

# Inventions & Innovation Project Abstract

## A Sunlight Responsive Thermochromic Window System

After many years of discussion, market desire and development attempts there are still no commercially available variable tint, energy control windows with acceptable cost, performance and durability characteristics. However, Pleotint has embarked on a novel approach with their effort to commercialize Sunlight Responsive Thermochromic, SRT™, windows. They are integrating dynamic sunlight control, high insulation values and low solar heat gain together in a high performance window. The Pleotint SRT window is dynamic because it reversibly changes light transmission based on thermochromic, TC, materials activated directly by the heating effect of sunlight. Pleotint L.L.C. can achieve a window package with low solar heat gain coefficient (SHGC), a low U value and high insulation value. At the same time their windows provide good daylighting. Their innovative window design offers architects and building designers the opportunity to choose their desired window color, self-cleaning layers, excellent sound reduction and resistance to blast, bullets and hurricanes. Glazing installers will have the ability to fit the windows with traditional methods without wires, power supplies and controllers. SRT windows would provide energy savings that are estimated at up to 30 percent over traditional window systems. Pleotint has received two US Patents with a total of 237 claims for its SRT window product and has patents pending throughout much of the industrialized world. Significant progress has been made in the development of SRT windows and yet improvements are needed.

Pleotint estimates that 80 percent of their effort will be to identify, make and then test TC materials and their combination with matrix polymers. The remaining effort will be to engineer the glass IG system, the liquid lamination process, seals for the glass and computer work associated with energy calculations. The base IG system will be modified only as necessary to accommodate the middle TC glass layer. When the material that satisfies the cost, performance and durability criteria is found the SRT window can be rapidly turned into a manufacturable product in a straightforward manner.



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