

## Project Report

### St. Louis Abbey Priory Chapel

St. Louis, Missouri



Photography: John Langholz, AIA

Architecture: Gyo Obata of HOK

# KALWALL®

high performance translucent building systems

## KALWALL SPECIFICATION:

Panel: 2.75" | 70 mm

Grid core: shoji

Exterior FRP: priory gray

Interior FRP: crystal

System finish: black #95

U-Value: .40

Solar Heat Gain Coefficient: 0.20

Visible Light Transmission: 14%

## WHAT IS KALWALL?

A translucent, structural sandwich panel that provides:

Glare-free, balanced daylighting

Superior thermal performance

Energy + electricity saving

Low maintenance life cycle requirements

Safety + security through visual privacy

Durability + graffiti / vandal-resistance

Hurricane, explosion venting + blast rated options



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For unparalleled thermal performance in translucent daylighting, consider specifying Kalwall with **CABOT's Lumira®** aerogel insulation. Available in 2.75" (70 mm) panel formats up to: 4' x 12' (1200 mm x 3600 mm) and 5' x 10' (1500 mm x 3000 mm) maximum.

## St. Louis Abbey Priory Chapel

This half-century-old daylighting design, commemorated for character and effectiveness and the roll it has played, is more than a mere chapel on a school campus but is a spiritual beacon, which serves the mission of the monastic community and those who work with them.

April 26, 2012 was a very special day in Missouri as the 50th Anniversary of the iconic Saint Louis Abbey (Priory Chapel) was commemorated. The day's program included comments from the famed architect Gyo Obata, FAIA, whose revolutionary design is as dramatic today as it was 50 years ago. According to Obata, "Kalwall was then a fledgling company willing to take a risk with us."

Kalwall's unique translucent sandwich panel is a composite of two translucent fiberglass face sheets bonded to a structural grid core. The system is highly insulating yet transmits controlled natural daylight. "I designed the exterior to be black, but the strength of the sunlight allows the interior to be soft white light," said Obata.

To quote the Saint Louis Abbey guide to the church, "The distinctive atmosphere of the interior is created by the quality of light admitted by the (Kalwall) windows and by the simplicity of the materials used. The chapel's window-walls are formed of insulated fiberglass polyester material (Kalwall), which in daylight appears black from the outside but from the inside has the translucency of alabaster.

This material excludes ninety-four percent of the outside light, but its area is so great that the total effect is one of serenity and brightness. The architect and the artists have strengthened this atmosphere of serenity by their self-restraint in limiting themselves to a few simple and strong materials for the church interior and appointments. The ceramic floor and white translucent walls blend with the Georgia granite of the altars and the red oak of the ambo and pews. The total effect is one of calmness and strength, suitable for a monastery church.

The architectural form of the church is also its structural frame.

This building was the first thin-shelled concrete structure of its type to have been built in North America. It consists of two sets of thin concrete parabolic shells on two levels, set in twenty identical bays tapering toward the center of the circular plan. The shells spring from V-shaped rib beams on radii which span upward through a clerestory ring beam and meet at the crown against a smaller ring. Above the shell is a 32-foot-high bell tower of concrete. The ribs together form a cage acting as a dome, 40-feet-high inside and 134 feet in diameter. The upper ring of the arches serves to define the inner worship area where the liturgy is celebrated. The central skylight under the bell tower gives light and emphasis to the altar."

One monk commenting on the impact of the translucent Kalwall mentioned, "Very late in the day we almost get a red glow from the low sun. And when the geese fly by, we can see their silhouette through the panels."

At the culmination of the program, the Benedictine monks chanted to demonstrate The Chapel's amazing acoustics created by the design and materials.

Designed by Gyo Obata of Hellmuth, Obata and Kassabaum (HOK), with the Italian architect and engineer Pier Luigi Nervi serving as consultant, the Abbey Church was an important landmark and name-making project for HOK, who is one of the largest U.S. based architecture-engineering firms in the world.

