UNICEL ARCHITECTURAL | Defining the Space Within®

Case Study

Valley Health System's The Valley Hospital

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VISION CONTROL®

Overview

Client/project name	Valley Health/The Valley Hospital
Location	Paramus, NJ, USA
Architect	HDR
General Contractor	Torcon
Glazier	County Glass & Metal Installers
Glazing Materials for Windows and Doors	Unicel Architectural

The new Valley Hospital represents a transformative investment in community healthcare—bringing together decades of clinical excellence with a forward-looking vision for patient-centered design. Located in Paramus, New Jersey, the 890,000-square-foot replacement campus officially opened in April 2024, redefining how care environments can balance advanced technology with human comfort.

Designed by HDR, the facility embraces a "high-tech, high-touch" philosophy, blending sophisticated medical infrastructure with a warm, open, suburban-inspired setting. Every aspect of the hospital—from spatial planning to material selection—was carefully considered to enhance both patient outcomes and caregiver efficiency.

As a fully accredited, not-for-profit institution, Valley Hospital builds on more than 75 years of service to the community. The new campus expands that legacy with a comprehensive range of emergency, inpatient, and outpatient services, including specialized care in oncology, cardiology, geriatrics, palliative care, and critical care—positioning the hospital as a leading healthcare destination in the region.

Challenges and Objectives

Valley Health required 352 conversion-ready, all-private inpatient rooms, along with a new dedicated women's pavilion and emergency department. All installed glazing had to meet the hospital's strict air leakage standards for both infection control and fire emergencies.

Hospitals like Valley Health rely on carefully controlled air pressure environments to support infection prevention. Per ASHRAE Standard 170, rooms must maintain a minimum differential of .01 inches of water gauge. Achieving these pressures demands an exceptionally airtight building envelope, including all windows and glass doors.

In addition, smoke containment strategies required the building to be divided into compartments using continuous smoke barriers. Rather than evacuating vulnerable patients, this approach confines smoke to specific zones. As a result, all glazing components had to meet stringent air leakage requirements under the UL 1784 testing protocol.

Beyond performance requirements, the project introduced a range of complex design challenges. These included the need for clear sightlines into patient rooms and nurseries from hallways, alcoves, and nurse stations; vision panels above nurse stations; and integrated glazing within doors to reduce corridor noise without sacrificing visibility.

Additional objectives included:

- Enabling healthcare staff to discreetly monitor patients while providing intuitive, user-controlled privacy
- Maintaining visibility and privacy without compromising fire compartmentation or X-ray protection
- Supporting a care environment that reflects Valley Health's long-standing commitment to compassion and community

Solution

To achieve the ideal balance of visibility, privacy, and acoustic control—while maintaining precise air pressure differentials and airtight compartmentalization—Unicel Architectural supplied more than 1,000 hermetically sealed Vision Control® and Vision Control® Mini units featuring standard glazing.

These insulating glass units incorporate precision-engineered louvers that allow seamless control over vision, light, temperature, and sound. Unlike traditional blinds or curtains, the integrated system eliminates cleaning challenges and reduces infection risks—an essential requirement in modern healthcare environments.

The installation included:

- More than **400 Vision Control® units** with dual fan-shaped thumbwheel operators for windows
- More than **330 Vision Control® units** with dual fan-shaped thumbwheel operators for swing doors
- More than **150 Vision Control® Mini units** for sliding doors
- More than **20 Vision Control® units** featuring 45-minute fire-rated glazing on one side and laminated lead glass on the opposing side for radiation shielding

A smoke barrier test was successfully completed, with a Unicel Architectural representative on-site to observe and validate performance. Diagnostic tools were used to visually trace any potential air leakage through microscopic joints, allowing for immediate identification and correction.

Results

Vision Control® and Vision Control® Mini units were seamlessly integrated across observation nurseries, patient rooms, nurse stations, alcoves, and door systems throughout the facility. The result is a cohesive environment where visibility, privacy, and acoustic performance work in harmony to support both patients and staff.

Healthcare professionals at The Valley Hospital now benefit from enhanced, hygienic visibility into patient spaces. The adjustable louvers provide precise, user-friendly control over privacy and sound transmission—even from outside the room—improving both workflow and patient experience.

With airspace options ranging from 1” (25.4 mm) to 2 1/2” (63.5 mm), Vision Control® delivers sound transmissibility performance comparable to solid concrete, meeting or exceeding U.S. Sound Transmission Class (STC) requirements for healthcare facilities.

This successful integration further strengthens **Unicel Architectural’s healthcare portfolio**, which includes projects such as the Goshen Hospital Patient Tower, the VA Healthcare Center in Ann Arbor, the East Alabama Health NICU, and the Piedmont Athens Regional Medical Center.

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