



# AFFINITY

## THERMOTROPIC SMART WINDOWPANES

### ADVANCED PERSPECTIVE

Affinity designs and manufactures the most sophisticated, energy-saving window glass in Japan. Our intelligent (self-responding) windowpanes, laminated with a thin layer of temperature-sensitive hydrosol or hydrogel, transition from water-clear to a diffuse, soothing paper white in response to solar radiation, moderating interior temperature and curtailing heating and cooling demands wherever they are installed.

Many other eco-friendly window solutions exist or are in development, but are hindered by high cost, poor durability or flawed aesthetics. Affinity's superior thermotropic technology is a proven success. Our resilient, cost-effective smart window glass has been manufactured and put into service at sizes up to 1.4 x 2.4 meters.

### COMPETITIVE ADVANTAGE

#### PROVEN TECHNOLOGY

Our reverse phase-transition windows automatically respond to changes in weather and temperature to create a comfortable environment. During summer, this "living glass" turns a cloudy white, blocking the intense rays of the sun and generating tree-like shade. In winter and other cool periods, Affinity windows remain perfectly transparent, admitting sunlight to warm interior spaces naturally.

#### EFFICIENCY

Affinity smart window glass can reduce solar radiation by up to 80 percent and features a thermal absorption ratio of 35 percent, all without the disagreeable color refraction present in other alternative window products. Every Affinity window product permanently blocks 100 percent of UV radiation.

#### CONVENIENCE

Unlike photochromic or electrochromic windows, Affinity intelligent glass is durable, weather-resistant and utilizes conventional frames. It can be installed without the need for electric or gaseous control systems wherever conventional windows are needed. The temperature point at which the panes transition can be customized by the user.

Optical and Thermal Performance (FL3+0.5G+FL3/6.5mm)

Situation	Optical Performance						Thermal Performance		
	Visible light		Solar Energy (300~2100nm)			Ultra-violet	U-Value	Shading Coefficient	Solar Factor
	transmittance (%)	Reflectance (%)	transmittance (%)	Reflectance (%)	Absorption (%)	transmittance (%)	W/m <sup>2</sup> K	SC	η
Transparent	87.9	8.3	74.7	7.1	18.2	0.0	6.0	0.92	0.81
Opaque	27.4	35.4	22.2	28.0	49.9	0.0	6.0	0.44	0.39

### HISTORY OF SUCCESS

Our windowpanes are insulating public and private facilities across Japan, including the National Environmental Institute in Tsukuba, Nagoya University's Noyori Memorial Research Center, the Aichi Japan Expo pavilion, and prominent residences and businesses in Tokyo. Affinity smart windows recently debuted in Europe at Munich University's town hall.

Japan's Director-General for Natural Resources and Energy has recognized Affinity as a leading contributor to 21st century energy conservation technology, and the prestigious Nikkei Group has conferred on Affinity the Global Environmental Technology Award.



### PARTNERSHIP OPPORTUNITIES

Affinity wishes to partner with glass manufacturers in the United States who share our goal of producing the most advanced and reliable intelligent window solutions. Architects and contractors who desire superior building technology for their clients are also encouraged to contact us.