

SarnaProof



BUILDING TYPE: Arena

PROJECT:
Utah Olympic Oval
Kearns, UT

BUILDING OWNER:
Salt Lake Organizing Committee

GENERAL CONTRACTOR:
Layton Construction
Sandy, UT

ROOFING CONTRACTOR:
Clark's Quality Roofing
Salt Lake City, UT

ARCHITECT:
Gillies Stransky Brems Smith
Salt Lake City, UT

PROJECT SIZE:
204,640 sq. ft.

SYSTEM:
Mechanically Attached Sarnafast®

ROOFING MEMBRANE:
Sarnafil EnergySmart® White and
Custom Color Logo

Sarnafil Helps Keep the Olympics on Schedule

The Challenge:

In anticipation of the 2002 Winter Games, Salt Lake City is erecting buildings to host the various events. On every building, of course, is a roof—and that's how Sarnafil became involved with the Olympics.

For the speed skating events, the city proposed to construct an Olympic Ice Oval, also known as Oquirrh (pronounced "okerr") Park, with a base of concrete that expands and contracts with perfect uniformity. To create the perfect base for the Olympic speed skaters, it was imperative that the concrete remain dry—which is why the roof of the Olympic Oval played an important role in the construction of the building.

The Solution:

Layton Construction, the general contractor on the building project,

brought on Clark's Quality Roofing, a Sarnafil Elite Contractor, to install the roofing system.

Once the contractors were hired, it was time to decide on what kind of roofing system to install. Because the roof, which is constructed like a suspension bridge, can deflect up to 18 inches when the wind blows or when it's covered with snow, metal and built up roofing systems were out of the question. Instead, a high quality single-ply roofing system would be needed.

The solution was to go with Sarnafil's S327, a mechanically attached, polyester reinforced thermoplastic membrane, over two layers of Sarnatherm isocyanurate insulation totaling three inches. Sarnafil offered the system performance the building owner needed



together with the peace of mind of a roofing membrane with over thirty-five years of proven performance history.

Sarnafil also had local history. Sarnafil roofs had been performing successfully on many Utah buildings including the Delta Center, Temple Square, Bountiful Regional Center, and Weber State University.

The deciding factor was the logos—only Sarnafil could produce the membrane in custom colors to create the Salt Lake City and Olympic logos on the Ice Oval roof.

The color of the roof was more than an aesthetic choice. For the Olympic Speed Skating Oval to be designated as a LEED-rated building by the U.S. Green Building Council, the roof would need to remain cool in hot weather. The LEED (“Leadership in Energy and Environmental Design”) rating system evaluates environmental performance from a whole building perspective over a building’s life cycle, providing a definitive standard for what constitutes a “green building.”

In addition, the color of the roof had to be conducive to logos. For these reasons the architect chose Sarnafil’s EnergySmart® white roofing membrane. The EnergySmart Roof meets the Environmental Protection Agency’s ENERGY STAR® standard for roofing products and helped the Utah Olympic Oval become one of only 19 buildings worldwide with a LEED certification.

The actual roofing began on April 1, 2000. The rush was on, as “They needed to have the building operational by a certain date in order to have test events,” explains project manager Kevin Miller of the architectural firm Gillies Stransky Brems Smith. “An Olympic venue is required to have had a number of championship-level events in it prior to the Olympics to make sure the venue will function properly.” This was another reason that a single-ply system was chosen. “It’s much faster to get on,” says Miller. “A traditional built-up roof takes a long time to mop into place.”

This was no typical roofing project for Clark’s Quality Roofing. First of all,

there was the issue of cables. The roof employs a suspension-bridge system that removes the need for pillars that might block spectators’ views of the action. To have a moving cable was something that was going to be very difficult to get a watertight seal around.



Steel cable attachment to Olympic Oval roof.

To overcome this obstacle, Sarnafil technical field representative Dave Conder, Mountain Region sales representative Darrin Curtis, and the architect designed a steel plate that attached to the I-beam on which the metal deck was placed, and that had attachments for the cables above the roof. A metal hood was then welded onto the plate about 18 inches above the roof deck, and Clark’s Quality Roofing installed a wood curb around the metal plate below the hood. The roofers were then able to wrap the Sarnafil membrane around the curb in a watertight fashion.

After fastening the two layers of Sarnatherm insulation to the steel deck, the workers started laying out the Sarnafil roofing membrane. Because the project was fast-track construction, the roofing contractors started laying the roofing after only half of the deck was installed. “We started right behind the steel erectors and proceeded from the north to the south,” recalls Carl Clark, owner of Clark’s Quality Roofing.

Then catastrophe struck. In late April of 2000, the final towers on the south end of the building collapsed due to faulty anchor bolts. The accident led to a four-month delay in the roofing project as workers reconstructed and reinforced the collapsed towers and replaced all the anchor bolts in the building.

The deadline for the entire project was now tighter than ever. Workers were ready to pour the concrete in one large sweep to result in the smoothest piece of pavement in the world, and they needed a roof without delay so there would be no chance of moisture hitting the concrete. So triple crews of Clark’s workers, up to 20 men at a time, put their noses to the grindstone 12 hours per day and got the second half of the roof done in half the time it took them to do the first part.

The end of the project brought more challenges. Usually, membrane terminations are anchored to plywood or masonry. But in the Olympic Oval project, the towers were made of plate steel, with no way to attach the terminations. The roofing contractors had to come up with a plan that wouldn’t void the 15-year warranty. Clark’s Quality Roofing ended up using Sarnafil’s Sarnaclad Metal product, a membrane-clad sheet metal, to form the flashings. “It’s an integral part of the roofing,” says Clark. “Years from now, you won’t have a delamination problem.”

Clark’s Quality Roofing put in more than 5,300 man-hours on this 205,000 square foot project including installation of the logos on the roof. Sarnafil worked closely with the Salt Lake Organizing Committee to select the custom membrane colors to match the Salt Lake City and Olympic logos. The Sarnafil logo appears on the roof as well. The graphics help further distinguish what will be a landmark building of the 2002 Winter Olympic Games.

But even before the games began, it was apparent that the project was an Olympic-style success. “So far it’s been very good,” says Miller. “We’ve done many PVC roofs and have done a lot of work with Sarnafil, so we were very confident that it was going to work out well.”



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