It is our purpose that every impression Azon leaves in this world—whether it’s through our manufacturing practices or our energy-saving products—is an expression of our goal for a sustainable and profitable future.
Azon structural thermal barrier technology

EPIC Firsts from Azon
• Blast and hurricane resistant* aluminum thermal barrier products
• Cradle to cradle** verified thermal barrier
• Dual cavity storefront and curtain wall
• American Architectural Manufacturers Association (AAMA) quality assurance program
• Warranty
• Design and simulation services

ONLY with Azon
• Continuous technical field support for manufacturers
• Testing and quality assurance program
• Mechanical lock programs, with 10-year warranty
• Approved Applicator Program***

* High Velocity Hurricane Zone requirements of the International Building Code and Florida Building Code
** Manufacturers seeking Cradle to Cradle certification must meet stringent criteria in five different areas: Materials health, material re-utilization, renewable energy and carbon management, water stewardship, social fairness
*** Participants are chemical customers who adhere to strict quality control procedures and testing to qualify for the Azon 10-year warranty.

How the pour and debridge process works

Step 1 - Design
An aluminum window profile is designed and extruded with a strategically placed channel to encapsulate the Azon insulating polymer. The Azon Azo-Brader™ and Lancer™ provide mechanical surface conditioning of the extrusion cavity to ensure proper adhesion and bonding of the polymer to all finishes. Both mechanical devices enhance the shear strength of the resulting composite profile.

Step 2 - Pour
Employing the Azon Fillameter™ equipped with the Azon Tornado III™ dynamic mixer, two-component polyurethane is dispensed as a liquid into the thermal barrier channel. Within minutes, the thermal core solidifies into a very strong, structural polymer.

Step 3 - Debridge
The extrusion is transported to the Azon Bridgemill™ for the third step in the process—removal of the metal bridge from the bottom of the channel to produce a true, non-metal-to-metal structural thermal barrier. The pour and debridge method is suitable for withstanding the most demanding climates and conditions with higher performance in impact resistance, shear strength and heat distortion than alternative methods.
Azon thermal barrier technology | windows | storefront | curtain wall

Intelligent technology for fenestration systems that require superior thermal and structural performance

MLP® (mechanical lock profile) includes:

- Wider cavity—lower U-factor achievable in most fenestration products
- Concealed, encapsulated mechanical lock in the frame
- Highest shear of all thermal barriers
- Azo/Tec® total design assistance to meet targeted performance
- Requires 10 to 20 percent less aluminum by weight than windows manufactured with other types of thermal barrier systems

Low U values

High shear strength

Low metal content

High performance CURTAIN WALL

Dual cavity (top)

- Featuring dual thermal barrier technology
- Triple glaze options for 2 inch (51 mm) efficient triple glazed infills
- Lower U-factors represent more energy efficient design
- Two tone color options for exterior face members and interior mullions
- Single pass process

Single cavity (bottom)

- Ultra high-performance curtain wall technology
- Low U-factor, no direct heat-flow path
- 90% vision area/total area
- The strongest thermal barrier available for curtain wall

Photos: The Keltic 7223 Series Hinged, with MLP™ total design system is a trade name of International Window Corp.

High performance STOREFRONT

Dual cavity (top)

- Featuring dual thermal barrier technology with Lancer® mechanical lock
- Accepts 1-5/16” thick impact resistant glass
- Project specific U-factors, energy efficient design
- Single pass pour and debridge processing

Single cavity (bottom)

- Versatile, seamless integration with entrances
- Low U-factor, no direct heat-flow path
- The strongest thermal barrier available for storefront

Photos: Kawneer Trifab® VG (VersaGlaze®) 451T Framing System single cavity and IR 501UT (Ultra Thermal) Framing System dual cavity storefront systems are trade names of Kawneer Company, Inc. and Alcoa Inc.
Azon Saves Energy

High performance - blast resistant

Those who work in the historical 1960s John F. Kennedy Federal Building enjoy improved security, comfort and energy efficiency due to key renovation improvements to the government office complex. Nearly 5000 original windows—including bent corner units—were replaced with high-performance, energy efficient, blast resistant* windows.

When polyurethane is placed into an aluminum profile that has already been painted or anodized, the thermal barrier must be able to adhere strongly to the finished substrate. The Azon Azo-Brader mechanical lock system is designed to provide years of worry free performance for the thermal barrier composite.

The JPK windows manufactured by Winco Window Co., qualify for 10-year warranty and are intended to survive catastrophic events, protect inhabitants and withstand the ravages of time and the elements.

Figure 1
Korean U-factor sticker for compliance in 2016. Grade 4, 5 will no longer be allowed due to the adoption of Passive House standards in Korea.

Insulating polymer wraps around the mechanical lock “hooks” to form a strong permanent bond in cavity.

Tall structures

Few locations in the world have more extreme wind and temperature fluctuations than Chicago—recognized by its nickname — “The Windy City”. Tall buildings have a propensity to sway during high winds. Exposed to nature’s extremes, facades become structural systems capable of withstanding the sideward force of wind and the downward forces of gravity.

The role of the thermal barrier in commercial fenestration is to interrupt the flow of energy through the aluminum frame and to provide exemplary structural strength in the envelope. The thermal barrier aluminum fenestration composite with a Lancer™ mechanical lock exceeds industry standards for high shear and tensile strength.

About Azon AZO/Tec®

Technical skill and creativity in the design of fenestration systems, selection of framing materials and production methods are all key factors that affect the structural strength, security and thermal efficiency of windows.

Practical expertise in window design, joined with computer thermal simulation tools, is the cornerstone of AZO/Tec® services. By mastering the disciplines of window design, Azon advances energy saving technology in aluminum framing. AZO/Tec continually improves window design by providing measurable results in energy savings through a combination of design principles, computer modeling and simulation.

Azon is an important partner with the growing network of aluminum extruders and window manufacturers worldwide. We recognize the need to continually improve the energy-saving properties of the thermal barrier materials we provide for our future — for our world. The thermal and structural performance characteristics of window materials are critical.

AZO/Tec® assists with the design and analysis of fenestration systems to optimize thermal and structural performance using software that simulates real climatic conditions. In the course of these activities, we can offer the customer higher productivity by saving time and costs.

Contact: azotec@azonusa.com

Progression of thermal barrier technology

1960 Typical non thermal storefront
1970 Typical single cavity thermal barrier storefront
Present day Typical dual cavity thermal barrier storefront

*Meet General Services Administration Bomb Blast Requirements

Land and Housing Corporation, Korea
JFK Federal Building, Boston
The Waldorf Astoria, Chicago

Award winning - sustainable

The L & H project implements numerous green and sustainable products and methods including high-performance building envelope materials. The dual cavity, double pour system, utilizes the Azon Azo-Brader mechanical lock to provide the highest structural shear value in any curtain wall assembly—an ideal fenestration system for use in the monumental Korean master plan project exceeding the Passive House standards planned for Korea in 2016.

System manufacturer: Worjin Aluminum
(Won Ju-geon / Jeon La Buk Province)

Pour and debridge thermal barrier applicator: Seolim Gigye (Anseong-si / Gyeonggi Province)

Architectural firm: DRDS - Seoul, in collaboration with Mooyoung and Tomoon architects

*Meet General Services Administration Bomb Blast Requirements

About Azon AZO/Tec®

Interdisciplinary team of designers, simulation services and testing

The core reason Azon can offer comprehensive support to our customers through AZO/Tec is a depth of knowledge in the technology, chemicals, and machinery for producing windows. We center our attention on the interaction of design conceptualization and material science, while measuring the results with modeled calculations using software that simulates real climatic conditions. In the course of these activities, we can offer the customer higher productivity by saving time and costs.
It is our purpose that every impression Azon leaves in this world—whether it’s through our manufacturing practices or our energy-saving products—is an expression of our goal for a sustainable and profitable future.

thermal barriers for high performance commercial fenestration