



## **High-yield Fireproofing and High-Performance Application Setup Strike a Winning Balance at Reno's National Bowling Stadium**

By Larry Schilling

# **The Fireproofing Application That Bowled Them Over**

**W**hen form reshapes the mold that function traditionally dictates, one common result is a lot of extra work. As its name suggests, the new National Bowling Stadium in Reno, Nevada, is a most unusual structure—a facility of coliseum-like proportions dedicated to a sport that usually evokes mundane architectural images more in line with “the local lanes.” For the design-build team headed by Reno-based general contractor Krump Construction Inc., the structure’s unprecedented scale, together with certain unique design elements, led to many long hours with the city’s Building Department in order to define fire protection requirements for the project. Fortunately, the actual application of the fire protection

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*Photo (above): Spray application for the cavernous tournament and grandstand area on the fourth level of the stadium was accomplished using booms to reach 36-foot-high decking. (Photo by Randy Stubbs, San Diego, Calif.)*



*Designed and built on a scale best described as colossal, the National Bowling Stadium covers more than a city block in Reno, Nevada. With a highly efficient dual-nozzle operation, the application of sprayed fire protection by Daw Incorporated was an eight-month project. (Photo courtesy of Daw Incorporated.)*

proved to be both timely and cost-effective due to a highly efficient wet-spray (cementitious) fireproofing solution provided by Daw Incorporated of Salt Lake City, Utah.

Owned by the Reno-Sparks Convention and Visitors Authority, the National Bowling Stadium is destined to become a mecca for the bowling faithful. With 80 lanes and grandstand seating for over 1,000 spectators, the stadium will open officially in February 1995 as host to

the 1995 National American Bowling Congress Tournament, which expects to attract up to 100,000 entries and many thousands more enthusiastic families and fans.

The 363,000-square-foot, \$40-million facility that awaits those bowlers and spectator spans more than a city block. In addition to the tournament area and spectator seating, its fourth floor main bowling level efficiently supports a variety of functions for large-scale competi-

tions, including ABC registration, a “squad area” for bowling teams and concessions. A 344-car parking garage is the core of the first three levels, which also house an atrium and retail space for several large tenants, including a pro shop and Ruby’s Stadium Diner, a southern California, 1950s-style eatery. With a distinctive sloped facade featuring terraced planters, the structure is topped at its entrance by an 80-foot-diameter mirrored sphere that abstracts the symbol

of the sport while functioning as a 360° family theater. Construction, which began in April 1993, was completed in September 1994, except for some remaining tenant improvement work.

#### **DETERMINING THE RATING**

Fire protection requirements for these vast spaces and varied venues were addressed in several stages with Daw's application of sprayed fire protection extending from September 1993 through April 1994. Broad parameters for fire protection were incorporated in the conceptual design for the structure. Conceptualized bidding based on working drawings by

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Krump and Worth Group Architects, also of Reno, produced the winning design and proposal that prevailed over four competing bids.

Establishing fire ratings, securing official approvals and determining necessary thicknesses required a considerable investment of time. Both Krump Project Manager Ron Deal and Worth Group Project Architect Pat Pusich participated in extended conferences with the city on fire ratings alone. "Fire ratings are a function of building occupancy and construction type," explains Pusich; but as Deal points out, "the bowling stadium is very unique, and there were no precedents for addressing important factors such as certain exiting issues."

Both men mention the particular challenge of classifying and rating the structure's sloped facade, which was ultimately deemed a roof rather than

a wall for fire protection purposes, requiring a one-hour assembly. Code requirements for the structural steel resulted in sprayed fire protection on the primary steel members extending to a height of 25 vertical feet.

The high-yield sprayed fire protection solution provided by Daw for the Krump team's winning proposal proved especially beneficial in compensating for some of the uncertainties inherent in the conceptualized bidding process where the full scope of work is not easily defined.

According to Steve Lawson, project manager for Daw, Isolatek International's Cafco® 300 wet-spray concealed fire protection provided a substantial thickness advantage over both the dry-spray and alternative wet-spray products that were considered. "The wet-spray product gave us the ability to achieve the specified fire ratings at higher density and less thickness," Lawson

explains, "and this product doesn't require any corrosive additives, which saved us additional expense and simplified our setup." For the 17,000-bag project, he estimates the thickness advantage contributed a 25 percent favorable cost differential through lower material and labor costs.

#### **PUMP UP THE VOLUME**

Lawson also points to the experience factor as a plus in Daw's solution and application. "With extensive use of Cafco 300 since this product became available two years ago, A. J. Hill, our superintendent on the bowling stadium job, has achieved tremendous production rates," he comments. "Its [ease of use is] certainly a factor in the effectiveness of A.J.'s setup on the job."

Driven by a powerful Roland's/Thomsen pump, Daw's fireproofing operation for the stadium provided





The building team responsible for the fire protection of the new stadium included (from left) Jerry Schwartz, owner's representative for the Reno-Sparks Convention & Visitors Authority; A. J. Hill, fireproofing superintendent for Daw Incorporated; Bob Treadway, Daw's assistant project manager; Joe Lazo, superintendent for Krump Construction; and John Stolz, Daw's project superintendent. (Photo by Randy Stubbs, San Diego, Calif.)



Retail space for several large tenants on the first three levels of the facility also required sprayed fire protection (Photo by Randy Stubbs, San Diego, Calif.)

maximum reach with minimal crew. Using dual nozzles with hoses each up to several hundred feet long, Hill's five-man crew was able to cover a lot of territory from a single pumping station. The primary staging area was located in the "retail area" near the structure's perimeter for easy access to and disposal of water for priming and cleaning out hoses as well as production.

In addition to a worker mixing the product and manning the central pump, two men worked each hose—one at the nozzle and one conveyance operator who also handled cleanup. Hill explains that booms were used to reach 36-foot-high decking on the fourth level, while lower ceiling heights in the retail area permitted the use of rolling scaffolds and pole guns provided sufficient reach

for clearances under 11 feet in the parking garage.

According to Hill, two layers of material—one brown coat over the scratch coat—were sufficient throughout most of the facility to achieve tire resistive ratings of two hours for the structural frame and floor system, and one hour for the roof system. A third coat was necessary for some decking areas with thinner steel and no concrete on the exterior. "We allowed a full day between layers because of longer set time during the cold weather," he explains. Heating requirements complicated the setup, and gas-powered mobile heaters and visqueen draping were used to control temperature.

While delay in the concrete pour until the application was complete simplified cleanup at the staging area, easy cleanup around application areas was attributed to the fireproofing's handling characteristics. "Cafco 300 is less slippery underfoot," Hill says, "and its overspray to the floor is less. Any overspray scrapes right off."

The fire protection throughout most of the stadium was subsequently concealed by wall board and other coverings. The exception was the garage, where the smooth, hard, white finish of the applied product shows to good advantage on steel columns and beams that remain exposed.

For the project managers who spent so many hours discussing fire protection on the front end of this project, the efficiency of Daw's application and the performance of the Cafco 300 wet-spray product were particularly gratifying. Touchups were limited to "a couple of places where the temperature dropped below freezing," said the Worth Group's Pat Pusich. Ron Deal from Krump adds, "This was a very interesting job with lots of challenges. From our viewpoint, the fire protection application went very well." □

#### About the Author

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