Dimensional Stability of Architectural Fabrics

The dimensional stability properties of any building material are important. If a material changes in size due to change in temperature or humidity, these changes need to be considered when engineering the building. This is very important when designing a tension membrane structure with synthetic resin coated fabric since patterns are cut to a given size to allow for a given pre-tension on the building.

The dimensional stability of an architectural fabric is directly related to the base fabric and the polyester yarns. Seaman only uses polyester yarns in architectural based fabrics, unless a specific design would favor a nylon base cloth. Nylon fibers are not dimensionally stable and should only be used in applications that require growth and shrinkage of the material. The dimensional stability of a base fabric made from polyester yarns is so good that this performance property is generally not specified or tested, other than to require a polyester base fabric. Dimensional stability can be tested and evaluated using ASTM D1204.

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