

## Project Report

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### South Bend Regional Airport

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South Bend, Indiana



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Photography: Abstract Photography, Inc.  
Architecture: Ken Herceg and Associates Inc.



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# KALWALL®

high performance translucent building systems

## KALWALL SPECIFICATION:

Panel: 2-3/4", standard
Grid core: shoji
Exterior FRP: white
Interior FRP: white
System finish: bone white #21b
U-Value: .22
Solar Heat Gain Coefficient: 0.15
Visible Light Transmission: 8%

## 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 the best thermal performance available in any translucent daylighting technology consider specifying **Kalwall + Lumira®** aerogel insulation for panel U-Values up to 0.05 (R-20). Available in panels sizes up to: 4' W x 12' L or 5' W x 10' L x 2-3/4" thick

## South Bend Regional Airport

The terminal is a significant update for the regional airport with the latest in comfort and convenience. Concourse A is a new 45,000 ft² expansion with 5 new gates, dining room, lounge, gift shop and a children's room. "The new concourse consists of an architecturally exposed, steel-framed barrel vault structure that simulates the structure of an aircraft wing," explains Wall. "Holes cut in the webs of the custom-engineered, curved, perforated (cellular) built-up plate girders and cellular purlins (SMARTBEAMS®) make the long structural elements visually and figuratively lighter as they arch over the concourse. The arch is raised on one side with a continuous north-facing clerestory and is topped with a custom-fabricated, curved translucent panel roof system by Kalwall, which bathes the concourse in natural light. After entering the concourse through the windowless security area the bright open space provides a welcoming waiting area."

"We designed a translucent roof as a key element to the airport concourse," continues Wall, "...we understood that Kalwall is the leader in the industry and has the track record to accommodate the design we needed. Kalwall was able to not only provide detailed product information, but they did a comprehensive light study of our design that enabled us to achieve the appropriate light level." Kalwall has been an industry leader in daylight modeling innovation that allows architects to examine "what if" alternatives while they demonstrate to clients the impact daylight will have on their finished project. Kalwall's proprietary Daylight Modeling service is site specific to each project and includes a comprehensive array of reports and demonstrations including 3D video modeling, which even shows what a designed space will look like during various times of day throughout the year.

The custom Kalcurve® Skyroof® is 35' wide and 600' long and has a 42' radius. "Gone is the gray box of a terminal, with its food provided by vending machines and its entertainment by a Ms. Pac-Man video game," said Dave Stephens of the South Bend Tribune in a local article. "In its place... is a cavernous light-filled space that looks and feels like a wing of a major metropolitan airport with flat screen monitors and food court service." As also seen in many airports around the world, a curved Kalwall Skyroof fills the space with glare-free daylight. Kalwall is the most highly insulating, translucent building material in the world. In addition to the daylighting benefits, Kalwall represents the leading edge of energy efficiency and is ideal in airport applications, as it is also virtually maintenance-free. Normal rainfall cleans the panels and saves on the expense of washing clear skylights, which are constantly dirty in an airport environment due to the presence of jet exhaust.

Translucent Kalwall building systems are also renowned for their ability to withstand high snow loads as well as hurricane force winds. Kalwall is also explosion resistant and Department of Defense security compliant which is another advantage for airports. "Kalwall provided support throughout design and construction phases. The light studies during design were invaluable to setting the correct parameters for the project. Having energy savings and natural light was a big draw to using a translucent roof. Because of the size of the roof area, the glass skylight we were considering was not acceptable for a number of reasons, including that it would let out too much heat. Kalwall's R-value, while not as high as a solid roof, allowed us to have an acceptable level of insulation with the added benefit of natural light. Also the project includes a daylight harvesting system. Sensors turn off lights automatically based on the light level - saving energy used for artificial lighting."

Construction took place in three phases over a 2-year period in order to allow the airport to operate with uninterrupted operation of all flights. The Kalwall Skyroof significantly contributed to this effort, as systems are pre-engineered and factory pre-fabricated for rapid installation. This speeds the construction process, lowers costs and results in leak-proof, trouble-free installation.

