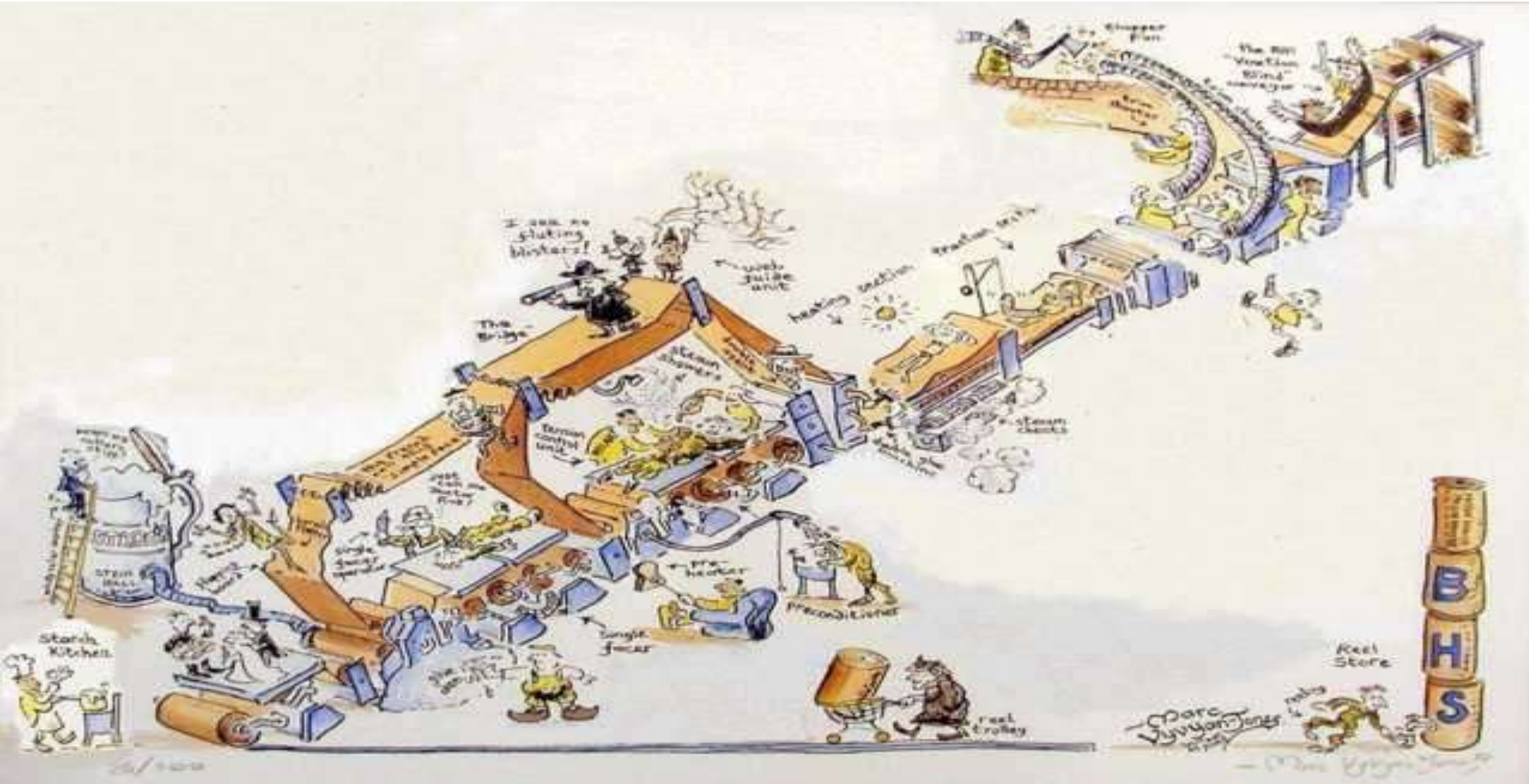


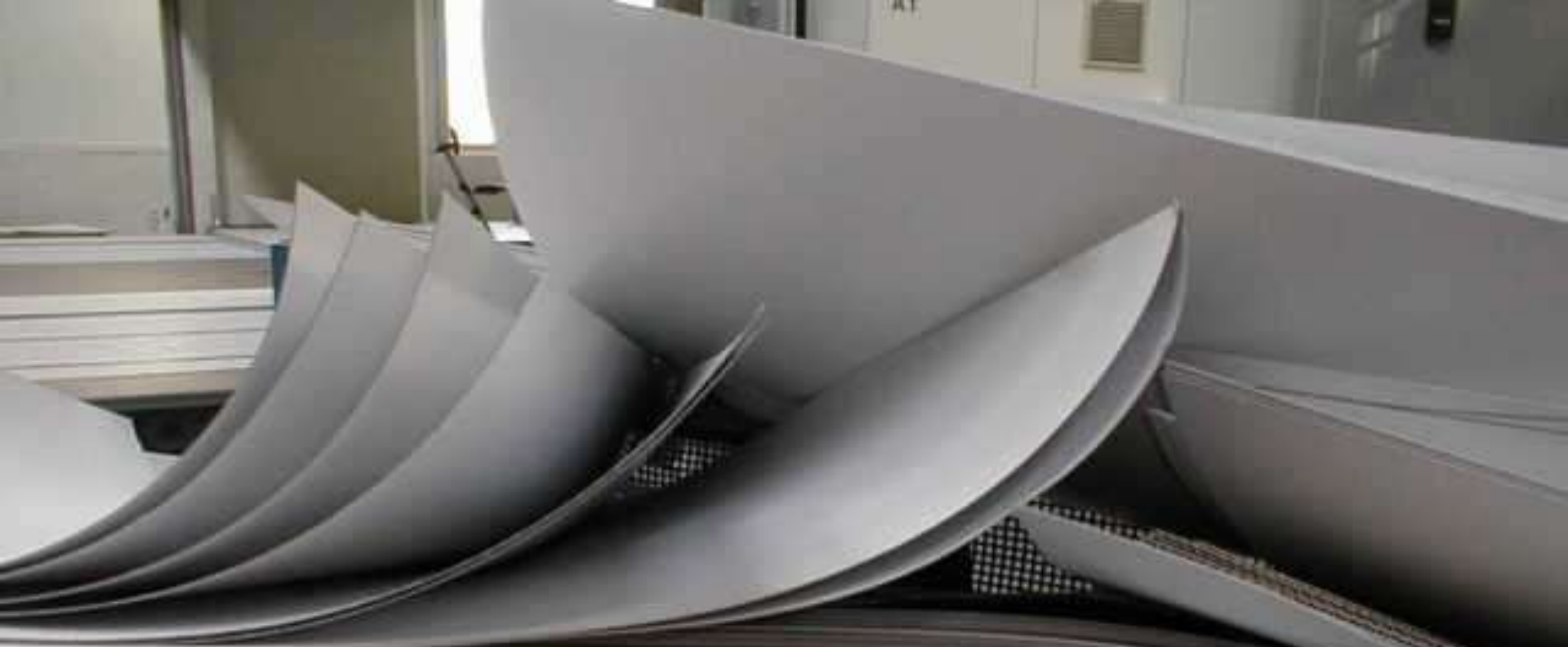
Light-weighting by Optimizing Your Corrugator

Steve Rote

M-real Americas

Corrugating has many misconceptions-people tend to over think the process





***Corrugator is not an evaporator
Leave the water in the paper and do
not solve problems by running a
heavier liners!***

Paper is a sponge

In balance



over dried



IT'S REALLY A SIMPLE CONCEPT

FAR LESS WATER = MUCH FLATTER BOARD



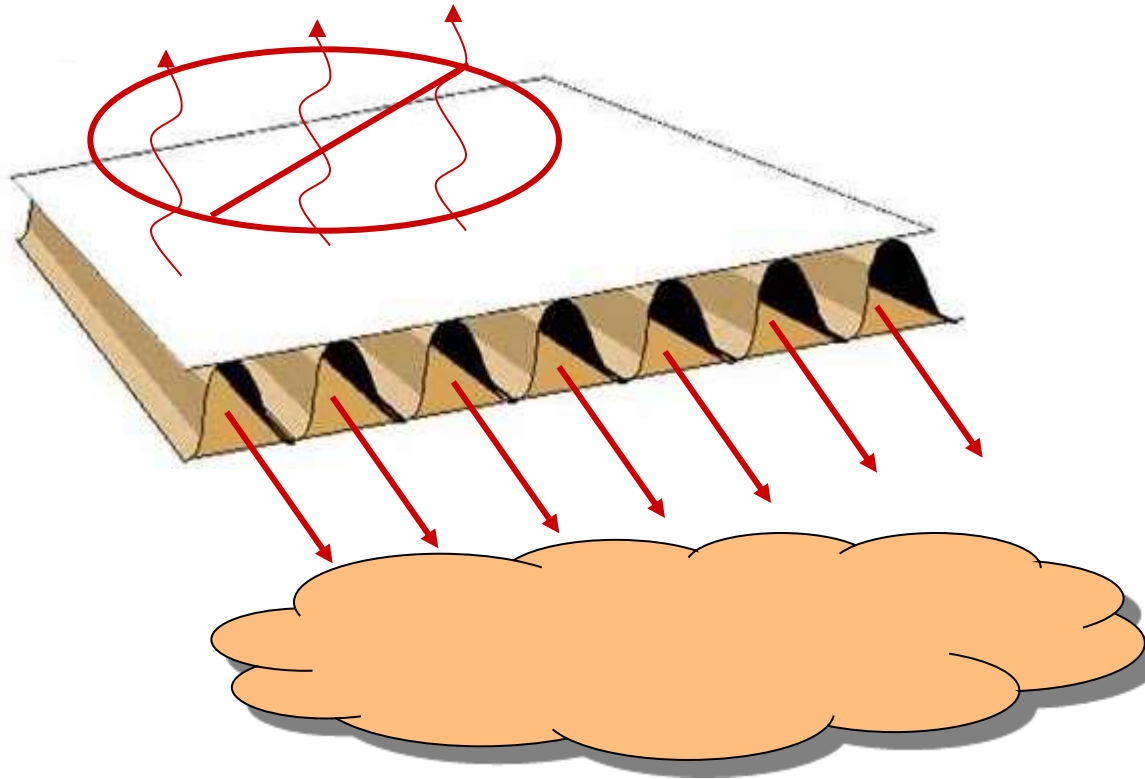
The Operating Window Is Wider!

- *Paper will stay at 185-195°F (85-90°C) if sufficient heat is applied.*
- *This gives a closer operating range than normal corrugator temperatures of 225-275°F (107-135°C).*
- *In other words... 185-195°F (85-90°C) is an easier temperature range to maintain. **Keep the paper temperature up to the doublebacker under boiling point!***



*Water Is Not The Problem
It's Part Of The Solution!*

Steam must be allowed to escape through the flutes. Run the hotplates cool to hot.



Down warp

Blisters

Brittle edges

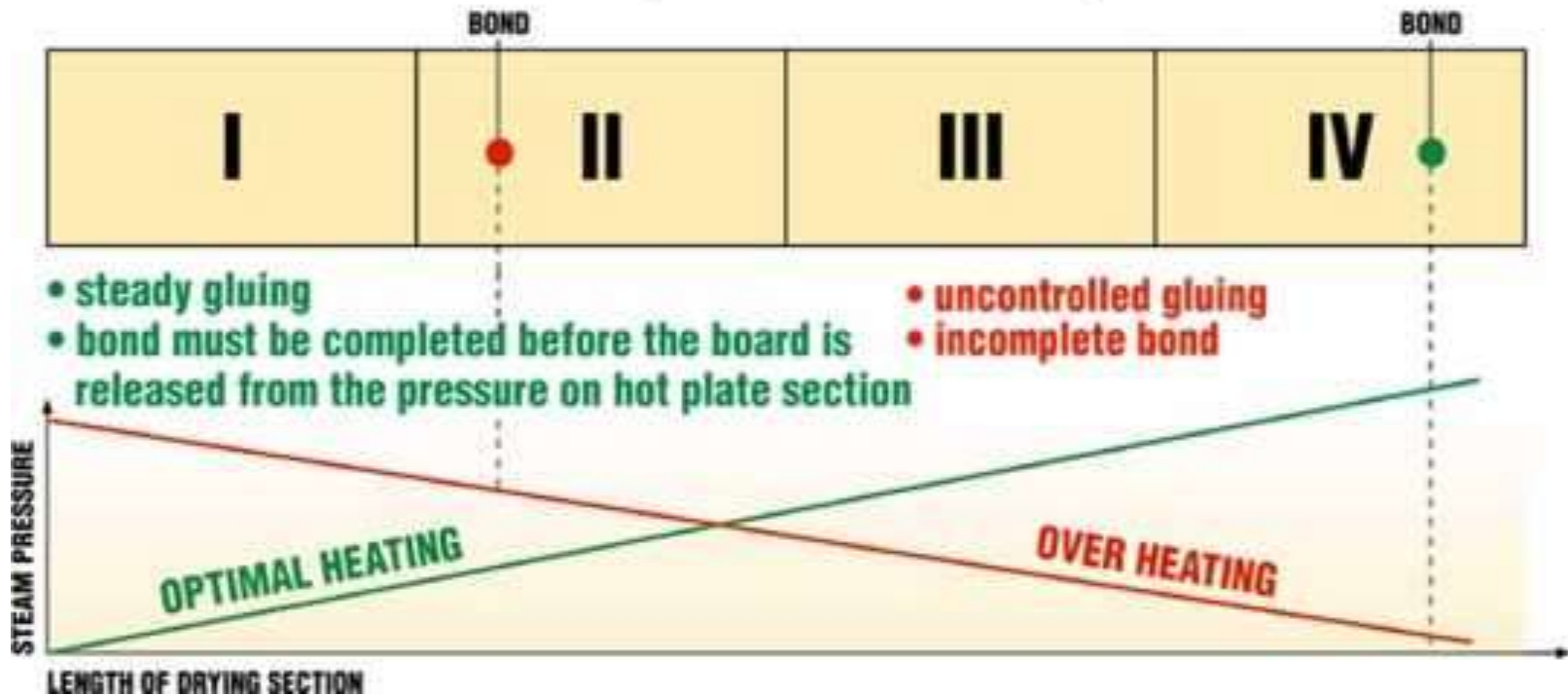
Center wrinkles

Poor bond (center)

The green bond is moved farther down the hotplates and is allowed more time to penetrate the bottom liner.

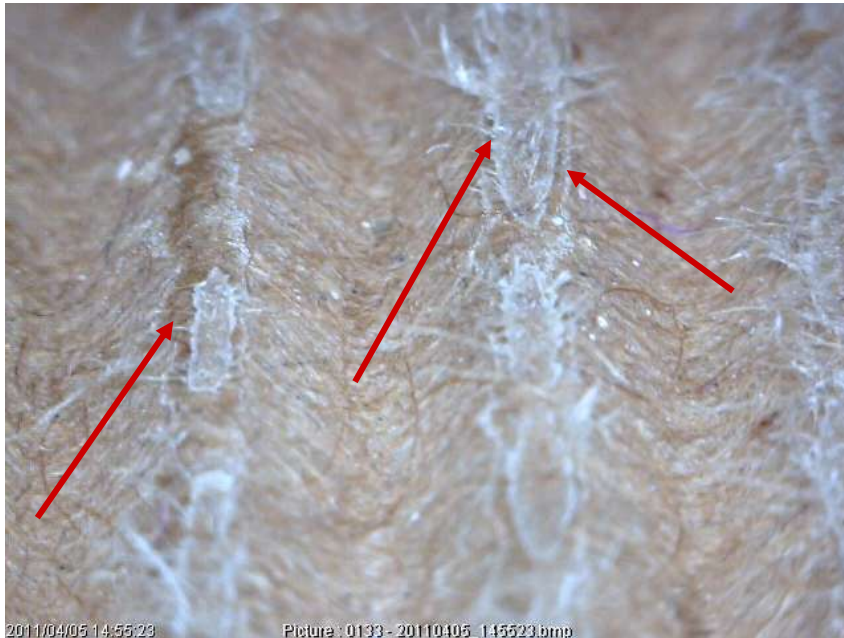
Keep all shoes/rollers down for the first 10 feet.

Quality and runnability



Excess Starch

Recent example in Mexico



Reduction of starch by 28% eliminated washboarding and waste.

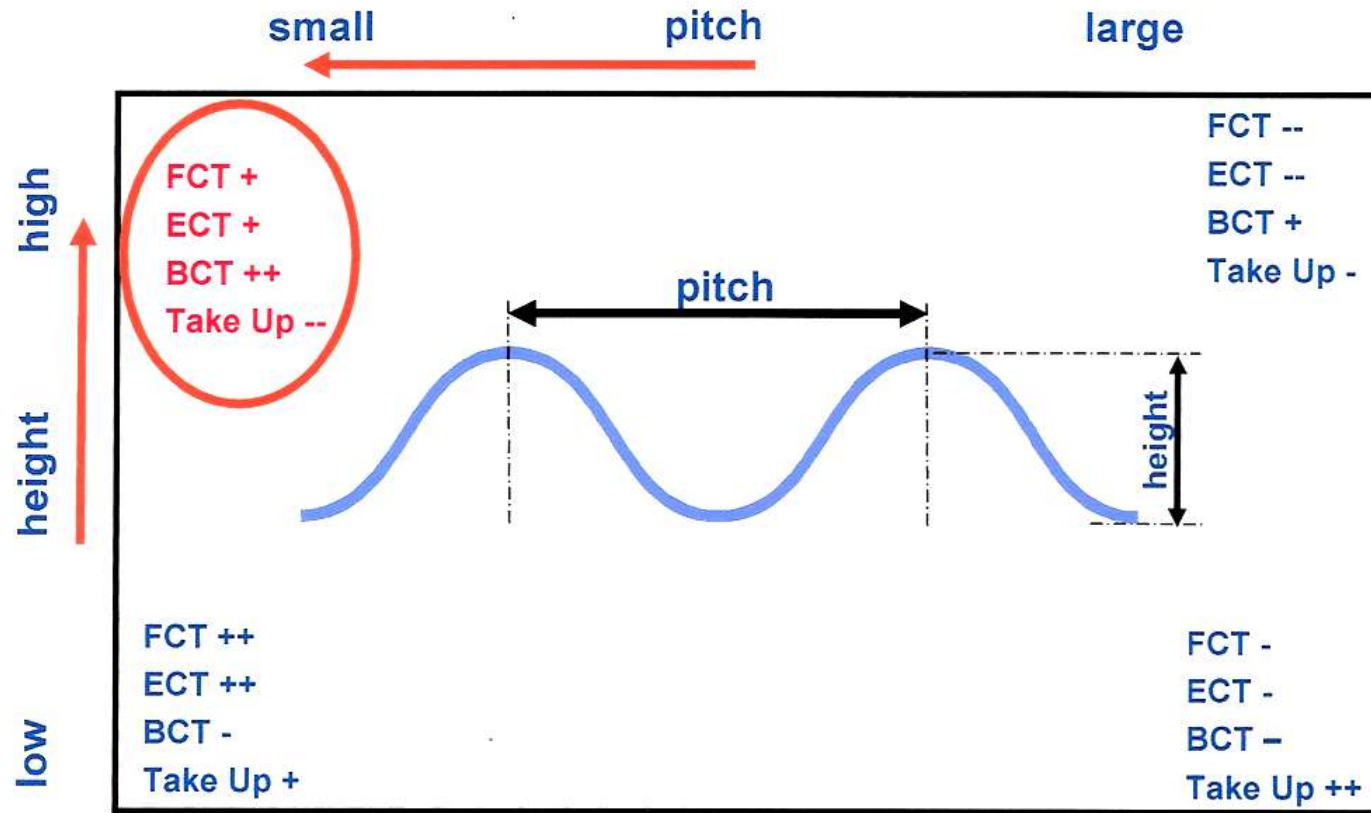
Excess starch not seen with your eyes or by soaking the board



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Change the flute pitch to improve ECT/BCT



+ good ++ very good - bad -- very bad

Improved fluting

EB quality surface with a division ratio of 13/7

EB quality with a the new division ratio of 2/1

End Result

- *Higher ECT and BCT*
- *Higher pin adhesion*
- *Lower energy consumption*
- *Lower starch application*
- *Flat board*
- *Lower waste*
- *Better print surface*
- *Can run unbalanced liners*
- *More control over your process*
- *Ability to run lower weight substrates*



Thank You!