



STONE·PLY

real stone real strong real thin

GRANITE | MARBLE | ONYX | ALABASTER
4400 ONEAL STREET GREENVILLE, TX 75401

903.454.0904 phone 903.454.3642 fax
www.stoneply.com info@stoneply.com

Technical Bulletin

Thermal Hysteresis

THERMAL HYSTERESIS:

Common among certain thin-veneer marbles is a phenomenon known as Hysteresis; sometimes referred to as thermal-hysteresis. Simply put, this is a differential, permanent volume change in the stone panel due to thermal cycling.

Research has determined that this process of thermal hysteresis occurs when the outside face (exposed face) of a stone panel is repeatedly heated and cooled to a more dramatically than the inside face. When the calcite granules present in the marble expand, a bond is broken in the calcite binder – a bond that cannot be mended when the thermal cycle is completed. The result is a volumetric disconfiguration of the panel. The associated cracking of the material greatly reduces the flexural strength of the stone resulting in the possible failure of the stone panel, a very dangerous condition. This condition is visible from the bowing and “dishing” of the panels and causes considerable added loading of the stone anchors leading, again, to possible failure.

Some marble traits that lead to this condition are course veining and inconsistent material strength, both of which can vary greatly, even within the same quarry. These traits inherent to certain white marbles reduce the likelihood of achieving a white marble cladding with the integrity required for the exterior of any building.

THE STONEPLY ADVANTAGE:

The strength of an aluminum backing, fully adhered to the stone with aviation epoxies eliminates the weaknesses inherent in traditional thin-veneer marble applications by providing the flexural strength needed for exterior cladding. The added strength, reduced material cost, and ease of installation is why this system is one of the strongest solutions for providing marble cladding worldwide.

