

Rosewood Elementary ICC 500 Storm Shelter

Case Study



CLIENT

Rosewood Elementary,
Broken Arrow Public Schools

CHALLENGE

How to effectively and affordably daylight
an ICC 500 storm shelter.

RESULTS

Students benefit from daylight
in the gym year round.

PRODUCT

6 Solatube SolaMaster 750 DS-O units.

DISTRIBUTOR

Specialties Plus

ARCHITECT

GH2 Architects

BACKGROUND: Since its formation in 1904, Broken Arrow Public Schools has become a dynamic leader in public education. The district serves more than 19,000 students in the urban-suburban community of Broken Arrow, Oklahoma. Due to rising enrollment, a new elementary school was needed to serve the Southwest portion of the district.

Rosewood Elementary is a 92,000-square-foot elementary school for grades kindergarten through fifth. Situated on a 40-acre site, the new facility showcases a bright, fun school design to inspire creativity and highlight STEM education.

The state-of-the-art gymnasium is a focal point for the new elementary school. Although not required by law, the district decided it was important to create a multi-purpose structure built to ICC 500 code. The 6,580 square-foot shelter serves the school and community as a safe haven

“Our gym really is a phenomenal place. It doubles as a FEMA safe room. Our entire school can fit in the room and when those doors are shut they’re safe from any kind of tornado or disaster.”

- Nathaniel Hutchings, Principal

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during high wind events and acts as a large multi-purpose space for the campus.

CHALLENGE: One of the most significant challenges with this project was finding a way to bring daylight to the shelter without the costly additions of penetration protection such as window systems or storm shutters. More than just a safe room, the gymnasium would be used daily for activities like PE (physical education), assemblies, school performances and other indoor recreation activities.

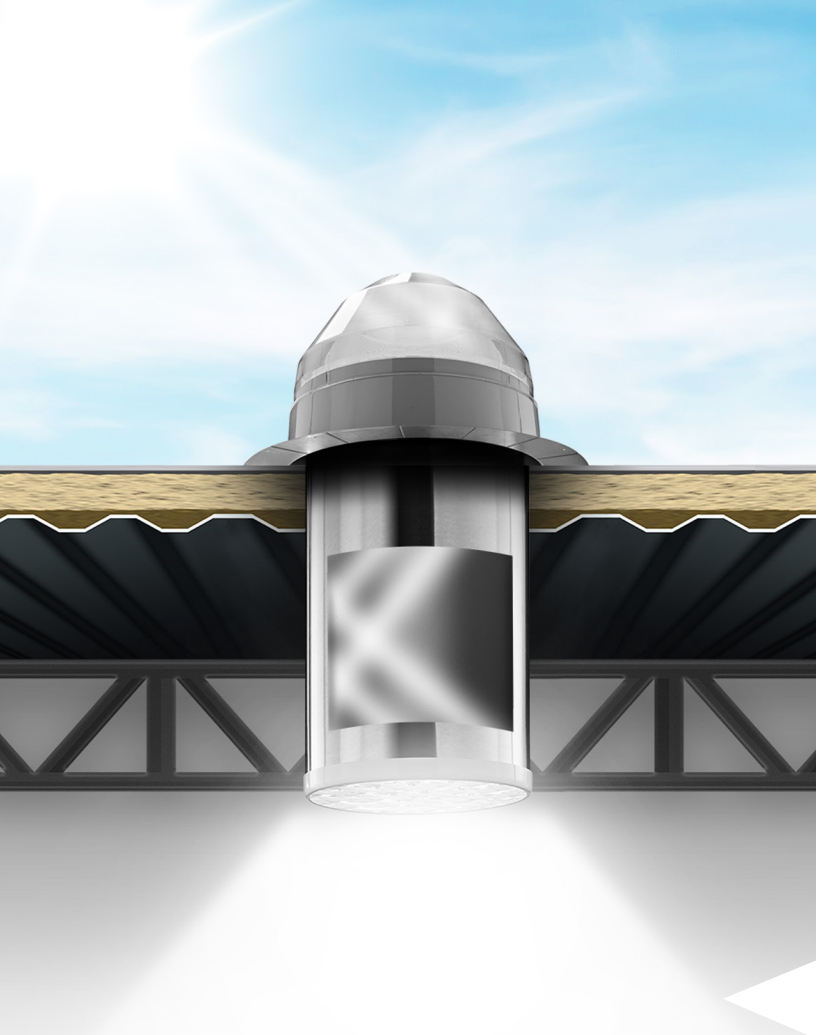
Studies by groups like Heschong Mahone and the University of Oregon have shown that broad-spectrum daylight, when incorporated into learning spaces, can help to increase test scores between 20% to 26%, improve cognitive skills, visibility and mood, reduce the number of absentee days and even reduce microbial communities associated with indoor dust by 50%.

With such great benefits, the district was keen on finding an energy-efficient daylighting solution that would meet ICC 500 storm shelter requirements, enhance the space and create a healthy and comfortable environment for students and teachers alike.

SOLUTION: Solatube Tubular Daylighting Devices (TDDs) are an affordable daylighting solution that have been able to solve the problem of window-less shelters. The Solatube 750DS-O is the only roof top daylighting device in the world compliant for use in an ICC 500 storm shelter and FEMA P-361 safe room – even in EF 5 territory.

In order to properly daylight the space, the project used six Solatube SolaMaster 750DS-O units.

RESULTS: Students, faculty and staff have a safe harbor in the event of a high wind disaster and benefit from the positive effects of daylight on a day-to-day basis.




Solatube Daylighting Product
for ICC 500/FEMA P-361 Compliance



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