer of the trimmed seam. More detailed information on cold-welding is available from the firm of:

Werner Müller GmbH,  
PVC Kaltschweißtechnik  
Rudolf-Diesel-Str. 7  
D-67227 Frankenthal  
Tel. +49 62 33 - 3 79 30  
Fax +49 62 33 - 3 79 320

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## 8 ARMSTRONG DLW KORKMENT AS UNDERLAY

Armstrong DLW KORKMENT Special can be laid on any prepared under-surface, and can be laid from the roll in the same direction as the upper floor-covering, but off-set by at least 50 cm. The cut can be made as a so-called double-cut, using a hooked blade, along a rule. Emulsion adhesive is to be used, or else twin-component adhesive. The quantity of adhesive required will depend on the use to be made of the room later. The upper floor-covering should not be laid until the adhesive under the Korkment has bound completely. If the floor is to be subjected to heavy use, e.g. in a hospital, the Korkment can be laid with the jute backing uppermost.

Armstrong DLW can produce and deliver composite floor coverings to order. From the manufacturing viewpoint KORKMENT SPECIAL is already laminated onto the underside of the Armstrong DLW Homogeneous Range of floor coverings. The same adhesives as used for the Armstrong DLW KORKMENT SPECIAL are used for sticking down.

Enquiries regarding suitable adhesives can be directed to adhesive manufacturers (see point 2) or to the Armstrong DLW Advisory Services on telephone number +44 (0) 1235 444 010.

## 9 UNDER-FLOOR HEATING

Armstrong DLW Homogeneous Floor Coverings can be glued down onto sub-floors that have under-floor heating; the thermal resistance is so low that it is practically without any significance for the operation of the heating

### 9.1 Dry construction

Dry constructions can consist of, for instance plaster or plaster fibre tiles. After the joints have been smoothed over, the Armstrong DLW Homogeneous Floor Coverings can be laid. In doing this the manufacturer's instructions must be taken into account.

### 9.2 Wet Constructions

With wet constructions, the heating pipes or wires are bedded into the floating cement or anhydrite screed. Prior to the floor covering being laid, care has to be taken by the heating installer to ensure that the humidity that is created by the effect of the heat is dispersed before the flooring installation is carried out. A moisture test may only be carried out on the points identified by the installer of the heating system. In the event that no measurement points are available, then the flooring contractor must make this known in writing to his client.

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## 10 CONDUCTIVE FLOORCOVERINGS

In this laying process, the floor covering is laid onto a conductive system that is ultimately connected to a safety earthing system. The earthing of the conductive floor is a matter for the electrical contractor.

The Armstrong DLW Advisory Service is at your disposal for questions about conductive laying operations on telephone number +44 (0) 1235 444 010.

Frequently used conductive systems are:

### 10.1 Laying on copper strips

A running strip of copper is to be laid under each row of tiles or roll of floor covering. The copper strips are to be connected crossways at the head-ends by a further two strips at two points in the room and with larger rooms (over 40 m<sup>2</sup>) at several points, connections to the earthing system are to be arranged.

Armstrong DLW supplies copper strip use in the laying of Armstrong DLW Homogeneous Conductive LG2; this is delivered in rolls of 50 m lengths.

### 10.2 Laying on -conductive layers

A conductive primer is to be applied according to the operating guidelines of the manufacturer. A piece of copper strip about 1 metre in length is glued on to the floor in such a way that no part of the floor is more than 10 metres from an earthing point.

### 10.3 Laying with double requirement

Floor coverings with the designation LG1 are conductive but at the same time meet the requirement on the standing surface insulation as per DIN 757 100/VDE 0100 T410.

Copper strip lugs and semi-conductive adhesive is required for laying this. It is recommended that additional information should be obtained about this type of laying from the Armstrong DLW Advisory Service on telephone number 0 12 35 44 40 10.

## 11 CLEANING AND MAINTENANCE

The contractor has to provide the client with a written set of maintenance instructions for the floor covering. You can obtain these by phoning +44 (0) 1 23 54 40 10.

## 12 SPECIAL INSTRUCTIONS

### 12.1 Office chairs with castors

Office chairs must be fitted with castors of Type W as defined in EN 12529 (DIN 68131) if they are to be used on elastic floor-coverings, i.e. with soft rollers of the prescribed dimensions (50 mm diameter, 20 mm running-surface width, and 100 mm swivel radius). This must be taken into account before chairs with castors are used.

### 12.2 Burn marks

Hot cigarette-ends can leave burn marks on plastic floor-coverings, so they should not be laid in pubs and cafés or similar places where this kind of damage is only to be expected. Linoleum and rubber flooring is less vulnerable to burn marks.

### Persons to contact at Armstrong DLW:

#### Germany:

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Stephan Brendel Tel. +49 71 42 / 71-7 35  
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Fax +44 (0) 1235 444 011