



WATERPROOFING MEMBRANE ENSURES CRYSTAL COURT'S FIRST DRY WINTER



By Wendell Finken, RRO

The IDS Center's Crystal Court, part of the landmark IDS Tower, which plays a prominent part in the Minneapolis skyline and is the centerpiece of one of the world's most extensive skyway systems, is also the primary gathering place in downtown Minneapolis, Minnesota. It is the one place where business and commerce converge daily in temperature-controlled comfort without having to step outside. The Crystal Court has eight different levels with a total of 298 skylights separated by narrow 10-in gutters. Waterproofing these gutters between the skylights had been extremely difficult, and the yellow "wet floor" signs were never consistent with the quality and character of this icon property.

AMBE Ltd., building envelope and waterproofing consultants, was hired to address these issues.

There were various challenges to overcome in order to successfully provide a dry court. One problem was how workers could operate an inconspicuous waterproofing project directly above the estimated 50,000 people who walk through the Crystal Court on a daily basis. Design of the waterproofing system is difficult in itself, but the safety of the general public, sufficient access and safe working surfaces for the roofers, and the project's appearance were all factors that required consideration.

Movement of the structure was another concern in the roof system design. The steel and glass structure ranges from two to eight stories and covers over 32,000 sq ft. The steel framing is attached to a 57-story tower, which also creates movement.

Other factors that presented a concern were foot traffic for maintenance and cleaning and the removal of ice.

Cold, liquid-applied systems are monolithic, seamless, and conform to almost every configuration. These reinforced liquid-resin membrane systems fully adhere directly to practi-

IDS Tower in downtown Minneapolis, MN.

Daily work areas were set up to provide a work platform and a safe work zone and to protect the existing structure.





Overview of the IDS Crystal Court from the second floor Retail Roof section.

cally any structural surface – horizontal or vertical – thereby eliminating water migration behind and beneath the waterproofing and roofing membrane. The seamless bonding of the membrane to the substrate surface during application also eliminates any possibility of fatigue at laps and seams, because there aren't any.

Cold liquid-applied membranes are unaffected by standing water and ice conditions. Due to their exceptional bond

strength to substrate surfaces, the membranes form full closure to field surfaces, irregular flashings, and penetrations of every shape or material.

Kemper V-210 was tested in two different areas of the Crystal Court prior to making any final decisions. The first test area, installed in the fall of 2004, included waterproofing the area around three skylights on the eighth level. The second test area, completed the following summer, included approximately 12 skylights in an area of the Crystal Court known for problem leaks. Finally, in 2007, after experiencing three years of positive test results, the go-ahead was given to complete the remaining areas of the building.

All of the details were designed and reviewed, establishing a 20-year waterproofing warranty to

protect the facility and the ownership. The project was then put out for bid, and a contractor was selected to complete the project.

A special safety plan was written in conjunction with the local OSHA representa-



Scaffolding was erected to provide a safe working surface at the leading edge.

Specifier:
AMBE Ltd.

Contractor:
Peterson Bros.

Manufacturer:
Kemper System Inc.

Representatives:
KR Kline & Associates



Past moisture intrusion damaged the lightweight concrete deck.



10-inch spaces between the skylights limited the work space and made material delivery challenging.


tive, requiring all persons involved in the waterproofing project to be securely tied off at all times. Once scaffolding was erected and fall protection was implemented, all areas of the skylights were pressure-washed, removing years of soot, debris, and old coatings that had never adequately waterproofed the structure.

Minor repairs were necessary where the existing lightweight concrete had become saturated with moisture. These were completed with Kemperol® EP primer and silica to create a slurry mixture, and the voids in the lightweight concrete were filled and allowed to cure. Primer was used to prime the existing membrane, which covered the gutter and the vertical portion of the curbs

of the skylights. Primer was also used on the counterflashing metal and the structural I-beams on the vertical surfaces. All painted metal surfaces were ground to bare metal and primed.

“Application of the membrane was a

challenging procedure that required patience and creativity,” notes Richard Grobovsky, president of AMBE Ltd. “A tight time-frame was established, and the project was finished on time and within budget.” The project commenced in early July and was completed over the course of about ten weeks.

Careful selection, design, and application of the new waterproofing and roofing membrane have provided the IDS Crystal Court with what is believed to be its first leak-free winter and spring since construction. 

Wendell Finken, RRO

Wendell Finken, RRO, has been a roofing and waterproofing consultant for eight years, managing projects for a wide range of clients. With over 20 years of experience in the roofing industry, Wendell has worked on numerous difficult applications and provided solutions for successful projects. Some of his clients include major real estate owners, management companies, school districts, and state agencies.



RCI, Inc.
800-828-1902
www.rci-online.org