

# WELDING

Polyflor strongly recommends vinyl sheet and 608mm vinyl tile floorings are welded, this includes the internal and external joints when the vinyl sheet is site cove formed.

## 9.1 CORRECT TOOLS

Having the correct tools in good condition is a prerequisite of good heat welding. The tools required are dependent upon preferred methods but Polyflor recommend the following:



- |   |  |
|---|--|
| 1. 2 metre straight edge                    | 8. Seam cutter                                 |
| 2. Tape measure                             | 9. Mozart trimming tool                        |
| 3. <b>Sharp</b> pencil                      | 10. Welding equipment<br>(manual or automatic) |
| 4. Hand roller                              | 11. Exacto trimming tools                      |
| 5. Suitable bladed knives                   | 12. Spatula trimming knife                     |
| 6. Recess scriber                           | 13. Hand grooving tool                         |
| 7. Grooving tools<br>(manual or mechanical) |  |

## 9.2 WELDING IS MANDATORY ON MOST SPECIFICATIONS

Most specifications make welding mandatory, since it prevents ingress of dirt and bacteria into seams and provides a floor surface which is impermeable to water. Although seam welding is a recognised installation technique – instructions can vary by manufacturer. When installing Polyflor sheet products only Polyflor seam welding instructions should be followed.

Welding will aid maintenance of high standards of hygiene. By carefully following these guidelines; and executing correctly welding will eliminate seam failures. In Healthcare establishments especially this is a prerequisite and high standards of heat welding are demanded under the guidance from NHS Infection Control Teams (NHS Health Building Note 00-10 Part A Flooring March 2013).

## 9.3 HEAT WELDING

Heat welding of vinyl floor coverings has been used successfully for many years and employs the technique of heating both the vinyl flooring and the vinyl welding rod to a sufficient temperature to melt and fuse them together. The procedure is the same for both sheet and tile installation with the exception that the edge of the tiles do not require cutting in prior to grooving.

## 9.4 CUTTING IN THE SEAMS

**Factory edges should never be butted together** but should be overlapped and cut by one of the following methods:

### 9.4.1 Using Seam Cutters

#### PLEASE NOTE

Complaints arising from the failure of welds due to not trimming off factory edges will not be accepted by Polyflor Ltd.

- ▶ Polyflor recommends that the sheet is overlapped at the seams by a minimum of 10mm.
- ▶ Set the first cutter to the thickness of vinyl sheet. Using the factory edge as a guide, trim off 6mm along the length. Where it is not possible to use the seam cutter against the wall, or in other areas of restricted access, use a straight edge and straight bladed knife held squarely to the floor.
- ▶ Set the second cutter to the thickness of vinyl sheet. Using the edge previously cut on the top sheet as a guide, cut through the bottom sheet. Remove the scrap piece of material.

### 9.4.2 Using a Recess Scriber

- ▶ Prior to overlapping the vinyl sheet, trim off the factory edge on the bottom sheet. This is best done by striking a chalk line, then – using a utility knife and straight edge – cut through to remove the scrap piece.
- ▶ Overlap the top sheet and then trace the bottom edge onto the top sheet with a correctly set recess scriber.
- ▶ To highlight the scribed line, rub some chalk dust into the surface. Trim the top sheet to the scribed line.

### 9.4.3 Double Cut

- ▶ Using a straight edge and keeping the utility knife upright, cut through both layers to ensure there is a tight seam.
- ▶ Once the seam is cut, discard the waste material and check the final appearance.

## 9.5 GROOVING THE SEAMS

Prior to welding, some of the material must be removed from the seam, creating a groove profile that will accept the vinyl welding rod.

Two shapes of groove profiles can be cut:

### 9.5.1. A 'U' shape profile

This leaves a semi-circular groove in the vinyl and should extend into the vinyl for  $\frac{2}{3}$  of its thickness, up to a maximum of 2mm.

### 9.5.2. A 'V' shape profile

This leaves a 60° triangular groove in the vinyl and should extend into the vinyl for  $\frac{7}{8}$  of its thickness.

**NOTE** The 'V' shaped groove profile has proven particularly suitable for embossed versions of Polysafe vinyl sheet floor covering.

## 9.6 MANUAL GROOVING

- ▶ Place the centre of the grooving tool over the centre of the seam.
- ▶ Bring up the straight edge to touch the side of the grooving blade and align the straight edge, maintaining an even distance from the seam.

#### FOAM BACKED

The groove on foam backed ranges such as Acoustic and Sports flooring should only be cut in the vinyl wear layer; **NOT** cut through to the PVC foam backing.



Figure 9.1 Grooving the seam

- ▶ Pulling the tool towards you, groove to the required depth. Move the straight edge as required and repeat until the whole seam is grooved.
- ▶ Sweep well to remove any dust and trimmings from the groove.

## 9.7 POWERED GROOVING

- ▶ Set the blade to the correct depth of cut.
- ▶ Align the guides with the cut seam. Press the cutter in to the full depth of cut and then move forward following the cut seam.

- ▶ Use hand tools to complete grooves next to walls, skirtings etc.
- ▶ Sweep well to remove any dust and trimmings from the groove.
- ▶ Never use a powered grooving machine with a standard blade on Polysafe safety vinyl sheet ranges. The silicon carbide and aluminium oxide particles will destroy the blade. A diamond blade is commonly used on Polysafe floor coverings.

### 9.8 PRIOR TO WELDING THE SEAMS

Before commencing heat welding Polyflor recommends leaving the adhesive to set for a minimum of 24 hours. This should ensure the adhesive does not bubble up when heat is applied; bubbling will adversely affect seam strength.

If in any doubt contact [Polyflor Customer Technical Services Department \(CTSD\)](#) on +44 (0) 161 767 1912.

### 9.9 WELDING THE SEAMS

- ▶ Ensure nozzle attachment is free of debris – clean with a wire brush.
- ▶ Pre-heat the welding gun to a setting appropriate to both the material and the site conditions ensuring that the nozzle is pointing upwards during this pre-heat period.
- ▶ Try out the welding rod on a scrap of material to ensure the temperature is correct and that fusion is taking place. Adjust accordingly. When you are satisfied that the temperature is correct, you can proceed to weld the joint.
- ▶ Place the welding rod into the nozzle aperture. Starting as close as possible to the end of the room, press the welding rod down into the groove with the nozzle attachment, the toe of which should be parallel to the vinyl surface. Pull the gun towards you whilst maintaining the downward pressure (Figure 9.2). Ensure the gun is kept square to the floor. With your spare hand, alternately check the weld security and that the welding rod is feeding freely.
- ▶ Typically, you would start welding from the edge of the room towards



Figure 9.2 Applying the weld

#### KEY POINT

Ensure a constant rate of welding. Moving slowly will 'burn' the vinyl and moving quickly will not fuse the welding rod. The finished width of the weld may also vary and detract from the appearance.

### 9.10 TRIMMING THE WELD - Spatula or Mozart Tool

Prior to commencing, it is advisable to ensure that your preferred trimming tool has a sufficiently sharp and properly defined blade profile. This keen edge will make trimming easier and minimise the risk of damaging the product. Trimming of the weld must be carried out in two stages. Failure to follow this procedure will result in welds which are prone to dirt pickup.

- ▶ Place the trimming guide and blade over the welding rod and push the knife forward and trim off the top layer of welding rod (Figure 9.4a or 9.4b). This can be done whilst the weld is still warm. Trimming the weld speeds up the cooling time.



Figure 9.4a Trimming off the weld top layer (Spatula Trimming Knife)

Welding Techniques are covered on the 3 & 4 day Polyflor Floor Laying Courses

the centre. At this stage, pull the gun away from the groove and cut off the welding rod. Using a trimming tool and guide trim off the excess welding rod. Commence welding as before, from the opposite end of the room. Run out the weld into the pre-cut 'V' (Figure 9.3) and cut off the excess welding rod.



Figure 9.3 Weld joins

- ▶ Where Ejecta set-in skirtings are used, the horizontal seam between the skirting and the Polyflor sheet should be hot welded as described previously however the vertical joints and mitres should not be hot welded; simply neatly abutted/scribed.

**KEY POINT**

Polyflor foam backed vinyl sheet flooring is liable to compression and sometimes, even after the final trim, the weld is proud of the floor. In this case using a Mozart trimming tool in preference to a traditional spatula is advisable.



Figure 9.4b Trimming off the weld top layer (Mozart Trimming Tool)

- ▶ When the remaining weld has cooled to room temperature, the excess weld should be trimmed using the trimming blade with the guide removed. Keep as shallow an angle as possible between blade and floor to avoid the risk of damaging the product (Figure 9.5a or 9.5b).



Figure 9.5a Final trim after the weld has cooled (Spatula Trimming Knife)



Figure 9.5b Final trim after the weld has cooled (Mozart Trimming Tool)

**9.11 GLAZING THE WELD**

Should a glazed finish be required this can be achieved with the nozzle attachment removed but still on the same heat setting; play the standard gun nozzle over the trimmed weld. Repeat over the whole length of the weld, keeping the gun moving constantly to prevent burning.



Figure 9.6 Final weld

**9.12 COLD/CHEMICAL WELDING**

- ▶ Once the seam has been accurately cut as described previously in 9.4 and remembering that this type of welding should not be considered as gap filling, the seam can be welded.
- ▶ Cover the seam with the correct grade and width of masking tape; (min. 25mm wide) to prevent any excess welding liquid coming into contact with the vinyl surface.
- ▶ Cut through the tape at the seam, using a trapezoid or rolling knife with a sharp blade. Apply the welding liquid (Figure 9.8), as per the Werner Muller instructions, ensuring both hands are controlling the tube.



Figure 9.8 Cold welding

- ▶ Keep fingers away from the needle applicator.
- ▶ After approximately 10 minutes and once the welding liquid has cured, the masking tape should be carefully removed.

**9.13 WELDING OF RUBBER SHEET**

Welding of rubber sheet is not a prerequisite in most installations. However, where there is heavy wet cleaning or where due to hygiene requirements a continuous smooth surface is demanded, the joints should be heat welded using the recommended weld rod.