

## Metal Shade Canopies Protect Sea Lions' Eyesight

Blank Park Zoo | Des Moines, Iowa

### CHALLENGE

In general, seals and sea lions in captivity tend to have more eye problems than other zoo animals. Although the exact reason for their ocular ailments has not been pinpointed, some research suggests it is related to the animals prolonged exposure to sunlight and the amount of light that reflects off the surface of the swimming pools in their zoo habitats. As part of a complete renovation of the sea lion exhibit at the Blank Park Zoo in Des Moines, Iowa, Mark Vukovich, chief executive officer of the zoo, began to look into ways to protect the zoo's five pinnipeds – some who already suffer from vision problems – from the sun's harsh reflectivity. "The last thing we want is for animals to be harmed in captivity. Providing them with respite from the sun will be invaluable to their health," Vukovich reports.

Timothy Korpela, P.E., professional structural engineer and owner of Korpela Engineering Structural Services Company, was challenged with finding a shade structure with the strength to withstand the varying weather conditions in Iowa, in addition to increasing the aesthetic value of the exhibit. "What a lot of zoos across the country do is use a fabric shading approach. We knew that wouldn't work well in Iowa because of the snow and wind we experience," Korpela explains.

### SOLUTION

Korpela determined that large canopies with metal as the covering would not only provide adequate protection for the sea lions, but would also be strong enough to withstand the weather in Iowa. Based on the project's performance objectives, Greg Brown, a local representative of The Garland Company, Inc., recommended the installation of Garland's R-Mer® Span structural standing seam roof system on the 1,200-square-foot canopies. The canopies, designed to resemble large umbrellas, are located on the pool's island, providing maximum shade coverage over the pool area. The canopy framing was constructed using cylinder steel piping, allowing for an open structural framing system that is both lightweight and aesthetically pleasing.

The canopy design features 24-gauge, 16-inch wide R-Mer Span panels that were attached to 16-gauge, one-piece clips on the framing system, eliminating the need for exposed fasteners and allowing for thermal movement. The panels, varying in length from 5 feet to 25 feet, provide the industry's highest wind uplift rating and were engineered to withstand 40 lbs. per square foot of snow. Additionally, the metal system requires little to no maintenance and was engineered with the goal of reaching more than 30 years of service life.

With the addition of the shade canopies and plans for four more, the zoo now has the opportunity to rescue more seals and sea lions, providing them with a safe and healthy life in captivity.

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### Greg Brown

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Mark Vukovich  
CEO, Blank Park Zoo

## RECREATION



**Project:** Blank Park Zoo Sea Lion Exhibit  
**Location:** Des Moines, Iowa  
**Garland Rep:** Greg Brown  
**Engineer:** Korpela Engineering Structural Services Company  
**Contractor:** Modern Builders, Inc.  
**Materials Used:** R-Mer® Span