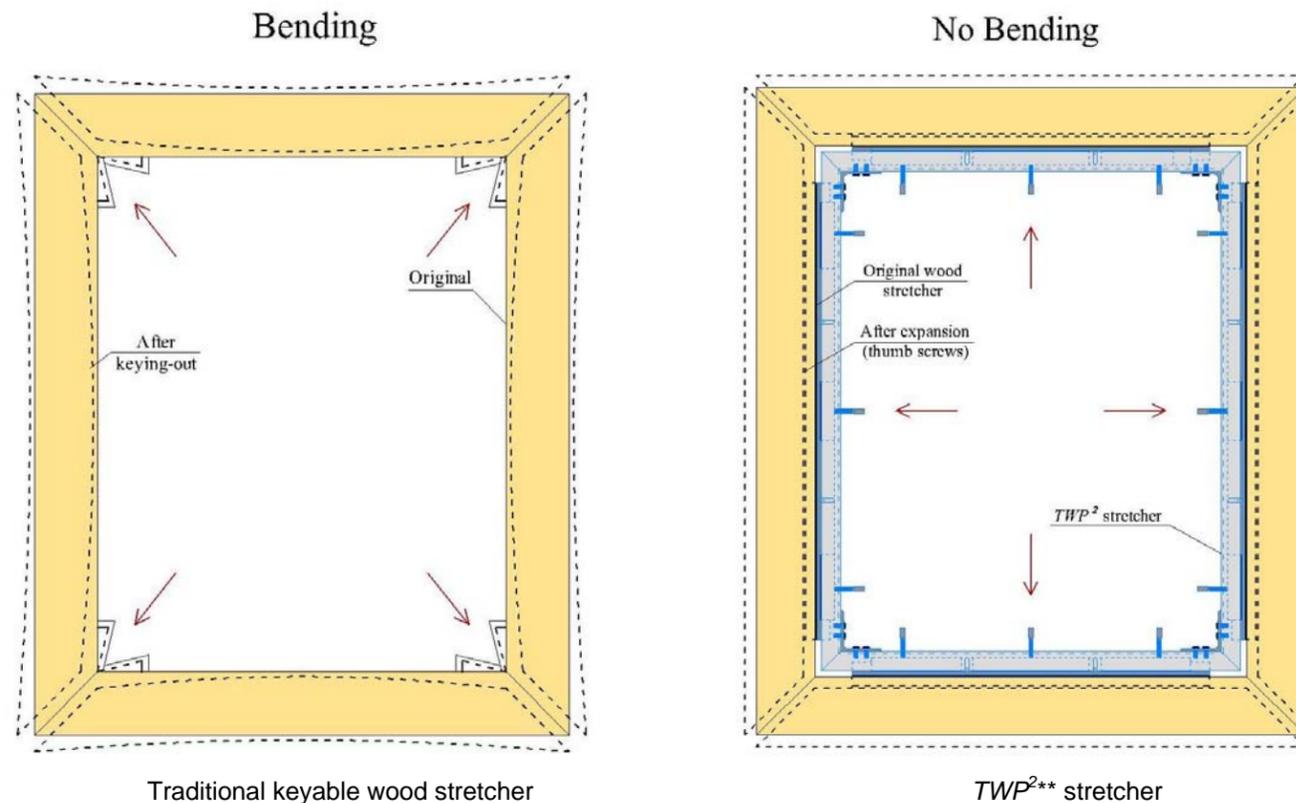


Modernizing Stretchers for Paintings on Canvas



Jia-sun Tsang*, Ines Madruga*, Don Williams – Museum Conservation Institute (MCI)
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Paintings respond to extreme environmental fluctuations and over time become loose on their stretchers. A procedure called keying-out is typically performed to tighten the canvas by expanding the stretcher bars at the corners with wooden wedges, expansion bolts or springs. Keying-out, however, is a potentially damaging procedure to paintings; it can create excessive stress at the corners, resulting in cracking, cupping, cleavage and flaking in paint. To address this issue, a new aluminum stretcher has been invented by a team of Smithsonian's conservators (MCI) and fabricators (NMAI). The tension adjustment of the new stretcher is achieved by moving the stretcher bars with thumbscrews, resolving the keying-out problem by not focusing the expansion on the corners. This new stretcher can serve both as an insert to existing stretchers and as an artists' grade stretcher.

The functionality, utility, and the mechanical properties of the new stretcher versus the traditional wooden keyable stretcher are presented. In a laboratory experiment, eight paintings – canvas coated with layers of animal glue and gesso ground, stretched on the two stretcher types and variously tensioned – were exposed to 14 sets of RH cycling from approximately 0 to 100% over six months. Tests examined the craquelure patterns incurred on the canvas and the strains induced from tension adjustments with both the traditional and new stretcher types. The new system with movable bars expansion has less craquelure on the corners and the strains are evenly distributed throughout the entire painting. In a practical application, a new aluminum adjustable stretcher was inserted into a 150-year old painting's original wooden stretcher, allowing the canvas to be evenly stretched, and correcting the distortion with the turn of the screws. The value of this new stretcher insert lies in its simplicity, dimensional stability, ability to reinforce the original wooden stretcher, and adherence to the principle of preservation. Most importantly, the new tightening mechanism has an impact at the center of the canvas where traditional expansion through corners is least effective.

* Presenters

** TWP² stands for Tsang (T) Williams (W) Pelasara (P) Patterson (P).

MCI

*Topics in
Museum
Conservation*

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MCI Theater

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