

First Look: The Newest Sports Floor in the U.S.

By Ray Thompson Jr.



The finished gym floor with all of the colors of material and the lines completed.

Armstrong DLW Linoleum Sports Floors are made in a 127-year-old manufacturing facility in Germany. Three types of gymnasium floors are available: over 11-ply plywood; over two layers of sheet metal; and over a 6mm mat.

For this article, I'll be discussing a 6mm type mat that was put down, the least expensive of the three. The surface of the sports floor cannot be too sticky or too slippery — since both these elements help reduce the risk of injuries to players. In addition, the substructure should be able to absorb the shock of jumps and falls while providing optimum support for players' movements. Ball bounce is of course another important issue.

I worked with Kelly Hart of Hart's Athletic Floors of Snohomish, WA, on a new gym floor in the U.S. marketplace by Armstrong DLW Germany. There are many of these type gymnasium floors installed throughout Europe, but this is the first in the United States.

Moisture testing was done by an independent moisture testing company. The concrete was high in moisture content. There were eight in-situ tests done, with readings from 89.8 to 97.4. The temperature of the slab averaged 75°F.

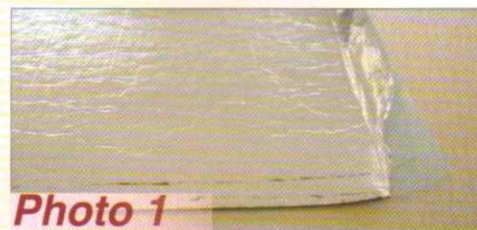


Photo 1

(Photo 1) With the moisture being high, a moisture membrane was used to eliminate the moisture from getting to the sports flooring. The recommended membrane for this sports floor is Floor Jet Reflex, a bituminous and foil layer that is loose-laid, and met the moisture-prevention requirements.



Photo 2

(Photo 2) The next layer or sub-construction is the Elastic Mat Gymflex II, a 6mm-thick sub-layer used to absorb the shock and ball bounce necessary for gymnasium use. It is adhered to the moisture membrane with a two-component urethane adhesive. It is spread with a 1/16" notched trowel and rolled with a 100# roller, rolled in both directions within 30 minutes, and again at a three-hour time increment.

Continued

The Newest Sports Floor in the U.S., Continued



Photo 3

(Photo 3) The next layer or sub-construction is the Elastic Mat Gymflex II, a 6mm-thick sub-layer used to absorb the shock and ball bounce necessary for gymnasium use. It is adhered to the moisture membrane with a two-component urethane adhesive. It is spread with a $\frac{1}{16}$ " notched trowel and rolled with a 100# roller, rolled in both directions within 30 minutes, and again at a three-hour time increment.

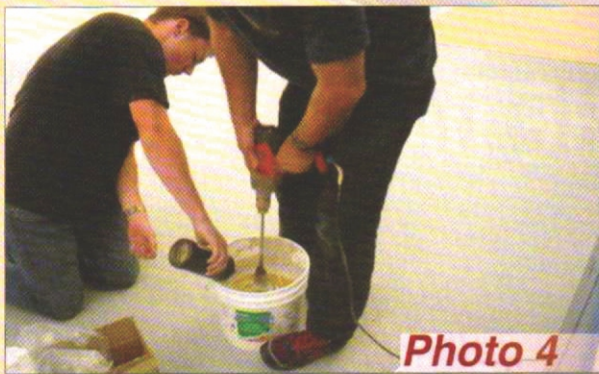


Photo 4

(Photo 4) Because the adhesive is chemically set, the area spread is limited by the temperature and humidity, so a spread may be done in multiple spreads. Working time will vary with temperature and humidity.



Photo 5

(Photo 5) The balance of the gymnasium is Nature Sport Wood Grain, which simulates a Maple gym floor. Starting in the center of the gym and working in both directions, align the seams with the keys and center circle. Again, a two-part urethane adhesive with a $\frac{1}{16}$ " notched trowel is used.

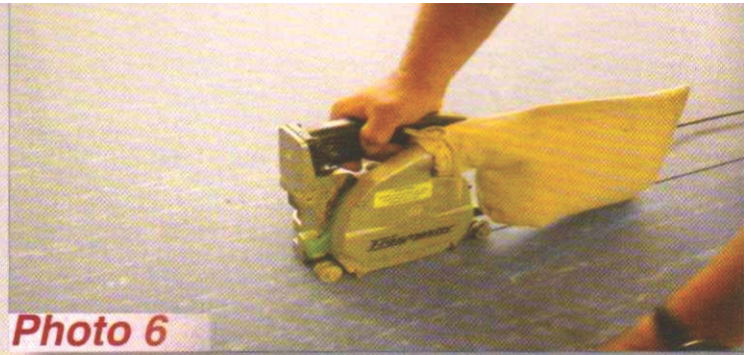


Photo 6

(Photo 6) A camouflage melt welding rod is used on the seams with the standard linoleum welding procedure. The groove is approximately two-thirds the thickness or 0.098" (2.5mm) of the 4mm Linoleum. In this case, the groove is cut with a power groover set to the 2.5mm thickness and has a 3.5mm blade (0.1379") width.



Photo 7

(Photo 7) Next, the long seams are welded with an automatic welder set at 750°-850°F (400°- 450°C). Allow the welder to thoroughly heat up before proceeding. In this environment, the welder was set at 415°C and traveling at 1.7 meters per minute. This will change with floor and ambient temperatures and humidity conditions.

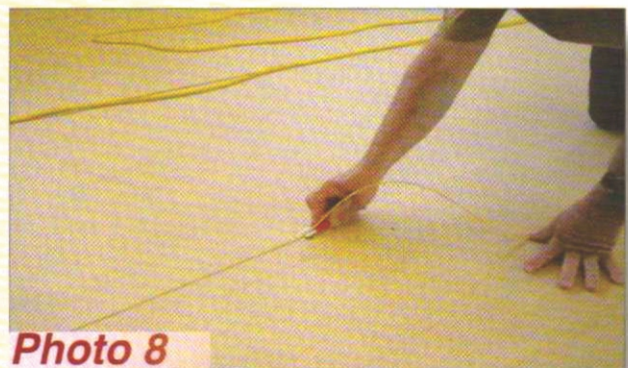


Photo 8

(Photo 8) The skiving was done in two passes with a Mozart Skiving knife (any sharpened skive knife and trim plate will work). With the first pass, a trim plate is used while the rod is still warm. For the second pass, the trim plate wasn't used so that a smooth, flush cut could be achieved. This was done after the rod had cooled to room temperature.

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The Newest Sports Floor in the U.S., Continued

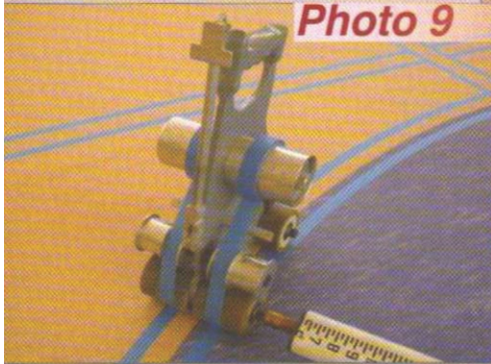


Photo 9

(Photo 9) Taping off the lines are time consuming but necessary to complete. The basketball court lines are installed first, then volleyball, followed by pickle ball lines.

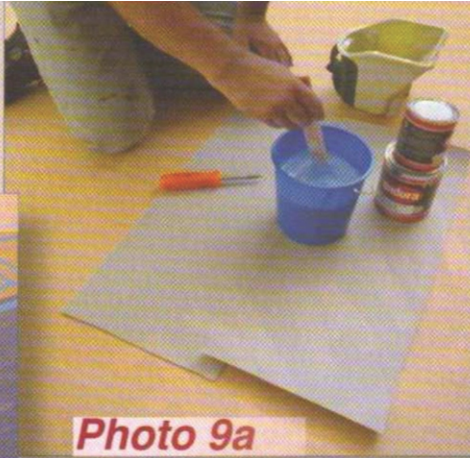


Photo 9a

(Photo 9a) Use a game line paint that is a flexible, two-component aliphatic linear polyurethane (lead free) paint. Make sure to test on samples before purchasing. Once approved, the lines are painted in reverse order: pickle ball, volleyball and basketball. Endura Manufacturing Co Limited of Alberta, Canada, is the manufacturer of the paint.

Photos courtesy of Ray Thompson Jr. and Kelly Hart of Hart's Athletic Floors

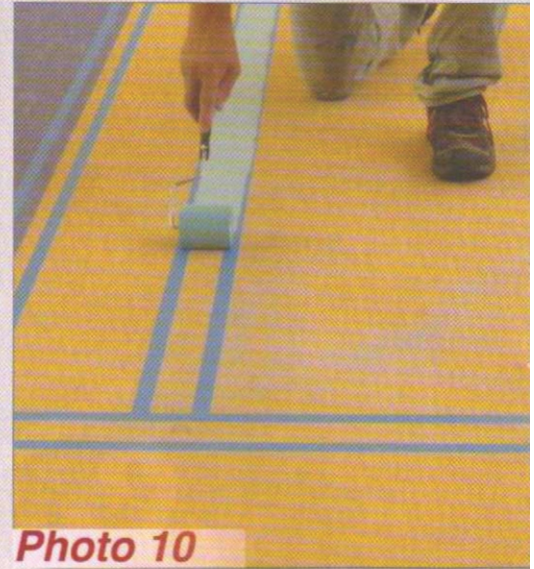


Photo 10

(Photo 10) Once approved, the paint is applied first by a 2" roller, ensuring that both sides of the tape are covered.



Photo 11

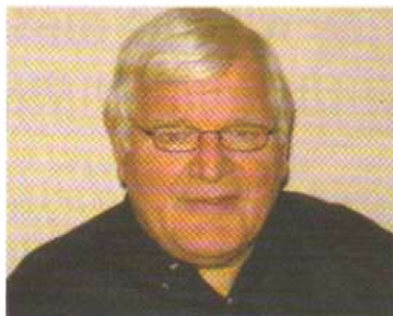
(Photo 11) Then, brush in one direction with a quality nylon/polyester brush (medium stiffness). This allows for the paint to self-level and be smooth. The tape is removed within two hours after the painting is complete. This is done by pulling the tape across the line, avoiding any voids or overrun.



Photo 12

(Photo 12) The wood base is special because it allows any moisture from beneath the floor to escape. It is available in Birch, Maple and Oak. It comes with a slot at the bottom for a rubber seal and is vented on 14" increments to allow for the moisture to dissipate, without affecting the flooring.

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About the Author:

Ray D. Thompson, Jr. of Cle Elum, WA is a consultant and trainer with experience in all aspects of resilient and wood flooring installation. He has been in the industry for 48 years serving as a senior field technical specialist, Armstrong World Industries concrete and resilient testing projects, plus consultant to Sea-Pac Sales, University of Washington, American Plywood Association, Floor Seal Technology, Sinak, and Stego Industries. Ray has expertise in developing testing projects, specs, troubleshooting, and claims resolution.