

Insulation
USA



Kingspan[®]

Case Study: High Museum of Art

Kingspan's Ultra-Thin Insulation Solution
Enhances Atlanta Art Museum

THE PROJECT

The High Museum of Art, the largest museum for visual art in the Southeastern United States, underwent a roofing replacement project in 2023. The previous roof was nearly 20 years old. An artistic part of the roof, not involved in the latest replacement, has more than 1,000 circular skylights penetrating the membrane. It was paramount that the new roof kept the architectural vision of the building intact.

Kingspan's OPTIM-R Roofing System was selected as the solution in keeping with the design of the building, meeting increased energy code requirements for energy efficiency while minimizing disruption to existing rooftop equipment. Merik, Inc. provided design services for the roofing replacement project and oversaw construction. According to Bryce McQueen, President at Merik, Inc., he first learned about Kingspan's OPTIM-R from a colleague in the roofing industry and met with Kingspan at the IIBEC International Convention and Trade Show where he spoke with representatives and was able to see the products firsthand.

"The project at the High Museum of Art was a very architecturally unique and challenging facility originally designed by world-renowned, Pritzker Prize-winning architect, Richard Meier," said McQueen. "One of our primary objectives was to develop improved roofing details with thermal upgrades to meet current energy code requirements, without changing the appearance or character of the building. To do this, we didn't have sufficient clearance with more widely used roof insulation

Project Overview

Project Name:	High Museum of Art, Woodruff Arts Center
Location:	1280 Peachtree St. NE, Atlanta, GA
Building Type:	Art Museum
Kingspan Product Installed:	OPTIM-R
Roofing Contractor:	T.L. Gowin & Company, Inc.
Building Construction Consultant:	Merik, Inc.
Photography:	Gregory Campbell





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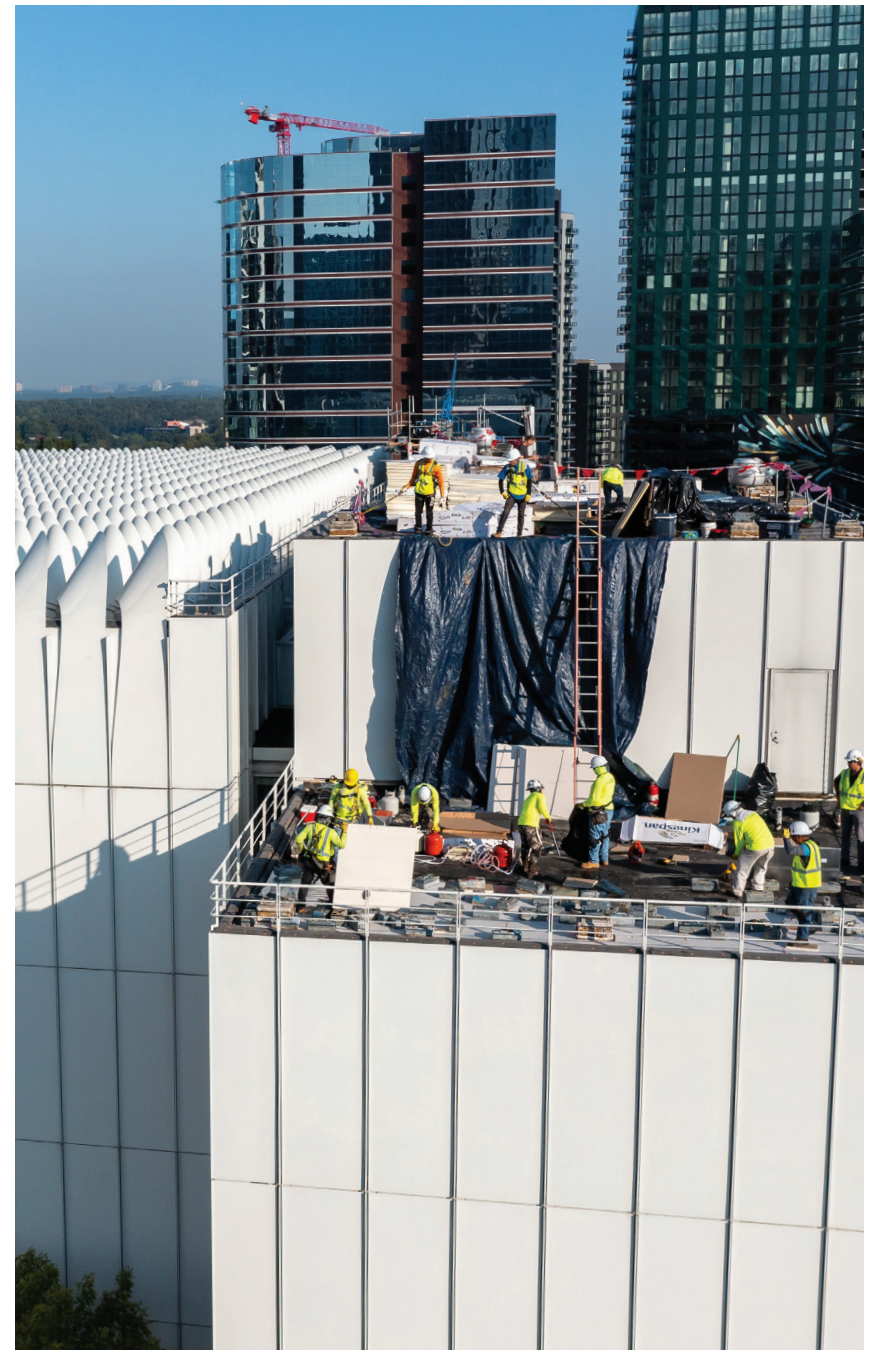
products containing lower R-values. OPTIM-R allowed us to achieve the energy performance we desired with a relatively low roof system height so that we didn't have to modify other architectural features around the perimeter of the building.”

OPTIM-R is comprised of rigid vacuum insulation panels with a microporous core which is evacuated, encased and

sealed in a thin, gas-tight envelope, giving impressive thermal conductivity, with thinner than common rigid insulation solutions. The vacuum insulation panels are accompanied with rigid thermoset polyisocyanurate (PIR) insulation infill panels which can be cut to fit around irregular roof penetrations. OPTIM-R achieved the code-required R-value with lesser thickness compared to conventional insulation products. This eliminated the need to elevate the numerous rooftop equipment in order to accommodate a significantly thicker roofing system, which would have been a major cost.



According to McQueen, cost savings was a secondary objective for the project; however, he feels that they accomplished two things in this area. “While we found that the initial cost for the OPTIM-R system is higher than more traditional roof insulation products, on a R-value per inch comparison the cost to the project was relatively the same,” said McQueen. “In essence, OPTIM-R is more expensive, but we needed a lot less of it than traditional polyisocyanurate insulation. Secondly, we were able to meet current energy code requirements for the building which we believe will result in long term energy cost savings to the owner.”



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From the point of view of the Project Manager, Austin Gowin, with T.L. Gowin & Company, Inc., “Installing the OPTIM-R board for the first time was very much like using any other insulation boards on the market. We started by measuring out our roof sections and chalking some lines in preparation,” said Gowin. “Having the drawing provided by OPTIM-R helped us in knowing how many of each of the different size boards we needed per section per day. The boards were very lightweight and easy to handle which made the process very fast and easy.”

PROJECT HIGHLIGHTS:

- By using OPTIM-R, the architectural look of the High Museum of Art could be maintained without extensive changes.
- 9,380 SF of OPTIM-R was used. The entire roof replacement project cost was more than \$6 million.
- The complete project duration was more than 12 months, with OPTIM-R installed over a 3 – 4 month timeframe. The project was completed by year-end 2023.





OUTCOME

According to Gowin, “I would definitely use the OPTIM-R board again in a situation like this where we were trying to achieve maximum amount of R-value in the least amount of inches. Overall, our experience with using OPTIM-R for the first time and working with the Kingspan/OPTIM-R team was fabulous with the responsiveness and hands on help.”

The complete roofing system used was a combination of Pro Base TG and Parapro Roof Membrane, the most robust roof membrane system Siplast offers for exposed roof applications. The modified bitumen of the Pro Base TG provided the elasticity to withstand insulation joint movement, while the PMMA Parapro Roof Membrane offered the highly durable monolithic finish ply. The Parapro Roof Membrane is unaffected by ponding water and a wide range of chemicals while withstanding the

occasional foot traffic associated with maintaining a roof as complex as the High Museum.

“We had enough confidence in the assembly to offer a 30-year system guarantee, and our partnership with Kingspan allows us to cover the OPTIM-R insulation in our guarantee,” said Justin Hughes, Sales Development Manager – Liquids, for Siplast. “Obviously, the nature of the High Museum and its contents demand ZERO failures.”

OPTIM-R’s high level of thermal efficiency, combined with minimal thickness, provided an ideal, cost-effective solution for the High Museum of Art. OPTIM-R made installation fast and easy by eliminating multiple layers of polyisocyanurate insulation. Creating a more energy efficient core, Kingspan’s OPTIM-R was the best solution for the High Museum of Art.

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