



Spring 2006  
Vol. 2, No. 1

# STRUCTURE & SITE

Updates & Information from Klepper, Hahn & Hyatt

## Penguin Coast Exhibit Promotes Breeding of an Endangered Species

*Richard L. Applebaum, P.E., SECB, was the Principal-in-Charge for the Penguin Coast Exhibit project. The project manager was David A. Bauer, P.E., SECB, an Associate of the firm.*

For designers of the built environment, it is gratifying to realize directly the successful results of a project. At least part of that success is measured by the effects

duplicated the penguins' native habitat, the rocky South American coastline of Chile and Peru. The construction cost was \$3.7 million.



*A keeper watches over Humboldt penguins in the Penguin Coast Exhibit at the Rosamond Gifford Zoo.*

Concrete was used to construct the 50,000-gallon freshwater pool, simulate the cliffs and rock burrows for nesting, and structurally support the buildings. Six different windows allow observers to view penguins swimming underwater, waddling along the shoreline, and exploring their indoor holding area. The exhibit's tank can be heated or cooled, and the "beach" as well as the rocks in the burrowing cavities can be heated if it gets too cold during the winter.

on the inhabitants of that environment. By those standards, the *Penguin Coast* Exhibit at the Rosamond Gifford Zoo at Burnet Park in Syracuse, New York, has achieved its intended purpose.

The Life Support System Building and the Husbandry Building are primarily masonry wall bearing structures with cast-in-place concrete storage tanks. They are generally hidden from view by the positioning of artistic concrete rockwork. Contractors sculpted rockwork in random formations for the habitat, mimicking a natural appearance for geological formations.

The new attraction both delights and educates the viewing public. It was also designed to encourage penguin breeding, helping to ensure the survival of the endangered Humboldt penguin. This spring, four new chicks were hatched, adding to the original flock of 19 from several breeding programs around the country.

Several structural challenges emerged. The exhibit retaining wall was designed through a complex geometry that randomly shapes the pool. This retaining wall functions as a pool wall which supports acrylic viewing panels, one of which is angled for a better view of the depth of the pool. These panels, some with varying degrees of submersion views, demanded tight concrete tolerances.

Klepper, Hahn & Hyatt designed the reinforced concrete and masonry structural elements for the exhibit. Concrete in a variety of forms and applications

*Continued on page 2*

### Contents

**Penguin Coast Exhibit Promotes Breeding of an Endangered Species** ..... 1

**Building Envelope Division Offers Valuable Services** ..... 2

**Four KHH Employees Attain Associate Status** ..... 3

**New and Noteworthy** ..... 3



## ***Penguin Coast . . . . . from page 1***

Initially the pool was to be filled with salt water, but it was changed to freshwater containment with an option to introduce salt water in the future. Galvanized reinforcing bars were specified in all of the fluid containment areas, along with two inches of reinforcing cover to give the structure greater longevity in a saltwater environment. In the Life Support System Building, joints for future walls were detailed with split waterstops and a joint cover for the addition of future tanks.

Plans called for a slurry coat of cementitious crystalline waterproofing to be applied to the wet side of the fluid containment surfaces. The contractor also had the option to use this waterproofing

integral with the concrete mix. Cementitious crystalline waterproofing is a blend of Portland cement, fine treated silica sand and active proprietary chemicals. When mixed with water and applied as a cementitious coating, the concrete becomes permanently sealed against the penetration of liquids.

The project became a new public centerpiece for the Rosamond Gifford Zoo and a source of community pride and enjoyment. The *Penguin Coast* Exhibit won a Silver Award this spring for Excellence in Concrete Design and Installation from the Central New York Chapter of the American Concrete Institute.



## **Building Envelope Division Offers Valuable Services**



*Photos taken at Colgate University show ballast being removed from a ballasted EPDM (single-ply) roof (top photo), and a modified bitumen roof under construction (bottom photo).*

The KHH Building Envelope Systems Division is heading full-tilt into summer, with roofing and facade work increasing as building owners and facilities personnel invest in repairing, maintaining and preserving their structures. From a structural viewpoint, the building envelope is composed of the elements that provide the barrier between the indoor and the outdoor environment, including walls, roofs and foundations. The integrity of those structures impacts everything from energy efficiency and environmental compatibility to a building's longevity.

“Clients value periodic (three- to five-year) inspections for maintenance, which reduce the average annual cost-per-year over time,” according to Toby Nadel, A.I.A., the division manager. “The real cost of a roof is its annual cost, not its initial cost. We partner with the owner, contractor and manufacturer for each project. For the greatest success, the owner must be committed to a maintenance schedule.”



# Four Employees Attain Associate Status



**David A. Bauer, P.E.**

Four staff members of Klepper, Hahn & Hyatt have been promoted to the position of Associate.

David A. Bauer, P.E., SECB, was promoted from project engineer. Mr. Bauer has been with the firm for seven years and has twenty-two years of experience in structural design. Also in the Structural Division, Kelly M.



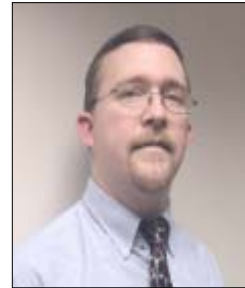
**James Palumbo, R.L.A.**

Covert, P.E., SECB, was promoted from project engineer. Mr. Covert has ten years of experience, nine of those with the firm.



**Kelly M. Covert, P.E.**

In the Division of Landscape Architecture, James Palumbo, R.L.A., was promoted to Associate. Mr. Palumbo has thirteen years of experience and joined KHH in 1995. Mark D. McIntyre, R.L.A., was also promoted in this division. Mr. McIntyre has eleven years of experience. He has been with Klepper, Hahn & Hyatt since 2000.



**Mark D. McIntyre, R.L.A.**



## NEW AND NOTEWORTHY



**Michelle Benoit**

KHH welcomed Michelle Benoit, who is working at the firm this summer as a structural engineering intern. Michelle is on track to graduate in December 2007 from The Pennsylvania State University at State College with a Master of Architectural Engineering degree. Michelle grew up in Vermont, and her parents have relocated back there after moves to Wisconsin and Pennsylvania. She has always had a math and science orientation, she said, and enjoys the combination of engineering and architecture in her coursework. When she is not engaged in design work, she most enjoys being with her horses. Michelle has ridden for 15 years in various equestrian

disciplines, and loves to train horses and teach riding to others. She intends to balance an engineering career with her equestrian pursuits.



**Robert J. Larosche, P.E.**

Robert J. Larosche, P.E., SECB, has been certified as a Structural Masonry Special Inspector by the International Code Council. This specialization acknowledges his expertise in structural masonry inspection, both reinforced and non-reinforced. Bob is the manager of the KHH Inspection Services Division.



## Klepper, Hahn & Hyatt

STRUCTURAL ENGINEERS • LANDSCAPE ARCHITECTS  
KHH BUILDING ENVELOPE SYSTEMS DIVISION • KHH INSPECTION SERVICES DIVISION

5795 Widewaters Parkway  
Syracuse, New York 13214

Voice: 315.446.9201  
Fax: 315.446.9205

mailbox@khhpc.com  
www.khhpc.com