

# Polyvinyl Chloride (PVC) Installation Guide

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PVC Geomembrane liners meet or exceed the PGI 1197 specification which replaces the NSF-54 standard, and are custom fabricated in many shapes and sizes for various applications. Panels can also be fabricated as "stepped" panels to fit irregular shaped containments. This reduces wasted material from conventional rectangular panels.

## 1. Handling and Storage:

A. PVC panels are shipped in palletized boxes which are inspected before leaving the factory. Any visible damage to the shipment should be noted on the freight receipt and project records.

B. The PVC should remain packaged in dry storage until ready for use. Direct sunlight should be avoided for prolonged periods before use.

C. The pallets should not be stacked.

The liners are accordion folded in two directions. After the liner is fabricated, it is folded onto a wooden pallet. When finished the liner is marked on the top with the necessary information for installation. The liner is also marked with the material type, dimensions, serial number, and the customers name.

## 2. Panel Placement and Seaming:

A. The area to be lined should be smooth and free of sharp objects that could puncture the membrane. All vegetation, roots and grass should be removed. Any cracks or voids should be filled.

B. The panels should not be unfolded under extreme cold or windy conditions.

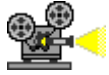
C. Care must be taken when the PVC panels are deployed. Sharp objects, hard bottom shoes, vehicles and equipment should not come into contact with the material.

D. The PVC liner should be placed in a relaxed condition, free of stress or tension. The panels should be positioned so that there is a nominal 4-inch seam overlap.

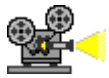
E. The contact surfaces of the two sheets should be wiped clean to remove all dirt, dust, moisture or other foreign materials.

### **3. Field seams can be made by thermal fusion or chemical & adhesive bonding:**

A. Thermal fusion bonding - The welding machine should be set up to the predetermined temperature and speed. A trial seam should then be made and tested to verify these settings. The machine settings should be adjusted accordingly. Throughout the seaming operation occasional adjustments of temperature or speed as the result of changing ambient conditions may be necessary to maintain a consistent seam. A 1.5 inch nominal seam width is required for single-track welds. Dual track welds should have two 0.5 inch nominal seams separated by an air test channel.



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B. Adhesive Bonding - A smooth wooden plank should be used as an underlying work surface. The material surface temperature should be at least 50 degrees F for optimum bonding. Otherwise it will be necessary to preheat both surfaces with a heat gun until they are warm to the touch.

Sufficient PVC solvent should be applied simultaneously to both contact surfaces with a 2-inch brush. Extreme care must be taken to apply the proper amount of solvent. Too much solvent can soften the material via solvent attack. Too little solvent may not achieve optimum bonding. Thinner PVC sheeting will not require as much solvent as thicker PVC. Using a steel roller, apply pressure by rolling at least 2 inches back from the outside flap. Roll toward and perpendicular to the outside exposed edge. Any excess solvent flowing from the seamed area must be wiped up. A nominal 2-inch bonded area is required.

C. Chemical Bonding - Both liner surfaces at the overlap must be free of dirt or mud. If not, clean both surfaces with water and dry. Sheets should be overlapped a minimum of 6".

Start at the center of the two panels to be seamed. Do not fold back the overlapping material. Apply chemical fusion agent into the overlap area with a squeeze bottle or paint brush to make a 2" wide seam. Be sure to allow the top sheet to be wetted by the chemical fusion agent. Allow 2 to 5 seconds (depending on sheet temperature) for the chemical to react with the PVC surfaces. The material should then be pressed together immediately while the chemical fusion agent is still liquid using cotton rags and a roller.

(A slip sheet may be required over irregular or damp subgrades.) Pay particular attention to any area that consists of more than one layer of material.

Excess chemical fusion agent should be wiped up immediately after the seam is made. Two crews may now start seaming toward each end of the panel. Be careful to work the chemical fusion agent slightly into the

previously welded area to insure seam continuity. Any wrinkles in the material should be worked back into the completed seam before continuing.

Caution: Avoid contact of chemicals or adhesive with the skin or eyes. Avoid prolonged exposure to vapors. Prolonged breathing of adhesive or chemical vapors may be harmful. Material Safety Data Sheet. Caution: Avoid contact of chemicals or adhesive with the skin or eyes. Avoid prolonged exposure to vapors. Prolonged breathing of adhesive or chemical vapors may be harmful.

#### **4. Repairs to Liner:**

A. Any cuts, rips or tears in the PVC membrane should be patched with a piece of the same membrane material. Patches should be cut with rounded corners and should overlap the damaged area a minimum of 3 inches.

B. Patches can be applied with PVC membrane solvent, adhesive or extrusion welding. The patch and damaged membrane area should be clean and dry. Steel roller pressure over a hard surface should be applied during the heating process in such a way as to smooth out any wrinkles while mating both surfaces.

#### **5. Drawings**

[Anchor Trench Details](#)

[Pipe Boot Details](#)

[Vent Details](#)

[Anchoring to Concrete Detail](#)

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### **Pond Liner Calculator**

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