



Buffalo Zoo SA Tropical Rain Forest

Buffalo, New York USA

The Buffalo Zoo in upstate New York gathered funding to add an exhibit that would mimic the conditions of a small slice of a rain forest in South America. With highly contrasting climate conditions, this posed a challenge to the architectural design and zoo administration team.

Cladding the roof with an ETFE pneumatic cushion system was the ideal choice as it best met all of the criteria that could support the micro climate. The transparency of the roof system was a key factor and the triple layer ETFE cushion system offered an equal transparency to a glass system. The added benefit of the ETFE system was the reduction in the supporting structural steel. Not only was the required structural weight considerably less, it was also designed with greater spans and much less visual obstruction than could have been done with any other system. The completed system, ETFE cushions and structural steel combined, allowed for the greatest amount of natural sunlight to flood the space and the best overall value.

In order to sustain plant and animal life, the transmission of ultra-violet rays into the space was key. ETFE does not restrict UV light transfer, while being inert to its degradation effects, thereby allowing for animals to maintain normal development levels of Vitamin D without the need for supplementing it into the animals' foods.

Because of the cushion system's transparency, a great deal of solar gain is achieved. In order to prevent the space from overheating, Structurflex designed and supplied a mechanical louver system that would open 12 cushions at the ridge to allow for passive ventilation.

