



SOUTH AMERICAN RAINFOREST RECREATED FOR NORTH AMERICAN ZOO

TITLE	Buffalo Zoo SA Tropical Rain Forest
DESCRIPTION	Zoo enclosure
LOCATION	Buffalo, New York, USA
COMPLETED IN	2008
FABRIC AREA	11,000ft ²
FABRIC TYPE	ETFE – Triple Layer Cushion System
ARCHITECT/CLIENT	Foit Albert & Associates / Buffalo Zoo



BUFFALO ZOO SOUTH AMERICAN TROPICAL RAIN FOREST BUFFALO, NEW YORK USA

The challenge – create the extremes of a rainforest within one enclosure

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

In order to sustain plant and animal life, the transmission of ultraviolet rays into the space was key. Zoo keepers wanted to maintain normal development levels of Vitamin D, so that special dietary supplements wouldn't be necessary.

The solution – a soaring canopy

To support the required microclimates, the architects hit on the idea of cladding the roof with a transparent ETFE pneumatic cushion system supported by structural steel.

The transparency of the triple layer ETFE cushion system is equal to a glass system, so sunlight can penetrate the enclosure. ETFE does not restrict UV light transfer; nor does it break down from UV exposure. Also, ETFE is 1/100 the weight of glass, so there's less supporting structure to obstruct visitors' views.

To manage solar gain achieved by the cushion system's transparency, Structurflex designed and supplied a mechanical louver system that opens up 12 cushions at the ridge to allow passive ventilation.

