



“Show Goes On” at Kravis Center for the Performing Arts

Full Mitigation Best Practice Story

Palm Beach County, Florida



West Palm Beach, FL - Vaulting walls of glass surround the entire lobby of the Alexander W. Dreyfoos Jr. Concert Hall at the Kravis Center for the Performing Arts in West Palm Beach. When Hurricane Frances (2004) came through, it severely damaged the roof membrane allowing rain to enter the building. This, in turn, resulted in severe damage to the interior of the structure. While work was underway to repair the roof and restore the interior, Hurricane Jeanne arrived. “Water coming in through the previously damaged roof, cascaded over the balconies from one level to the next and flowed down the grand staircase like a waterfall,” said James Mitchell, Sr., director of Building and Production Services at the center. But in spite of that, Mitchell managed a smile. Pointing to the vaulted, glass-covered lobby, he said, “We didn’t lose one panel of glass in this beautiful place.”

The Kravis Center for the Performing Arts features a unique and grand facade. Its round front soars almost five stories with over 15,000 square feet of glass. Since its 1992 opening, the building has sustained only minor damage to the glass panels from windborne debris during moderate storm events and, on occasion, from vandalism. Over the years, the management and board of directors discussed installing some type of protective laminate film on the windows.

After an act of vandalism almost 5 years ago, the board of directors decided to strengthen the glass panels in the front of the lobby against high winds, windborne debris, and acts of vandalism. In October of 2001, they purchased and installed the anchored film glass laminate system for the lobby windows, considered one of the products best suited for retrofitting existing fixed commercial tempered or plate glass windows. Installation was completed in the spring of 2002.

“Yes, we bought the system [anchored film glass laminate system] for \$170,000,” said Mitchell. “Quite frankly, however, we didn’t think it would work. But then another incident occurred. Although a high window panel shattered when hit by a bullet, the broken glass, held by the anchored laminated film, stayed in the frame. The bullet was trapped between the broken glass and the film laminate.” In fact, the damaged window remained in place until the replacement panel could be installed.

Then came the back-to-back hurricanes in 2004. The windows remained in place, without damage. They kept the wind out of the building, and that, according to Mitchell, helped keep the roof system intact. “If the roof system had been structurally damaged, we [Kravis Center] could have been shut down for our entire season.”

“Culturally, the cost of closing the center would be immeasurable,” said Brian Bixler, publicist for the Kravis Center. The estimated economic loss to the community, based on governmental surveys of money spent by those attending theater events, would exceed \$20 million if the season was lost, and that does not include the cost of repairs.” Had the windows been breached, allowing wind into the building, repairs to a damaged roof system could have exceeded \$1.5 million.

“There is not one member of the board of directors who is wondering, at this point, if they made the right decision by purchasing the anchored film glass laminate window system,” said Bixler. “It worked.”

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region IV**

State: **Florida**

County: **Palm Beach County**

City/Community: **West Palm Beach**

Key Activity/Project Information

Sector: **Private**
Hazard Type: **Hurricane/Tropical Storm**
Activity/Project Type: **Retrofitting, Structural**
Activity/Project Start Date: **10/2001**
Activity/Project End Date: **03/2002**
Funding Source: **Private funds**
Funding Recipient: **Cultural Facility**
Funding Recipient Name: **Kravis Center for the Performing Arts**

Activity/Project Economic Analysis

Cost: **\$170,000.00 (Estimated)**
Non FEMA Cost:

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **Unknown**
Value Tested By Disaster? **Yes**
Tested By Federal Disaster #: **No Federal Disaster specified**
Year First Tested: **2004**
Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: <http://www.floridadisaster.org/BRM>
Reference URL 2: <http://www.cityofwpb.com/eoc/hur.htm>

Main Points

- Purchased and installed the anchored film glass laminate system for the lobby windows, considered one of the products best suited for retrofitting existing fixed commercial tempered or plate glass windows.
- The windows kept the wind out of the building, thus, keeping the roof system intact.
- Financial losses avoided are estimated at \$1.5 million for the facility and \$20 million for the community.



Entrance to Kravis Center for the Performing Arts



A bullet fired from the street struck window panel in the front lobby