Massachusetts Technology Assessment Committee (MTAC)

Electrochromic Windows

Date reviewed: 06/18/2015

Description of Technology

Electrochromic windows have the ability to control the amount of light and heat passing through windows when a charge is applied. A burst of electricity is needed for changing its opacity and SHGC, but no constant electricity is needed to maintain those properties. The effects can be controlled via a wall switch or smartphone app.

Energy Saving Opportunity

Sector(s):	☑	Residential
	☑	Commercial & Industrial
Applicability Criteria:		Buildings with ample sun exposure
Efficiency Improvement:		Change window properties to deduce lighting and cooling load
Energy (%) Savings Potential:		Highly variable
Demand (%) Reduction Potential:		Highly variable

Strengths

- Allowing visible light to pass through windows without letting any heat through, therefore reducing cooling and lighting needs
- Flexible control logarithm allow for different sequences depending on building need
- Electrochromic windows can reduce glare without the need for shades or blinds

Weakness

- The time it takes for electrochromic windows to change from clear to opaque and back again may feel long to building owners and occupants
- As stated in a third party analysis, technology works well in "warm sunny climates, but the intelligent control of window tint may has a negative impact in cold climates, through the loss of passive solar heating"

Third Party Analysis/ Previous MTAC Reviews

- Demonstration Program for Low-Cost, High-Energy-Saving Dynamic Windows report (ESTCP Project EW-201252)
- The Energy-Savings Potential of Electrochromic windows in the US Commercial Buildings Sector

Suppliers Known to MTAC

- SAGE Electrochromics
- EControl-Glass
- View Dynamic Glass

MTAC Status

Acknowledged to have energy savings potential and recommended to individual PA for their own EE program consideration

Market Development Issues

Cost:	Varies
Market Risk and Barriers:	May be hard to justify cost in cold climates
Time to Market:	Currently on market
Simple Pay-back: (Years)	Varies