



BUILDING A BETTER BEHAVIORAL HEALTHCARE WINDOW

by Ian Stock P.Eng., President, Sherwood Windows Group

Introduction: Why Windows Matter in Behavioral Healthcare

For more than 150 years, we've understood that sunlight and windows play a vital role in the mental and physical well-being of institutionalized individuals. As early as 1862, Irish Inspector General John Lentaigne observed in his report on Dublin's Kilmainham Gaol that "*the direct rays of sun exercise an important influence on the physical state of man, [and] his mental diseases.*" He concluded that "a large window be installed at the end of the hall" to alleviate the institution's oppressive gloom.

Today, that early insight has grown into a robust body of research known as Evidence Based Design. In the context of Behavioral Healthcare, we now know that windows can do far more than let in light: They can promote healing, enhance safety, and improve therapeutic outcomes. This white paper explores the evolution of Behavioral Healthcare windows and how Sherwood's purpose-built products – setting the new standard in security window solutions – are helping redefine their role in patient-centered design.

Unique Fenestration Requirements

Over the past two decades, Sherwood Windows has designed and fabricated aluminum glazing systems for Behavioral Healthcare facilities across North America. During this time, the growing emphasis on Evidence Based Design has shaped our approach, highlighting how a window can become part of the therapy, not just the containment.

Behavioral Healthcare design today is informed by a wealth of research that underscores how environment influences patient outcomes. Windows must meet a wide range of performance requirements, from daylighting and views to safety, privacy, and patient autonomy.

In recent years, design teams working in adolescent and behavioral healthcare settings have highlighted how access to nature – whether through direct sensory experience or simply through unobstructed views – can reduce impulsive behaviors, help restore concentration, and even have the same effects as ADHD medications in the adolescent mind. These insights, rooted in environmental psychology and attention-restoration principles, reinforce the idea that even small architectural choices, such as window design and placement, and the ability to see, smell and hear nature, can influence therapeutic progress and contribute to overall well-being of both patients and staff.

Designing for Security and Safety

From the outset, safety and security are foundational.

Windows must:

- Eliminate ligature points and sharp edges
- Prevent patient escape and unauthorized external access
- Resist breakage, concealment, and contraband passage
- Withstand impacts without component failure or weaponization

Early designs demonstrated that off-the-shelf architectural windows were not sufficient. Drawing on our experience in architectural and detention settings, and undergoing rigorous testing protocols (a combination of soft- and hard-body impacts) to simulate the demanding abuse windows might endure in-service, Sherwood engineers purpose-built windows with robust aluminum framing, secure anchorage, and fixed-security glazing.

Therapeutic Design Considerations

Today, Behavioral Healthcare windows must balance safety with therapeutic value. Large, low windows with unobstructed views provide visual and sensory access to nature. Operable blinds allow patients to control privacy and light levels. Fresh air access adds sound and scent stimuli, enhancing orientation and connection to the outside world. These features, while difficult to incorporate into a secure window, play a vital role in calming patients and improving therapeutic outcomes and ensuring safety.



Facilitating clear views and calming spaces: Engineered for healing, but built for safety.

Innovative Solutions: Security Sash & Operable Blinds

In 2011, the introduction of operable blinds (rather than tear-away window coverings) in patient rooms provided privacy and shading control, but it also posed safety concerns. Our solution: A hinged security sash that isolated the blind, met impact resistance standards (2,000 ft-lb), and gave patients the ability to adjust lighting and privacy without compromising safety. Thousands of these systems are now installed in institutions across North America.

Our blind systems, built with slip-clutch mechanisms and patented ligature-resistant operators, perform reliably over time. Properly sealed sashes also prevent dust and debris accumulation. Despite initial intent, hinged sashes were rarely opened for cleaning. This led to the development of a fixed sash, secured with concealed multi-point locks. The sash can be easily and quickly removed and replaced if necessary. However, we have yet to replace a single blind or sash across thousands of installations.



Safety-first design: Hinged security sash over manual blind solution.

Engineering for Durability

A properly engineered system distributes impact loads across the assembly, allowing even conventional laminated safety glass to meet 2,000 ft-lb AAMA 501.8 impact standards. In Level 3 and 4 forensic settings, rooms have been destroyed by occupants, yet no Sherwood glazing failures have occurred, even under extreme assault.

Selecting the Right Glazing Infill

No single glazing solution suits all Behavioral Healthcare environments. Material selection depends on threat level, supervision, cost, and maintenance needs. Options include polycarbonate, glass-clad polycarbonate, laminated glass, and security mesh. Each project must be tailored accordingly.

Thermal Design Realities

Healthcare's high interior humidity in cold climates makes thermal design critical. The risks of condensation and mold are real. Sherwood's systems deliver the performance necessary to mitigate these risks through careful design and material selection.



Clean lines. Secure seal. Fixed/removable sash without exposed locks.

Holistic Product Design

Sherwood has taken a modular approach to meeting the design challenges, using proven purpose-specific products. The basis of the window is perimeter framing (and mullions and transoms if desired) using our industry standard curtain wall system, in either 2-1/2" face width or 1-3/4" narrow sight-line framing, with conventional 1" sealed units where exterior threat is not a constraint. This framing provides proven environmental protection from the exterior elements, and the interface and tie-in to the substrate (anchors, membrane barriers and sealants). This approach also allows the architect the latitude to match security glazing to the rest of the building's curtain wall or window systems, without the security areas standing out as obvious and unique.



Matching architectural aesthetics: Security framing without visual compromise.

Security Sull Sash

The security sull sash offers an impenetrable barrier between the blind and the occupant, offering a range of security options. The sull sash is designed such that it forms a flush interior plane, eliminating the edges, corners and ligature points that can pose self-injury threats. A sash tightly air-sealed to the frame around the perimeter effectively creates a triple glazed system in conjunction with the conventional double-pane sealed unit. This design aspect is crucial to achieving the highest levels of thermal performance and sound attenuation, while avoiding the conditions for condensation. For maintenance purposes, attic stock of standard sized sashes ensure that in the extreme case of breakage, the room is out of use for only a very short period of time.

Blinds Behind Glass, Not "In Glass"

The use of stand-alone blinds and "fixed-removable" security sull sashes offer a variety of benefits. Keeping the blind an independent element offers flexibility in function (from simple manual operation to fully automated intelligent motor driven, tied into a building automation system), and associated cost. It also makes replacement of the blind relatively inexpensive and quick, in comparison to blind-in-glass solutions.

Ligature-Resistant Blind Operator

In an industry-first advancement, Sherwood has engineered a proprietary ligature-resistant blind operator that improves both patient safety and operational durability. Traditional thumb-turn operators can present ligature risks, posing a serious risk in Behavioral Healthcare environments. In response, our team designed a shrouded, low-profile operator knob that eliminates the ligature point while remaining intuitive and accessible for patients.



The industry-standard thumb-turn operator vs. Sherwood's patented shrouded operator.

This design is now protected by US and Canadian Design Patents and is being adopted across new and retrofit installations. It exemplifies Sherwood's commitment to innovation in Behavioral Healthcare, combining real-world feedback, field testing, and engineering precision to create a safer, more effective standard for patient window control.

Operable Vents

The addition of the operable vent posed the most interesting design challenge. Sherwood delivers the operable functionality through its Aero-Vent, a rotating tubular vent that provides sound, smell and sensory connection to the exterior environment in an unobstructed, low-profile configuration. Fitted with maximum security mesh, the assembly is resistant to egress, concealment, or damage. The Aero-Vent presents as an architectural feature across the bottom of the window. It is fully operable by the patient, providing sound and air infiltration at patient-seated height. The Aero-Vent is lockable, and can be fitted with sensors to indicate when in the open or closed position. When open, the Aero-Vent provides sound transmission and air flow equal to that of an awning with a much larger surface area. The Aero-Vent is thermally broken and insulated to maintain the overall thermal performance of the assembly.



Sherwood's operable Aero-Vent: Patient-controlled airflow in a secure, low-profile design.

Overhead Powered Vent

Alternatively, a powered overhead vent above the vision vista provides fresh air access. Located out of reach, it operates behind security mesh via wall switch and can be tied into building automation.



Above sightline, below risk: Sherwood's powered vent ensures safe, fresh air circulation.

Conclusion

The design requirements of Behavioral Healthcare facilities are as unique as the patients themselves. Through decades of experience, extensive research, and continued innovation, Sherwood Windows is now setting the new standard in secure, therapeutic behavioral window design, with a residential look and feel. By making the window a contributor to healing – not just confinement – we are helping transform the way Behavioral Healthcare environments support recovery and safety.

SERIES MHW 6200

BEHAVIORAL/MENTAL HEALTHCARE SECURITY WINDOWS

Today's Behavioral/Mental Healthcare facilities call for innovative patient room glazing solutions that integrate the highest safety & security standards, and the aesthetic and patient controllable features required to facilitate therapy and enhance recovery.

The MHW 6200 Series of security windows offers the features, quality and design expertise that owners, architects, specifiers and contractors have come to expect from The Sherwood Windows Group.

- BLIND BEHIND GLASS
- OPERABLE VENTS
- SAFE & SECURE



LET THE GLAZING BECOME PART OF THE THERAPY.

Features

- Operable Aero-Vent
- Blind secured behind glass
- Anti-ligature
- Flush interior surfaces
- Secure against breakage (egress & self-harm)
- Fully thermally broken weather barrier
- Flexible design
- Fixed/removable security sash
- 100% aluminum (interior & exterior) security frame
- Lockable
- Triple glazed

Benefits

- Fresh air ventilation
- Large unobstructed vision vistas
- Sensory connection to exterior (sight, sound & smell)
- Allows blind control by patient (manual or electric)
- Allows patient to control the vent (lockable feature available)
- Improved energy efficiency
- Superior noise reduction
- Scratch and vandal resistant
- Superior strength
- Flexible exterior finishes

Current Certified Test Reports Ensuring Full ASTM Compliance

TEST	ASTM E330-02	✓
	ASTM E331-00	✓
	ASTM E283-04	✓
	ASTM E547-00	✓
	BS6206: 1981	✓
	AAMA 501.8	✓
	NFRC 102	✓
	CSA A440.2	✓
	ASTM E90	✓

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