

Polarex PVC Hygienic Wall Cladding Installation Guide

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Product Overview

Polar Hygienic Finishes offers a semi-rigid, smooth, and durable PVC sheet. The material is thermoplastic and can be cut and thermoformed into specific shapes to the contour of the building. It's semi-rigid properties allows it to be installed over most sound substrates with minimal preparation and disruption.

All joint, transition, and edge trims are high quality vinyl co-extrusions incorporating a neoprene gasket for a watertight surface. When incorporated with heat-welded, flash covered flooring, the system is ideal for such areas as showers, clean rooms, and laboratories.

Typical Applications

- Showers
- Scrub Rooms
- Veterinary Clinics
- Kitchens
- Laboratories
- Food Production Areas
- Operating Rooms
- Clean Rooms
- Service Corridors

Limitations

Semi-rigid sheets can be applied to most surfaces, it should however, not be installed near a heat source such as steam kettles, pizza ovens, cooking ranges, steam rooms, etc, or where exposed flame or severe heat could cause distortion of the PVC sheet.

Once installed, Polarex PVC sheets should not be exposed to temperatures above 140°F (60°C). Polarex can become brittle at low temperatures and is not recommended for installations subject to temperatures below 23°F (-5°C) where it is exposed to high impact. It is fine in chill rooms and refrigerated storage but is not recommended for freezers.

Before the testing of kitchen equipment, which is likely to expel severe heat, extraction systems must be operational. Failure to do so may result in expansion problems.

Hand Tools Recommendations

- Stanley Knife and Blades
- Ladders and / or scaffolds
- Caulking Gun
- Square Notch Trowel
- Tape Measure
- Drill Bits
- Wall Roller
- Rubber Mallet
- Anti-Static Wipes

Safety Equipment

- Goggles / Safety Glasses
- Safety Boots
- Protective Gloves
- Visual Vest
- Hard Hat

Thermoforming

The Polarex Lightweight Skeleton Thermoformer allows installers to heat and shape Polarex PVC Wall Cladding sheets to conform to the contours of a room. This allows the Polarex wall panels to remain seamless even around corners.

If using the Polarex Thermoformer, work should be done on an appropriate sized workbench. Supports should be recessed allowing the Thermoformer to be set into and ensuring that the heater top (Thermoformer) is level with the top of the bench. The bench top should be flush with the sides of the Thermoformer, and not covering it. This is so the panel can be laid across the heat source while thermoforming and an even distribution of heat is obtained along the length of the bend line.

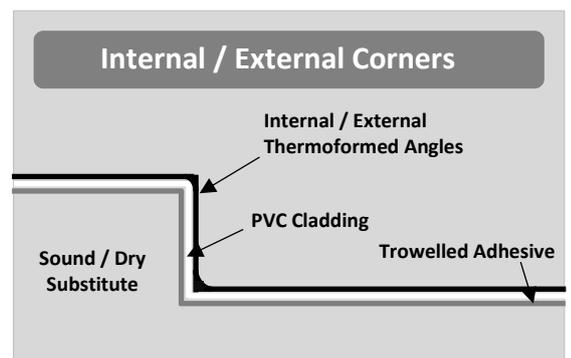
Alternatively you may set up a 4x8 workbench on saw horses and set the Thermoformer adjacent on separate metal stands.

How To Use Thermoformer

1. Assemble workbench with Thermoformer inset flush with the workbench.
2. Plug in the Thermoformer and let it warm up for approximately 30 minutes before thermoforming.
3. The Polarex PVC Wall Cladding with all have pre-established bend lines marked on the back of the panel. Centre those lines over the heat element opening on the Thermoformer heating from the backside when allowable. You may heat the face of the Polarex PVC Panels for certain bends, taking extra caution not to melt the plastic film onto the surface.
4. Allow sufficient time for the Polarex panel to heat up until there is a visible softening of the material over the line where the material is to be thermoformed (approximately 30 seconds).
5. Immediately move the material from the Thermoformer onto the flat workbench.
6. Thermoforming can be done in one of two ways:
 - Process one – used for sharper corner edges – is accomplished by folding the material back upon itself and then returning to the position of the corner required and holding in place until the sheet has cooled and become rigid for approximately 30 seconds.
 - Process two – used for softer corner edges – is accomplished by folding the material directly to the required corner angle and holding until cool and rigid for approximately 30 seconds.
7. Make any additional bends needed in the material following the same procedure.

Measuring for Bends in the Panels

Always measure from the outside of the previous corner. First, exactly measure the substrate (distance) to be covered. Then either: External to external corners, add the thickness of the panel and adhesive for both corners. Internal to internal corners, subtract the thickness of the panel and adhesive for both corners. Internal to external corners, use the exact measurement of the substrate, do not add or subtract.



Adhesives

Polar Hygienic Finishes recommend that installers only use the approved Polarex 2-Part Adhesive. The Polarex 2-Part Adhesive is a 2 part polyurethane adhesive is the ideal solution for most installations, including wet areas, non-climate controlled areas and all non-absorbent surfaces.

The adhesive is simple to use, simply mix the 2 components together and apply using a 5mm trowel directly to the back of the Wall Cladding Sheets. Curing time can take up to 24 hours so we recommend using the Polarex Double Sided Foam Tape to secure in place whilst it dries.

Substrate

- Sheetrock
- Plywood
- Metal
- Ceramic Tiles – *provided tiles are firmly bonded to substrate and free from surface contamination, grease etc.*
- Painted – *a bond test is advisable to ensure adhesive does not react with paint*
- Brickwork – *provided it is of good quality and has flush joints*
- Blockwork - *provided it is of good quality and has flush joints*
- Concrete
- Plaster

Environment

Polarex PVC Sheets should be installed in areas with ambient temperatures between 65°F (18°C) and 80°F (27°C). Areas to receive Polarex must be weather-tight and of approximate humidity conditions of the finished room.

Wall Substrates

Polarex Semi-Rigid panels can be applied to most solid wall surfaces. All surfaces must meet these requirements:

- Walls should be smooth and level. High points must be removed and low points filled with filler intended for the substrate and environmental conditions.
- Wall tiles must be fixed firmly to the wall. As long as the tile edges do not protrude you do not have to skim grout joints.
- Surfaces must be permanently dry and free from all substances that may contribute to bond failure.
- Remove loose paint and conduct an adhesive bond test with paint.
- Exterior walls must be adequately dampproofed and insulated.
- Dry wall substrates should be paint ready.

Preparation / Pre-Installation Instructions

All surfaces must be free from dust and cleaned prior to Polarex installation. The working environment must also be dust free. Failure to comply with these conditions will reduce the bond strength between the adhesive and substrate, and may cause the Polarex panels to debond.

- Very absorbent / porous substrates (particularly plaster finishes and unprimed sheetrock) must have a proprietary sealer e.g. PVA primer or similar, applied to the surface a minimum of 12 hours prior to the installation.
- All electrical switches, power points etc., should be in a first fix / installation state. All electrical equipment should only be moved or altered by a qualified electrician.

- All plumbing should have pipe-work removed to a first fix or installation state and “tails” left protruding from the substrate. Polarex panels can then be drilled and slid over the pipe tails. All holes should be drilled 1/8” oversize to allow for expansion, then sealed with Mastic caulking. Plumbing should always be done by a qualified plumber.
- Hot pipes and steam pipes should be insulated and a 1/8” to 1/4” (3-6mm) expansion gap should be created when installing panels around these pipes, then sealed with caulking.
- All pipes, fixing bolts, etc. extending through the Polarex panels should have a minimum (3mm) expansion gap and be sealed using caulking.
- If fitting to door frames, these must be in place prior to the installation of Polarex sheets.
- Prior to installation, it is advisable to complete any painting, which comes in contact with Polarex as sealants used at junctions is non-paintable.
- Panels should be stored flat and be pre-conditioned a minimum of 24 hours in ambient temperatures similar to the prevailing operational conditions.
- The panels must be stored on a level flat surface off the ground (risk of condensation on the panels if stored on damp surfaces). Storage on uneven surfaces could cause the panels to distort prior to installation.
- First, check the room using a 6’ (2m) level to ensure all walls are flat, paying particular attention to the corners, window reveals, and door entrances. These need to be inspected to ensure they are free of any debris or irregularities, which could prevent the panels laying flat to the substrate after the adhesive has been applied and the panel installed.
- The wall surface must be clean and dust free prior to installation.

Installation

1. Apply a level line around the entire installation area. The level line is used for the calculation of measurements to ceiling/floor height, sockets, pipes, etc., and to ensure the panels are plumb as the installation proceeds. It is advisable to set the level line at 51 (1550mm) off the finished floor. This way the line is near eye level and is easy to locate when placing the panels on the wall.
2. Place panel on the workbench and inspect for damage. On the face (blue protective film), carefully mark your level line on the blue paper, using a pen – taking care not to press too hard, and possibly damaging the surface of the Polarex panel.
3. Take measurements from the wall level line to the floor/cove junction and to the ceiling, and then transfer these to the protective film of the panel. Cut the panel using a jigsaw with a fine toothed blade, making sure the panel is well supported to reduce any risk of stress in the material when being cut.
4. Once cut. Peel back and remove the protective film approximately 2” (50mm) from the edge.
5. Hold the panel up to the substrate, ensuring you have a 1/8” (3mm) expansion joint at all abutments and pipe work.
6. Return panel to the workbench and make any bends as needed using the Polarex Lightweight Skeleton Thermoformer.
7. When the panel has been made to suit the required finish detail lay the panel face-down on the workbench and clean the back of the panel.

8. Apply the double-sided tape at the top, middle and bottom of the sheet.

9. Prepare and spread the adhesive:

- When using the Polarex 2-Part Polyurethane Adhesive, carefully mix parts A & B together using a low-speed mixing drill and paddle for a minimum of 3 minutes, until an even colour of the adhesive is acquired.

- Apply the adhesive to the back of the panel, using the recommended trowel notch size. The adhesive should be applied approximately (12mm) from the edge of the panel, and right up to the tapes.

- The working time of the adhesive is approximately 40 minutes depending on the ambient temperature of the room. The trowel must be held so that the adhesive is applied to an even finish, and the trowel notches are replicated to the same depth over the entire panel.

- At any points where there may be a gap between the wall and panel, apply additional adhesive.

10. Carefully remove the protective film from the double-sided tape, lift the panel to the wall and adhere to the required location using the level line previously applied to the wall. Apply pressure to the level line of the panel to set the double-sided tape. Apply pressure to the whole panel face to ensure the adhesive has been transferred and will be fully bonded to the substrate. This is normally done with a wall roller or rubber mallet, and a piece of scrap material to prevent the surface from being damaged.

11. Failure to ensure a good transfer of adhesive to the substrate could result in the panel debonding.

12. The curing time of the adhesive is approximately 8-12 hours depending on the ambient temperature.

Jointing Methods

There are 2 types of jointing methods that can be used to install the Polarex PVC Wall Cladding Sheets.

Two-Part Joint Strips

Joint Strips are to be used in areas where there are temperature changes such as kitchens, showers and spa areas. The joint strip gives the wall panel room to expand and contract due to the temperature and humidity changes.

1. Once the panel is in position, slide the back part of the two-part joint strip under the installed panel. Leave a small gap (about 1mm) between the panel edge and the centre part of the back side of the joint strip (there is a slightly indented line in the strip to use as a guide). If a transition strip is to be used to create a horizontal joint between the panel and the vinyl floor finish, the back part of the vertical strip should be cut short to allow the horizontal transition strip to be fitted at the base of the panel.

2. When forming the front cover around internal and external corners, the back of the trim should be carefully undercut to allow the trim to bend around the angles.

3. After this procedure has been completed, install the next Polarex panel in the sequence. Finish by installing the front cover section of the two-part joint strip.

4. The front joint strip covers should be initially positioned by hand pressure. They can be fully set in place by tapping with a rubber mallet or hand roller.

Heat Weld

Heat Weld in environments where hygiene is critical to the application and a seamless flat wall surface is required.

Heat welding should not be used in areas where there are noticeable temperature changes that cause the panels to expand and contract. These are environments where the nature of the activities taking place cause temperature changes such as kitchens and showers.

When heat welding, a small area should be heat welded and inspected for client approval prior to proceeding with entire installation.

1. Remove burrs from panel edges, leaving a slight bevel at the edge to be welded.
2. Apply 2" wide double-sided foam tape on the wall so it is centred at the seam. Apply adhesive and install panel to the wall.
3. As you place the adjoining panels on the wall, allow a 1/16" (1.5mm) gap between each panel.
4. Clean both the seam area and the weld rod with a safe solvent cleaner – one that will not attack the vinyl or leave a film.
5. Wait until temperature and speed have been satisfied.
6. Test weld on a scrap piece of Polarex PVC sheet before proceeding.
7. The weld may be trimmed flush when semi-cooled using the round part of the trimming spatula.

Wall to Floor Transition Strip

The transition strip is fitted to connect a panel to the flooring. As described previously, the vertical joint strips are cut shorter than the full panel length. To find the correct length of the vertical section required, use a small piece of transition strip (as a template) and fit this to the bottom of the panel. Then measure the length of the vertical joint strip required and fit.

Cleaning

Initial Cleaning

Once all panels and joints are installed, remove the protective film and clean all surfaces down with antistatic solution or antistatic wipes. This is required as the panel may have static build up and any dust in the atmosphere will adhere to the surface of the panel.

Regular Cleaning

- Polarex PVC Sheets can be cleaned with a diluted soap/detergent solution.
- When cleaning the Polarex PVC Sheets surface, we recommend the temperature of water does not exceed 140°F (60°C).
- Pressure cleaning with hot water may be used with the pressure nozzle a minimum of 2 feet (600mm) away from the surface.
- To reduce the build-up of static, cleaning the panels with anti-static solution is recommended.
- For stubborn stains use alkaline cleaner.
- Some cleaning agents may adversely effect Polarex PVC Sheets.
- Do not use materials containing abrasives or solvents.

Cleaning Agents

Antistatic solution can be obtained from a variety of cleaning product manufacturers. Some antistatic solutions for walls can also be used on Polarex PVC Sheets.

Safety Procedures

Apart from the normal health and safety rules employed within the industry, the following rules should be noted:

- Safety information displayed on all materials must be strictly adhered to.
- Wear appropriate safety equipment (check with local federal OSHA regulations).
- Safety eye wear must be worn when cutting materials, mixing of adhesive, cleaning and preparation of site, and where necessary to adhere to site regulations.
- Use face masks and all appropriate safety shoes, clothing, and all other items that are required by local, state and/or federal guidelines and regulations.
- Ensure good ventilation, provide forced air if required.
- Remove and dispose of waste as per all local, state and federal guidelines and requirements.
- Wear protective gloves.

Operating Temperature

Polarex PVC Cladding can withstand temperatures of up to 140°F (60°C). If cleaning with hot water, temperature should be regulated to a maximum of 140°F (60°C) and not to be localised.

Suitable Surfaces

1. Good quality, brick or blockwork with well aligned joints and all irregularities repaired and made smooth. Must be straight to within 1/8" over 6 feet and bricks/blocks flush with those adjacent.
2. Plaster, sand, and cement rendering 1:3 to a steel trowel finish.
3. Sheetrock / plasterboard
4. Plywood
5. Dense Wood
6. Ceramic Tiles that are securely bonded to the substrate
7. Most painted surfaces
8. New sheetrock, plaster, and pink finishing plasters are generally dusty. Surfaces to be brushed and thoroughly sealed with diluted PVA primer

Surface Preparation

1. All substrates to be dry to 16% wood moisture equivalent on protimeter survey master' equipment.
2. All loose flaking paint and dust to be removed.
3. Friable surfaces to be removed or made sound.
4. All surfaces to be free from grease and ceramic tiles to be thoroughly degreased, rinsed and left to dry.
5. All loose tiles are to be removed and area is to be made good using repair mortar, sand, cement or plywood infill.
6. Depressions in substrate surface should be filled with repair mortar, sand, cement or plywood infill.

Installation Temperature

Polar Hygienic Finishes recommends that the sheet is installed at approximately the ambient service temperature at which the room area will be when commissioned.

This is to ensure that expansion parameters are not exceeded. Normal expansion is provided for in the fining of the material within the joint strips and the silicone mastic seals at abutments.