

Coating Adhesion of Architectural Fabrics

Coating adhesion is the ability of the exterior coating compound to be adhered to the polyester base fabric. Having the strongest base fabric and the best-formulated compound is of no value if the two cannot be properly bonded together. Good coating adhesion is required to allow the material to be handled and welded. It is also important in preventing the exterior coating compound from delaminating when the material is exposed to the environment.

Shelter-Rite is designed to provide a chemical and mechanical bond of the coating. The primary function of the adhesive coat is to bind the coating to the base cloth. The adhesive coating compound is formulated as a synthetic resin plastisol with an adhesion promoter added to the compound. When this compound is applied to the base fabric, a chemical bond forms between the polyester yarns and the adhesive coat. The adhesive also provides a bond between the exterior coating compound and the fibers. This process is carefully monitored to develop the right level of adhesion. Too little adhesion will cause problems with seam strength or coating delamination, and too high adhesion will adversely affect tear strength. Mechanical adhesion is attained on open weaves/knits by adhering the exterior coating on both sides through the openings in the cloth. Seaman provides an adhesive coat on all Shelter-Rite architectural fabrics ensuring a good, high-quality bond. Not all coaters provide an adhesive coat, relying totally on mechanical adhesion. In cases of flex fatigue or wind whipping of the fabric, the mechanical adhesion may fail resulting in delamination.

Coating adhesion is tested per ASTM D 751 Peel Adhesion test. Samples are prepared by either welding or gluing two pieces of material together, then peeling the samples apart in a constant rate of separation testing machine. Results are reported as pounds-force per inch or newtons per centimeter.