

Installing Furniture Linoleum

- Always refer to and follow the recommendations in **Forbo's General Installation Guidelines** prior to installing Furniture Linoleum.
- Always refer to and follow the recommendations in **Forbo's Substrate Evaluation and Preparation Guidelines** prior to installing Furniture Linoleum.
- Beginning the installation is an implied acceptance of site conditions and liability for any failure directly related to inadequate site conditions becomes the responsibility of the installer and/or contractor.
- Furniture Linoleum can be successfully installed over a variety of substrates. Furniture Linoleum may be installed on properly prepared, stable substrates, such as MDF, steel, recommended plywood, or composite materials.
NOTE: Regardless of the specific type of substrate, the final determination of suitability for installation is the responsibility of the installer and/or installation contractor.
- Use Forbo L 910W Adhesive.
NOTE: If installing Furniture Linoleum using a press, a quality PVA dispersion adhesive may be used. Always perform an adhesive bond test to ensure that an optimal bond can be achieved. If using a PVA adhesive, strictly follow the manufacturers recommendations.
- Use the trowel recommended in **Forbo's Adhesive Technical Data Sheets** for the Forbo adhesive to be used for the installation. Replace the trowel blade when proper coverage is no longer attainable.
- Store Furniture Linoleum rolls standing upright. Furniture Linoleum may be shipped laying down. To avoid damage to the material, stand the rolls upright for storage immediately once received.
- If Furniture Linoleum has been cut into sheets, store the sheets horizontally (flat). The individual sheets should be lifted rather than pulled. It is also advisable to use pallets when transporting large numbers of sheets. Do not allow dirt to get between sheets and avoid situations in which heavy and/or sharp objects may be placed on top of the stack.
- All material installed should be from the same batch.
- Forbo Furniture Linoleum is installed using Conventional Fit seams.
- Do not allow heavy traffic or rolling loads for a minimum of 72 hours following the installation. For installations over non-porous substrates, additional time may be necessary because the adhesive may take longer to cure.
- Wait a minimum of five days following the installation before conducting initial cleaning. For installations over non-porous substrates, additional time may be necessary because the adhesive may take longer to dry and cure.
- Forbo does NOT recommend the application of adhesive tape on Furniture Linoleum. Adhesive tape may cause damage to the factory coating of linoleum products.
- Take pride in your work and be Professional at all times.
- For additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839 or www.forboflooringNA.com.

Pre-installation

Areas to receive material should be clean, fully enclosed, and weather tight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature of 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity. These conditions MUST be established at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.

Cut Furniture Linoleum slightly oversized and store it flat. Store indoors at a temperature ranging from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity. All materials (Furniture Linoleum, installation accessories, adhesive, etc.) should be acclimated to these conditions for a minimum of 48 hours prior to installation.

Application

Furniture Linoleum can be successfully installed over a variety of substrates. Furniture Linoleum may be installed on properly prepared, stable substrates, such as MDF, steel, recommended plywood, or composite materials.

Under certain circumstances, it may be required to 'counterbalance' the material. For proper counterbalancing, the back of the substrate should also be covered with the same material as on the front, in the same direction with the same adhesive and, if possible, at the same time. Depending on the thickness, symmetrical construction and rigidity of the surface (plywood, MDF, etc.), other materials can also be used, such as foils, laminates, impregnated paper, or marine lacquers or sprays. It is recommended that a test installation be conducted if you have not worked with the materials before.

Ensure that the surface of the carrier material and of the reverse side of the material are clean. The carrier material must be free of any irregularities or other materials that could interfere with the flat, smooth finish.

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Adhesive

The adhesive used largely depends on the manner of installation and the intended use of the finished product. The carrier material also plays a role. General guidelines are given in the table below.

	Manual Installation	Industrial Installation
Flat Surface	Forbo L910W Adhesive	Polyvinyl Acetate
Curved Surface	PVA or High-Quality Contact Cement	Polyvinyl Acetate
Pressing	-	Polyvinyl Acetate
Vacuum Forming	-	Polyvinyl Acetate

Manual Installation on a Flat Surface

1. Apply the adhesive according to the manufacturer's recommendations.
2. Bond the slightly oversized Furniture Linoleum to the substrate.
3. Press the Furniture Linoleum firmly into position with a hand roller.
4. Saw, mill, cut, or plane the carrier material and the Furniture Linoleum together into the desired shape as soon as the adhesive has set. Always use sharp tools.
5. If required, edging can be applied.

Manual Installation on a Curved Form

Before installing Furniture Linoleum on a curved form, bear in mind that:

- It is easier to bend linoleum lengthways rather than widthways.
- The minimum bending diameter is 5 cm for Furniture Linoleum. If possible, bend the material lengthways.
- The curved surface of the carrier material must not contain any sharp edges.

To install Furniture Linoleum on a curved form:

1. Apply contact adhesive to the carrier material.
2. When the adhesive on the carrier material is half set, apply adhesive to the linoleum.
3. When the adhesive on the linoleum is half set, press the linoleum onto the carrier material. Start pressing at the flat end of the surface and gradually work towards the curve.
4. Rub your hand over the surface to expel any air bubbles. Work a small section at a time to ensure that the linoleum is applied properly before bonding the next section.

Remove fresh adhesive residue immediately with a clean white cloth. Dried adhesive can be removed with a clean white cloth and Forbo Adhesive Remover. If this is not available, a solution of properly diluted neutral pH cleaner may be used. Rinse with clean, cool, water to remove all residues from the material.

NOTE: Aggressive scrubbing may mar the surface of Furniture Linoleum. The need for aggressive scrubbing can be avoided by taking care to keep the surface clean while handling and adhering the sheets.

Industrial Installation

Machinery and tools suitable to install HPL may also be used for Furniture Linoleum.

When employing a press or stacking press, ensure that the surface of the press and of the linoleum are clean. Furniture Linoleum can be pressed cold or warm (maximum 70° C). The pressure will vary between 75 and 150 bars and the pressing time from 2 to 15 minutes, depending on the adhesive used.

Furniture Linoleum can be bonded to a surface that is curved in more than one direction (i.e. the seat of a chair). Press the linoleum in a mold together with the carrier material and adhesive to achieve the desired shape.

NOTE: It is always advisable to carry out trials prior to commencing actual production. After the Furniture Linoleum has been stuck to the carrier material, machine it to size.

Techniques such as sawing, milling, drilling, cutting and planing can be employed. Always use sharp tools.

Installing Furniture Linoleum

Finishing the Edges

Many types of finished edges are possible with Furniture Linoleum. Install the edges with an adhesive that is transparent when dry and immediately remove any residue. Always protect the surface of the Furniture Linoleum.

The easiest way to finish the edges is to cut the Furniture Linoleum off straight, then mill and varnish the edges of the carrier material (Figure A). Bevel the edges a little. It is also possible to finish edges with a strip of aluminum, wood, or plastic, for example (Figures B and C). Figure D shows Furniture Linoleum applied to edges; to achieve a good result, however, this technique requires a certain degree of both experimentation and expertise. As mentioned, it is possible to round off the edges with Furniture Linoleum (figure E). Always provide an additional 3-5 cm of Furniture Linoleum at the bottom to prevent it from coming loose due to bending stress. This design solution, namely the combination of tapered surface and half-round wooden strip, illustrates the many possibilities offered by Furniture Linoleum (Figure F).

Industrial Rounding

In general, machinery used to bend HPL can also be used to bend Furniture Linoleum. The maximum temperature employed may not exceed 70°C.

What is Ambering?

Ambering is the slight yellow hue to Furniture Linoleum when it is first removed from the packaging. This is a natural phenomenon that happens with linoleum and is completely normal. Linseed oil, a natural oil extracted from flax seeds and one of the main ingredients in linoleum is what causes this yellow hue. This very important ingredient in linoleum provides several unique characteristics:

- Linseed oil, along with wood flour, makes the linoleum naturally antistatic, repelling dust, making Furniture Linoleum easy to clean.
- When exposed to air and light, the linseed oil oxidizes from within the linoleum and continues for the life of the product. This makes the material harden over time and become more durable.

As time passes, the ambering will fade as the linoleum is exposed to light, but its unique characteristics will not. The process may take as little as a few hours in bright sunlight, but it can take longer with artificial light. Areas that are not exposed to any light will retain the yellow hue until they are exposed to light. If an area of Furniture Linoleum is covered for an extended period, it's possible the yellow hue will re-appear. Don't be alarmed – it will fade once again when it's exposed to light.

Because this is a natural occurrence in the product, there is no set time frame for the yellow hue to fade. This is not a material defect. It's actually a sign that the Furniture Linoleum is revealing its unique and valuable characteristics! Performing care procedures will not inhibit the process. It just takes a little bit of time and understanding what great benefits this process brings to the linoleum! All colors of Furniture Linoleum are subject to ambering, however it can be more noticeable in certain colors. Light blues, greens, greys, and beiges will display a more visible yellow hue than darker colors. To discover the true color of Furniture Linoleum, follow these few simple steps:

1. Take a piece of Furniture Linoleum and cover one half with heavy paper, cardboard, or another piece of Furniture Linoleum.
2. Place these pieces in direct sunlight for approximately 1 hour.
3. After the time has passed, remove the cardboard or heavy material and see the visual difference first hand.

Forbo's General Installation Guidelines contain additional information and are available for download at www.forboflooringNA.com. For additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839.

