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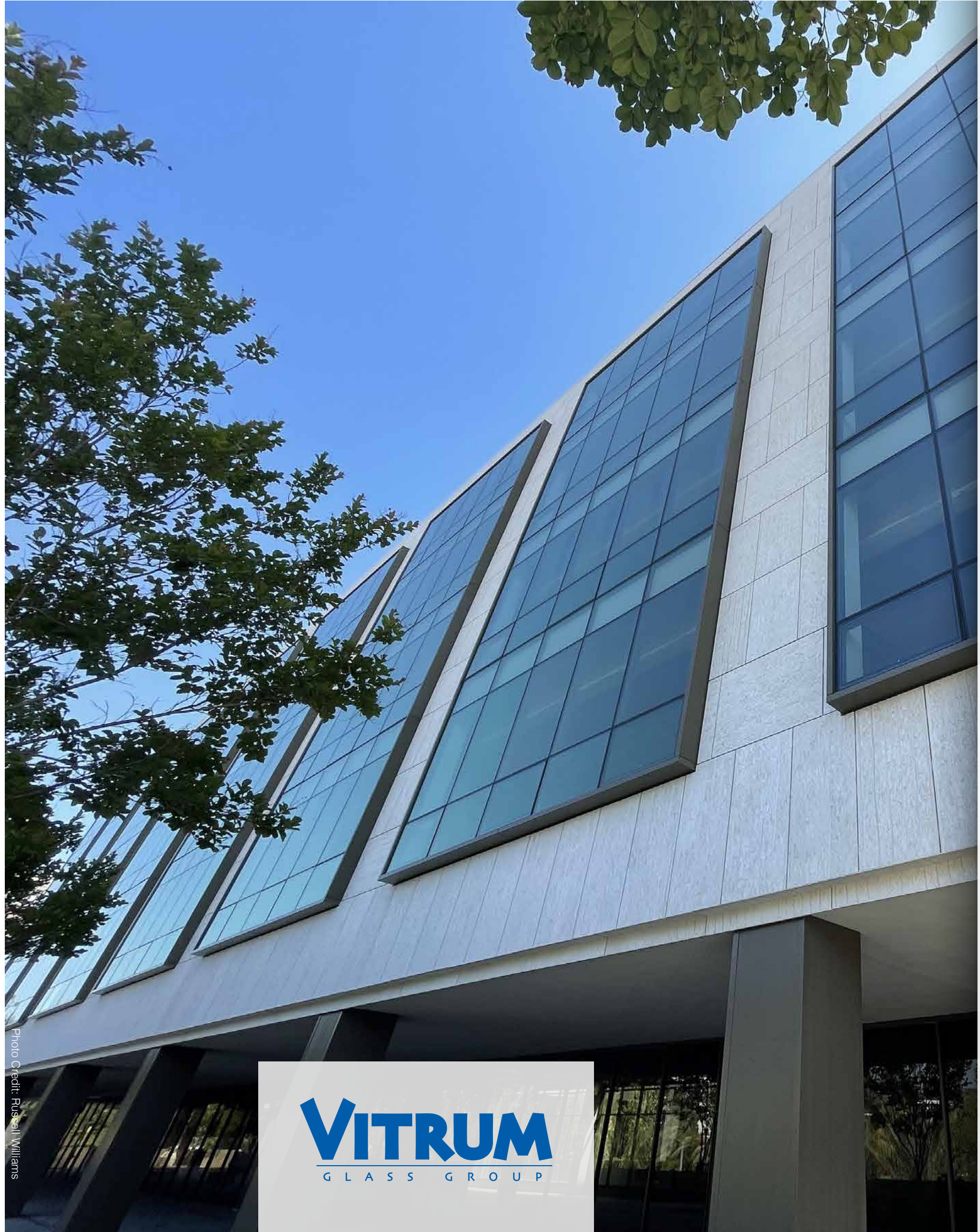


Photo Credit: Ruseall Williams



TRUEFORM™ TEMPERED GLASS

#vitrumflatglass

TrueForm™ TEMPERED GLASS

EXTRAORDINARY GLASS FOR YOUR NEXT PROJECT

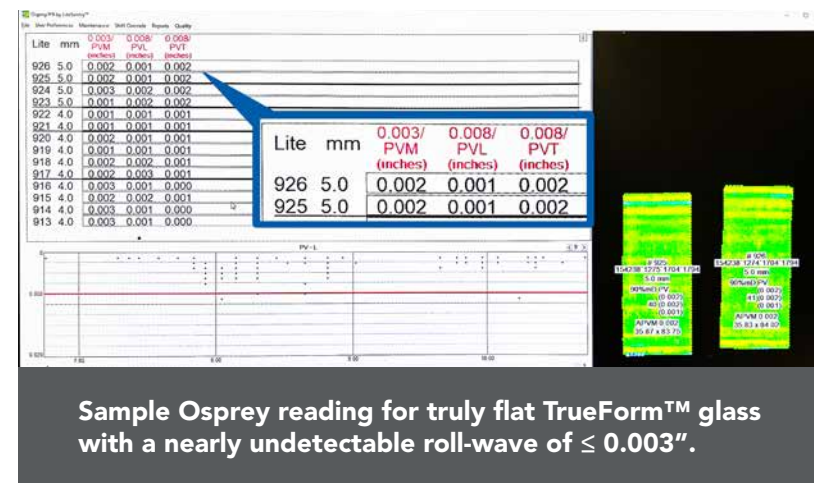
MINIMIZE THE HEAT WAVE ON HEAT-TREATED GLASS

Vitrum TrueForm™ Tempered glass helps architects and building owners realize their design vision. With our full convection tempering furnaces and computerized Osprey distortion monitoring system, Vitrum can measure and correct roll-wave, pocket distortion and edge-kink in real-time. This allows us to provide a premium tempered and heat strengthened glass product with nearly undetectable distortion levels and exceeds all ASTM, CGSB and GANA standards and meets the requirements set forth by major float glass suppliers.

HOW IT WORKS

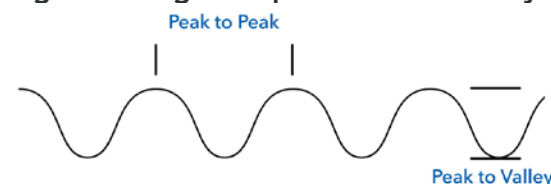
As the glass exits the tempering furnace, a system mounted over the conveyor provides highly precise optical measurements. The leading edge, middle, and trailing edge of every lite of glass measured. Roll-wave peak-to-valley values are calculated for the entire surface area of the glass lite and are displayed to the operator in real-time and also stored in a database for later review and analysis. The operator immediately observes and removes product that fails to meet these tight TrueForm™ tolerances, ensuring you receive glass that meets or exceeds our stringent standards.

- Every piece of glass is measured
- Entire surface of the glass is measured
- Data is recorded and available upon request



WHAT IS ROLL-WAVE DISTORTION?

Roll-wave distortion is the periodic wave imparted to glass during heat-treatment. The viewer perceives the roll-wave as optical distortion in the reflection or transmission of the finished window. These roll-waves are always present at some level in heat-treated glass due to the glass being transported horizontally on ceramic rollers in the tempering furnace. However, by carefully controlling the heat and quench uniformity, the glass can exit the furnace with minimal roll-wave distortion. The degree of the roll-wave distortion that is present is measured by the industry in peak-to-valley and peak-to-peak distance.



ICONIC ARCHITECTURE DESERVES THE BEST

Shown on this page are three pieces of tempered glass with the reflection of a zebra board. These three photographs show the levels of distortion found when using highly reflective tinted glass in an insulated glass unit. By specifying TrueForm™ tempered glass (right) for your next project, you can ensure your building will be iconic.

*ACTUAL REFLECTION PHOTOS

INDUSTRY TYPICAL TEMPERED GLASS	TYPICAL TEMPERED GLASS FROM VITRUM	VITRUM TRUEFORM™ TEMPERED GLASS
a roll-wave of ≤ 0.008 " peak-to-valley	a roll-wave of ≤ 0.004 " peak-to-valley	a roll-wave of ≤ 0.003 " peak-to-valley

EXTRAORDINARY GLASS EVERY TIME

Upon request, Vitrum can provide detailed documentation of distortion levels for each lite of glass ordered, ensuring you receive extraordinary glass every time. Vitrum highly recommends TrueForm™ tempered glass for all monumental projects or when using moderately to highly reflective glass types. For more information or to order a full-size mock-up for your next project visit vitrum.ca or call us.

CAPABILITIES

Minimum	≥ 5 mm thickness 12" x 24" 304mm x 610mm
Maximum	6mm thickness 92" x 199" 2337mm x 5055mm
Roll Wave (Peak-to-Valley)	Maximum 0.003" Middle / 0.008" Leading & Trailing
Measurement	Every lite measured, documentation available upon request for TrueForm™
Compliance	ASTM C1036, ASTM C1048 and CAN/CGSB-12.1-2017

†Certain shapes, unusual aspect ratios, and painted glass (screen or digitally printed, spandrel, etc.) may cause incorrect measurement readings and/or be unavailable in TrueForm™. Glass with a low-e coating must be edge deleted prior to tempering, any variation from Vitrum's standard edge deletion of 7/16" (11mm) will negatively impact the leading and trailing edge distortion.