

# Web Growth



**Sappi Printer Technical Service**

877 SappiHelp (727 7443)

## Problem

The size of web paper changes after printing. Web paper, which is typically used for text, may expand outside the sheetfed cover after final trim in the bindery.

## Description

Paper is hygroscopic, which means it is capable of absorbing or losing moisture depending upon the extremes of its surrounding environment. Paper fibers, when exposed to moisture fluctuations, contract and expand more in diameter than length. This means that when paper loses moisture it will contract and decrease in size, and when it absorbs moisture it will expand and grow in size. Since the fibers are affected more in diameter than in length, the potential for size change is primarily in the cross-grain direction.

## Causes

Coated sheetfed paper is manufactured to approximately 4.5% to 5.0% moisture to insure sheet stability. Coated web paper, manufactured to approximately 3% to 3.5% moisture, is lower than sheetfed to preclude blister potential in the web dryer.

After the lower moisture web paper passes through the web dryer during the printing process, the moisture content further decreases which in turn shrinks the paper. Therefore, the lower moisture web signatures have greater potential to change and grow through the reacclimation process as compared to the higher moisture sheetfed covers. If paper reacclimation occurs or continues after the final trim process, the web text may continue to grow beyond the finished cover size. Since the industry-accepted best-practice is to run paper grain direction parallel to the spine, the web growth beyond the sheetfed cover will primarily be visible on the face edge of the book.

## Options and Solutions

- Web dryer temps should be set no higher than necessary to adequately flash the solvents from the ink.
- Low-solvent or lower flash inks may allow for lower dryer temps.
- Printed web signatures should be allowed enough time to fully reacclimate in properly climate-controlled conditions before final trim in the binding process. The time allotted for re-acclimation will vary depending upon the ambient humidity of the storage area, but the general consideration is 4 days in a climate-controlled environment of 45% Rh @ 72° F. (22°C.).

## Web Growth (continued)



**Sappi Printer Technical Service**

877 SappiHelp (727 7443)

- Dry web signatures should not be bound in an ambient environment of high humidity.
- The on-press application of water/silicone mix to the printed web in the re-moisturization unit will help expedite the reacclimation process.
- If adverse web growth continues after finished binding, retrim the books after the growth stabilizes.