12 Welding vinyl flooring

Polyflor strongly recommends that all Polyflor vinyl sheet and 608mm vinyl tile floorings are welded, this includes the internal and external joints when the vinyl sheet is site cove formed. 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. However, welding will only aid maintenance of high standards of hygiene if it is executed correctly.
The guidelines provided below should be followed carefully, since short cuts taken in welding create potential problems with seam failures.

12.1 HEAT WELDING

Heat welding of vinyl floorcoverings 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.

12.2 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 as a guide the following are suggested:

2 metre rigid straight edge
Straight and hook bladed knives
Grooving tools – manual and powered
Welding equipment – manual and automatic
Spatula • Trimming guide
Exacto trimming tools • Under scriber
Feed roller • Chalk line
Wire brush • Seam cutters

See alsoTools and Equipment.

12.3 CUTTING IN THE SEAMS

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

12.3.1 Using Seam Cutters

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.

12.3.2 Using an Under 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 and remove the scrap piece.

Overlap the top sheet and then trace the bottom edge onto the top sheet with correctly set under scribers. To highlight the scribed line, rub some chalk dust into the surface. Trim the top sheet to the scribed line.

12.4 GROOVING THE SEAMS

Strike a chalk line along the overlap. Using a utility knife and straight edge, double cut the joint through both layers of material, ensuring that the knife blade is held squarely to the floor.

Prior to welding, some of the material must be removed from the seam, creating a groove that will accept the vinyl welding rod. Two shapes of groove can be cut:

1. *A "U" shape – which leaves a semi-circular groove in the vinyl. This should extend into the vinyl for 2/3 of its thickness, up to a maximum of 2mm.*

2. *A "V" shape – which leaves a 60° triangular groove in the vinyl. This should extend into the vinyl for 7/8 of its thickness.*

Note: The 'V' shaped groove has proven particularly suitable for embossed versions of Polysafe vinyl sheet floorcovering.

The groove on Acoustic and Sports flooring should only be cut in the vinyl wear layer. It should never be cut through to the PVC foam backing.

12.4.1 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 cutter, and align the straight edge, maintaining an even distance from the seam (Figure 28).

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.

Figure 28 Grooving the seam

12.4.2 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 push 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 Polyflor safety vinyl sheet floorcovering. The silicon carbide and aluminium oxide particles will destroy the blade.

12.5 WELDING THE SEAMS

If wet set adhesive has been used, it is important, before commencing heat welding, to ensure that the adhesive has set sufficiently to prevent it bubbling up when heat is applied. If bubbling up occurs, it will adversely affect seam strength.

Prior to commencing welding:

A. *Ensure the speedweld attachment is free of debris by cleaning with a wire brush.*

B. *Pre-heat the welding gun (setting 3 - 6 on a variable setting gun), ensuring that the nozzle is pointing upwards during this pre-heat period.*

C. *Try out the welding rod on a scrap of material to ensure the temperature is correct and that fusion is taking place. Adjust accordingly.*

Figure 29 Applying the weld

When you are satisfied that the temperature is correct, you can proceed to weld the joint:

D. *Place the welding rod into the speedweld aperture. Starting as close as possible to the end of the room, press the welding rod down into the groove with the speedweld attachment, the toe of which should be parallel to the vinyl surface. Pull the gun towards you whilst maintaining the downward pressure (Figure 29). 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.*

E. *Typically, you would start welding from the edge of the room towards the centre. At this stage, pull the gun away from the groove and cut off the welding rod. Using a spatula knife, trim off the excess welding rod and cut a tapering "V", approximately 25mm long, into the existing weld (Figure 30). Commence welding as before, from the opposite end of the room. Run out the weld into the pre-cut "V" and cut off the excess welding rod.*

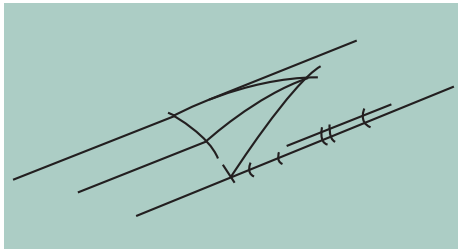

Figure 30 Weld joins

Where Ejecta set-in skirtings are used, the vertical joints and mitres are not hot welded. See Installation of Accessories.

It is important to 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.

12.6 TRIMMING THE WELD

Prior to commencing, it is advisable to stone or hone the trimming spatula knife on one side only. This keen edge will make trimming easier and minimise the risk of "digging in". Trimming of the weld must be carried out in two stages. Failure to follow this procedure will result in dished welds which are prone to dirt pickup.

A. *Place the trimming guide over the welding rod. Insert the spatula knife into the two lugs with the honed edge uppermost. Push the knife forward and trim off the top layer of welding rod (Figure 31). This can be done whilst the weld is still warm. Trimming the weld speeds up the cooling time.*

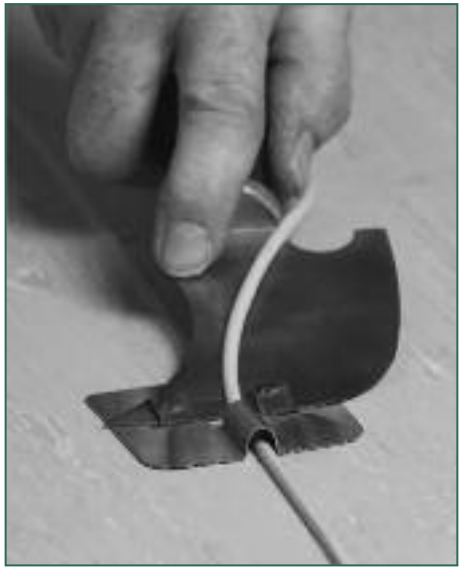

Figure 31 Trimming off the weld top layer

Figure 32 Final trim after the weld has cooled

B. *When the remaining weld has cooled to room temperature, the excess weld should be trimmed. The spatula knife, again honed edge uppermost, is used without the trimming guide. Keep as shallow an angle as possible between blade and floor to avoid the risk of "digging in" (Figure 32).*

Note: 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, use an Exacto cutter with a large circular blade to scrape away any high spots.

12.7 GLAZING THE WELD

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