



CASE HISTORY

Visual System Designed with Vikuiti™ Rear Projection Screen Casts Bright Light on Programs, Services at Minneapolis Church



The stained glass windows at Trinity Lutheran Church of Minnehaha Falls, Minneapolis, Minnesota, are one of the church's primary architectural features. Triangular-shaped and ceiling-high, the windows with their blue, red and green panes bring warmth and color to the sanctuary. Yet these windows – seven along each side of the 90-foot sanctuary – were also the primary drawback when it came to adding visual presentations to services and programs.

“Our problem was that we had too much ambient light,” said the Reverend Tedd Ostrem, pastor of Trinity Church. “Our original solution was to install a large front-projection screen on the wall behind the altar. Unfortunately, it took up almost half of the wall and covered some unique carvings, plus the images were so washed-out the congregation couldn't read or see what was on the screen. It was more of a distraction than an asset.” Not until the church installed a Vikuiti™ rear projection screen from 3M Optical Systems Division – specifically designed for projecting bright images in daylight conditions – were parishioners convinced that audio visual technology had a role in building community. And that is one of the primary values for the church.

Visual system helps tell the church story

Trinity Church was established in the early 1900s in a working-class neighborhood of south Minneapolis, an area which has recently seen a resurgence of young families. The church has especially strong programs for children and youth ministry, as well as a worldwide mission.

“It's important for us to communicate to our church members and to our neighborhood the story of what and how we're doing,” said Ostrem. “Adding A/V to worship services and to our outreach programs helps us to accomplish that. For example, when we videotape a baby being



Vikuiti™ rear projection screens are easily visible throughout the church even in bright daylight, and were designed to blend in with existing church architecture.

baptized, or a couple exchanging wedding vows, and display those images on the screen, or even project the liturgy and hymns during Sunday services, we find the congregation feels more involved. And whether it's a weekly supper or our fall festival, we invite the whole neighborhood and give a presentation on our missionaries or other activities. It's a great way to tell people what we're up to and invite them to participate."

The present church, built in the 1960s, features brick walls and stone floors. Forming the entire wall behind the altar is a unique carved oak screen, or reredos, designed by the late Arnold Flaten, sculptor and art professor, St. Olaf College, Northfield, Minnesota. Together with the large windows, these immense and somewhat sparse surfaces create a monastic feeling, and the architectural features can pose a challenge for communicating modern-day church programs or outreach. "We had to work with what we had to incorporate A/V," said Ostrem. "Remodeling wasn't in the budget, and no one really wanted to cover the windows just so we could show slides. Pulling a huge white screen across the reredos was never a satisfying solution, either."

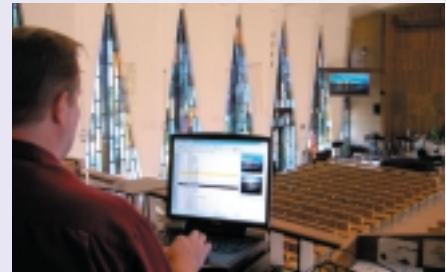
Screens are inclusive, not intrusive

A chance encounter led to the answer, according to Paul Krumrich, president of Spyeglass™ LLC, Minneapolis, which designs, customizes and distributes audio-visual systems using Vikuiti rear projection screens. "One of the parishioners saw a tabletop booth, which featured the Vikuiti screen, at a professional basketball game, and asked us to come to the church to take a look," said Krumrich. "He thought the bright visuals might be the solution they needed – something that did not compromise the windows, the oak reredos or any other architectural feature. An important goal was that the display enhance the church features rather than intrude on them."

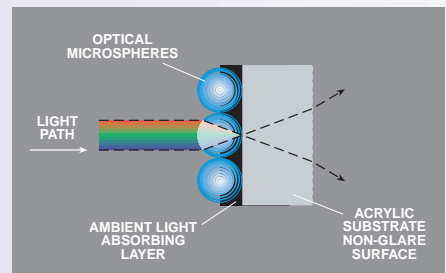
At the initial meeting, Krumrich demonstrated a Spyeglass tabletop display that featured a 40-inch Vikuiti screen, stand-alone base, projector and DVD player. He placed the display next to the window with the greatest light exposure. "The board members were amazed that they could see the image so clearly from various locations, despite the natural daylight," said Krumrich. A second demo, provided for Palm Sunday services, included an 80-inch screen and 3500 lumens projector. Again, there was virtually no sign of wash-out.

Glass bead technology enhances image

The clear, bright images the congregation saw were the result of 3M microbead technology. The Vikuiti™ XRVS Rear Projection Screen is designed both to reject ambient light and to enhance light coming from the projector. The Vikuiti rear projection screen consists of three layers: a layer of optical microspheres, a light absorbing layer, and an acrylic layer with a non-glare surface. The layer facing the projector is coated with millions of optical microspheres, which focus the light so it exits at just one small point (see diagram). This layer refracts light from the projector. The black layer in the middle absorbs ambient light, which contributes to the high-contrast image and reduces screen glare. The projected light passes efficiently through this black absorbing layer and



Jim Engstrom, church media coordinator, controls the system from a PC located in the balcony.



The Vikuiti rear projection screen is made up of millions of optical microspheres that focus the light for a clear and bright image.

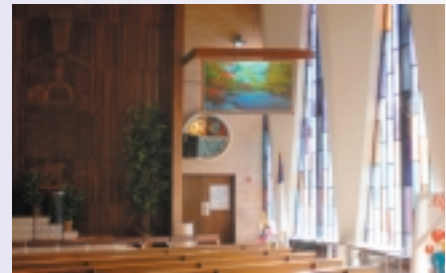
diffuses throughout a durable acrylic non-glare surface, which is facing the viewer. This three-layer combination enhances brightness and contrast, and preserves rich colors and high resolution, even when the screen is viewed from the side.

The result is a high-contrast image visible from most angles and under normal lighting conditions.

High-tech system integrates into 40-year-old church

The church board was convinced that the screen would project a bright image, but how could it be installed unobtrusively in the church? Again, Spyeglass versatility provided the answer. "While we primarily customize and distribute systems for A/V integrators, we recognized that this application required some special design work for it to succeed," said Krumrich. "It was important that the installation blend in with the reredos." A team of in-house designers and engineers designed and built frames and supports for two 95-inch diagonal screens – the largest available – one on each side of the altar. They also built matching supports for the projectors. The system includes two Hitachi CPX-885 3500 lumen projectors, and a Key Digital matrix switcher, located in the balcony, to feed the projectors. Three monitors in the front of the altar give musicians and other participants views of what is being shown on the screen. Live video, DVDs, song lyrics and other visuals are now a regular part of the services and programs at Trinity Church.

"We've solved the light issue without losing our windows, and have an important tool to help us build our church community," said Ostrem. "This solution blends in not just with the church architecture, but with our entire church mission. We're very pleased with the result."



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