



SageGlass®



CHILDREN'S HOSPITAL OF PHILADELPHIA  
PENNSYLVANIA, USA

# IMPROVING THE PATIENT EXPERIENCE: DYNAMIC GLASS IN HOSPITALS

Many studies have shown that access to natural light in health care settings like hospitals has a positive impact on patient and staff comfort. In an International Journal of Energy Engineering study of hospital staff, 92 percent of respondents said patients are more comfortable in rooms with access to daylight. Additionally, more than three quarters of respondents said daylight in a patient's room allows them to do their work more easily and aids in interpreting and recognizing patient recovery.

There's also evidence that daylight can aid in patient outcomes. According to a study from the UK-based Building Research Establishment (BRE), access to daylight in health care facilities reduces average length of stays, speeds recovery times and reduces the need for pain relief.

Dynamic glazing is an ideal glazing solution for buildings due to its ability to improve thermal and visual comfort, offer unobstructed views of the outdoors and allow for greater control over the indoor environment.

To measure these outcomes, Children's Hospital of Philadelphia (CHOP) launched a pilot study to determine if installing dynamic glazing, specifically electrochromic glazing, in pediatric inpatient rooms improved the environment for patients, their families and hospital staff.

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**International Journal of  
Energy Engineering**



## THE STUDY

In this research study, conducted from February through August of 2017, two south-facing pediatric inpatient rooms at CHOP were retrofitted with dynamic glazing while maintaining the existing blind system to ensure patient privacy in the hospital's urban setting. An adjacent control room containing a standard low-e glass window with blinds was simultaneously observed to serve as a point of comparison.

Exterior light sensors and the electrochromic glass control system were installed and configured to automatically tint, allowing for daylight and glare control within each patient room. Wall switches were installed in each patient room to allow patients and their families to control and override the glass.

The research study focused on three areas: comfort surveys from staff and families; environmental conditions data, including the tint level of the dynamic glass and window blind position; and radiant load with interior window temperatures data. Direct patient data was not gathered due to the young age of patients.

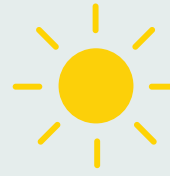
## THE RESULTS

Overall, CHOP staff members found that in pediatric inpatient rooms retrofitted with electrochromic glazing, patients and their families felt they had more control over their environment, which helped patients feel happier. Additionally, families were able to regulate the room and change it to their specifications, which was very important to them.

## CONCLUSION

Health care is a "people-centric" industry and health care facilities should be designed with patient and staff needs in mind. Dynamic glass solutions encourage thermal and visual comfort, offer improved views of the outdoors and allow for greater control over the indoor environment. In a health care setting, comfort and the ability to control one's immediate environment can aid significantly in both the staff's ability to carry out their jobs and a patient's mindset and health outcomes.

## Pediatric inpatient rooms retrofitted with electrochromic glazing achieved the following:



**3X**

Access to natural daylight and views **tripled** for improved visual comfort.



**45°**

Temperature reduction in the window cavity due to decreased radiant energy, showing the potential for improved thermal comfort.



**62%**

Of CHOP staff members surveyed found an environmental improvement for patients due to having more control over their environment.



**45%**

Amount of time blinds were fully open in rooms with dynamic glass compared to **14%** in rooms with static glass.

## WHY SAGEGLASS?

The pioneer of the world's smartest electrochromic glass, SageGlass® is the ultimate connector between the built and natural environments. SageGlass tints on demand to optimize daylight, reduce glare and manage heat – all while maintaining unobstructed views of the outdoors. With SageGlass, architects and building owners can improve occupant comfort and reduce energy demand in buildings. As a wholly-owned subsidiary of Saint-Gobain, SageGlass is backed by more than 350 years of building science expertise. Learn more at [www.SageGlass.com](http://www.SageGlass.com) or join SageGlass on Twitter, Facebook and LinkedIn.



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