

## New Entry Pavilion, Community Center & Giant IMAX Theatre of the Kansas City Zoo



*The Deramus Educational Pavilion - Main Entrance*

**T**he Deramus Educational Pavilion of the overhauled Kansas City Zoo opened in December of 1995.

This 75,000 sq. ft. pavilion is actually two interconnected buildings. The first building is the entryway for the visitors of the zoo, illuminated by a large skylight and adorned with tropical plants. The sloping ceilings and curved walls of this building add to provide a natural atmosphere. The building's energy concept was designed to absorb sunlight in colder months and to deflect the sun's rays in summer.

The second building primarily houses a 400-seat IMAX theatre with a 65 x 85 ft. screen complete with a futuristic sound system. A community resource center with conference rooms, kitchen, general offices and a gift shop form an integral part of this building's makeup.

Both structures are accented on the outside with copper sheathing and characterized inside with natural lighting.

The final cost of the Deramus Educational Pavilion was \$16.3 million. The project architects were Berkebile Nelson Immenschuh McDowell Architects, Inc. and the mechanical engineers of this project were ME Group Consulting Engineers and U.S. Engineering Company.

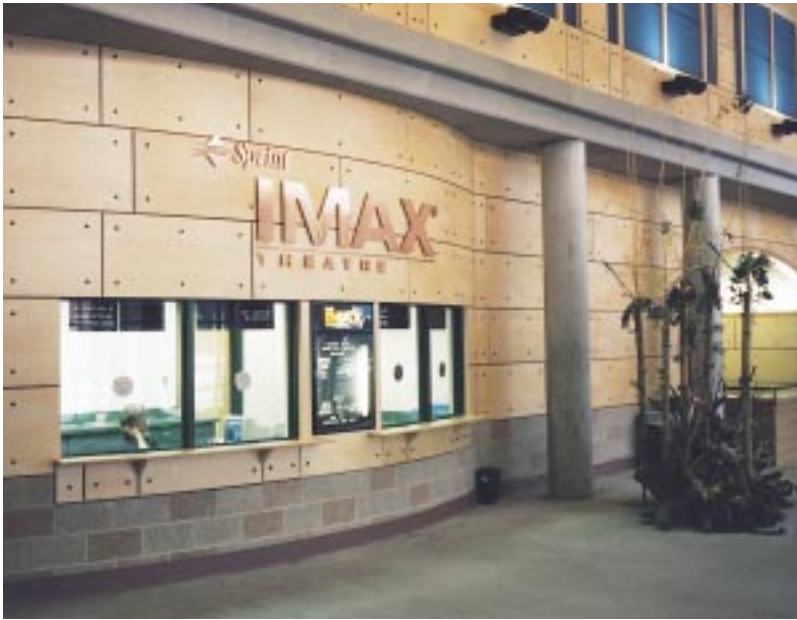
### Indoor Air Quality for Year Long Comfort

When a 400-seat IMAX theatre, community center, offices and a foyer with tropical plants incorporating large glass windows are located at the entrance of a city zoo, in an area with some of the most extreme summer and winter design conditions, the engineer is faced with some very difficult tasks.

Common factors such as the varying people load of the theatre, solar heat gain and loss due to large windows, combined with the requirement to maintain precise atmospheric conditions for tropical plants, an extensive range of internally generated contaminants produced from different areas and activities and more importantly, the malodorous condition of the outdoor air, required a specially designed air handling unit.

Cooling, heating and ventilation had to be

## 400-Seat IMAX Theater



combined with gas phase filtration since the outdoor and recirculated air needed to be filtered to remove gaseous contaminants and odors.

The Kansas City Zoo required a total air treatment system that would provide a comfortable energy efficient environment combined with superior indoor air quality. The custom air handling unit provided for this special application was a Circul-Aire Modular DAS-1010-SP.

## Total Air Treatment - The Solution to Indoor Air Quality

A 52,000 CFM unit was completely built by Circul-Aire in 3 sections of 176''W x 86''L x 136''H; 176''W x 110''L x 136''H; and 176''W x 98''L x 136''H.

Built of double wall construction on 6'' structural channel with checkered plate floors, the Circul-Aire air handling unit consists of a 250 Kw preheater installed in the outside air intake plenum followed by a mixing box, a contaminant removal section with prefilters (30%), chemical media section with reusable steel modules (MM-18) containing Circul-Aire MM-1355 Multi-Mix media, and after-filters (30%). The purified air then passes across the cooling coil section consisting of stacked stainless steel glycol cooling coils. All of the conditioned air is then fed through a fan section consisting of a 54'' diameter, 75 HP plenum fan in a 4'' thick sound insulated cabinet. Some of the unique features of this unit are the high pressure knurled knob latch assemblies, double pane windows on all doors, as well as marine lights in all service areas.

## Tech-Chek Service for Maintenance Monitoring

The maintenance of the air handling unit has also been simplified with the Tech-Chek Service supplied by Circul-Aire. With this exclusive service, media samples are tested in order to verify consumption rates. This lifetime service is monitored by a computerized program from Circul-Aire that indicates the appropriate schedule for media replacement. The laboratory analysis, supplied at no additional charge, not only provides a precise maintenance schedule but also ensures the highest performance of the air handling system installed at the Kansas City Zoo.



**Circul-Aire Model: DAS-1010-SP**

FOR MORE INFORMATION ON A SPECIFIC APPLICATION, PLEASE CONTACT YOUR LOCAL REPRESENTATIVE OR CIRCUL-AIRE.

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